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Considering the influence of sexual frequency on age of menopause

Megan Arnot * [1], Ruth Mace [1,2]

[1] Department of Anthropology [University College of London] – Gower Street - London - WC1E 6BT, United Kingdom
[2] Lanzhou University – China

Objectives: In this study we test whether sexual frequency associates with menopause timing. Marital status is often found be predictive of age of menopause, with women who are married or widowed entering the menopause later than single or divorced women. As the negative health implications of early menopause and decreased fertility are significant health issues for women, we consider the pathway between marital status and menopause, investigating whether sexual frequency may serve as a bio-behavioural mediator.

Methods: Data were drawn from the Study of Women's Health Across the Nation, which is a longitudinal, multi-ethnic cohort study conducted in the US designed to collect data about the biological and psychosocial changes that occur alongside the menopause. Data from the baseline cohort (n = 3,302) and ten annual follow-up visits were analysed using a Cox proportional hazards model to measure the risk of entering menopause relative to sexual frequency. Marital status, race, education, body mass index (BMI), age of menarche, number of children, and smoking status were included as covariates.

Results: Results showed that, prior to adjustment, compared to women who have sex less than monthly, women who have sex monthly or weekly have a decreased risk of entering the menopause, with hazard ratios of 0.86 (95% confidence interval [CI], 0.80 to 0.93) and 0.78 (95% CI, 0.73 to 0.84), respectively. The relationship was maintained following full adjustment, with a higher level of education, higher BMI, a later age of menarche, having more children, and having never smoked associating with a later age of menopause. Marital status and race were insignificant after adjustment.

Conclusion: Women who engage in sex more frequently prior to the menopause reach menopause later than those who report having less sex, with sexual frequency serving as a possible bio-behavioural mediator between marital status and age of menopause.

Keywords: Menopause, Age, Sex, Proportional hazards, Marital status

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*Speaker

Early-life adversities and the presence of pathological personality traits in young adulthood

Béla Birkás * [1], Anita Deák , Norbert Meskó , Ferenc Kocsor , Ádám Putz , Luca Kozma , Tamás Bereczkei , András Láng

[1] University of Pécs, Medical School, Department of Behavioral Sciences – 7624, Pécs Szigeti str.12., Hungary

Early-life experiences appear to sensitize individuals to respond to adversities encountered in later life in a personalized manner. Life history strategies are adaptations to early-life circumstances, which specify the individual's patterns associated with survival and reproduction creating a path for the development of personality traits. Former studies suggest, that unstable and harsh environmental factors experienced in early-life, affect the development of social, emotional, and physical functions. In line with these findings, the aim of our study was to examine the possible associations between self-reports about early-life experiences and current indicators of pathological personality traits. To evaluate the presence or absence of early adversities, we used self-report measure of life history (Mini-K). To assess personality traits and their adaptive or maladaptive nature, we used the brief version of the self-report measure developed for the DSM V (PID-5-BF). The results indicate, that not only adversities, but also more stable early-life conditions can be linked to cues of pathological personality traits. Our findings might contribute to the more comprehensive understanding of the development and evolutionary origin of psychopathology and also to the growing field of evolutionary personality psychology.

Keywords: Life History Theory, evolutionary personality psychology, Mini K, PID 5 BF

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*Speaker

Reproductive Conflict and Child Mortality in Four Countries: A Cross-Sectional Study

Dugald Foster * [1,2], Rebecca Sear [3]

[1] Human Behaviour and Cultural Evolution Group, University of Exeter – Daphne du Maurier Building, University of Exeter, Penryn Campus, Penryn, Cornwall, TR10 9FE, UK, United Kingdom
[2] Evolutionary Demography Group, London School of Hygiene and Tropical Medicine – United Kingdom
[3] Evolutionary Demography Group, London School of Hygiene and Tropical Medicine – United Kingdom

Objective: A wide body of evidence suggests that many species, including humans, benefit from being cooperative breeders, investing time, energy and resources in the offspring and reproductive interests of kin in return for inclusive fitness gains. However, when resources are limited, reproductive conflict can also arise between relatives, with potential impacts on fitness. In this project, I review the evidence for reproductive conflict in humans, and test for effects of reproductive conflict on child mortality in four contemporary populations from lower-middle income countries.

Methods: Using Demographic and Health Survey data from Bangladesh, India, Nepal and Pakistan, I conduct multivariable logistic regression analyses to investigate the association between exposure to reproductive conflict and child mortality outcomes. Models control for variables known to impact child survival, such as maternal education, household wealth and twinning status. Overall, nearly 2 million births are included in the analysis. The analytical strategy and study hypotheses were pre-registered on the Open Science Framework, and all coding scripts used are available from https://github.com/dugaldfoster.

Results: Reproductive conflict in the form of overlapping births within 2 years between different mothers in the same household is associated with increased risk (Risk Ratio: 1.46-2.02) of child mortality in all four countries, compared to children born into non-conflict households.

Conclusions: Despite progress in the past century, child mortality rates in lower-middle income countries remain above national and international targets. Evidence provided by this study suggests that reproductive conflict is partly responsible for child mortality risk, and - if confirmed - should be considered in child mortality interventions in these populations. Variation in effect sizes of reproductive conflict on child mortality across countries may be due to variation in social norms regarding fertility, such as age at marriage and mate dispersal patterns, which themselves may have evolved to counter reproductive conflict within families.

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*Speaker

Inflammaging: blame the sons. Number of sons and maternal C-reactive protein level among postmenopausal women.

Andrzej Galbarczyk * [1], Mateusz Blukacz [1], Magdalena Klimek [1], Ilona Nenko [1], Magdalena Jabłońska [1], Grazyna Jasienska [1]

[1] Department of Environmental Health, Jagiellonian University Medical College – Poland

Objectives

Sons and daughters differently influence maternal physiology in older age. The higher number of sons, but not the number of daughters, may negatively influence maternal health and may be associated with a shorter life span of mothers. Number of sons may also contribute to increased inflammaging, a chronic sub-clinical systemic inflammatory state. Inflammaging is characterized by elevated levels of serum inflammatory mediators such as C-reactive protein (CRP). The aim of this study was to determine the impact of number of children, and number of daughters and sons on serum CRP concentration among older women.

Methods

This study was conducted amongst a rural Polish population. Serum CRP level was measured in 414 women, aged 45-92 (mean 61.8, SD 11.00), who had 4.0 (SD 2.15) children, including 2.1 (SD 1.49) sons and 1.8 (SD 1.43) daughters on average. Since CRP had a positively skewed distribution gamma regression models were used.

Results

There was no significant relationship between serum CRP level and the total number of children (β=1.03, p=0.338), after controlling for women's age. However, serum CRP concentration was positively associated with the number of sons (β=1.13, p=0.027) but not with number of daughters (β=0.98, p=0.670), after adjusting for women's age.

Conclusions

During pregnancy sons are more energetically demanding and can induce an immune-response in the mother against the male-specific transplantation antigen (HY) which may persist for many years. Our results confirm that sons may have more pronounced immunological impact on the mother also in later life. The vast majority of the studies investigating trade-offs between reproduction and women's health focus only on their lifetime reproductive effort, namely the total number of children born. Here we present another piece of evidence suggesting that number of children of each sex should be taken into account.

Keywords: Costs of reproduction, Immunology, Fertility, Life history theory

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*Speaker

Is C-reactive protein (CRP) a valid biomarker for capturing the trade-off between immunity and reproduction during the female menstrual cycle?

Gabriella Kountourides * [1], Alexandra Alvergne [1]

[1] School of Anthropology and Museum Ethnography, University of Oxford – 51/53 Banbury Road, Oxford, OX2 6PE, United Kingdom

Objectives:
To present the methodology for a study that investigates if CRP, a common marker of systemic inflammation, is a valid proxy for measuring female cyclical immunity, i.e. the life-history trade-off between immunity and reproduction during the menstrual cycle. The study will be pre-registered with the Open Science Framework.

Life history theory predicts that women experience a biased investment in reproduction at the expense of immunity during the postovulatory phase of the menstrual cycle. At the proximate level, this is expected to translate into cyclical variation in inflammatory levels. Previous studies used C-reactive protein (CRP), a common marker of inflammation, to capture menstrual changes in somatic investment. However, those studies have produced mixed results, possibly because CRP is not a valid measure of cyclical immunity. This study aims to answer the following questions: (1) Do CRP-concentrations change during the menstrual cycle? (2) Which body fluid provides the best sensitivity? (3) If CRP is not a valid marker, what might replace it?

Methods

The study will reuse data from OxWATCH, a project that examined changes in the well-being of women (18-40) after child birth. OxWATCH includes multiple and longitudinal biological samples (saliva, blood, urine) for 300 naturally cycling women in Oxford. Several markers of systemic (CRP, IgA/G) and cell-mediated (Th1/2/17) inflammation will be assessed in saliva and urine.

Predicted Results

The concentration of CRP, Th1/17 and IgG are predicted to increase most at acute inflammatory events (menstruation and ovulation) and slightly increase during the follicular phase. The luteal phase should display the lowest concentrations of inflammatory markers with the exception of Th2 and IgG, which are predicted to increase to allow implantation.

Implications
This study will provide an assessment of the validity of various biomarkers of immunological investment, which will inform future research on immune function, fertility and women's health.

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*Speaker

A Closer Look at Global Prevalence of Obstetric Fistula

Lexi Lang * [1], Cheryl Knott

[1] Boston University [Boston] – One Silber Way, Boston, MA 02215, United States

Obstetric Fistula (OF) is a fistula in which a passage forms between the vagina and either the rectum, ureter, or bladder. OF is usually the result of untreated difficulties during childbirth and maybe a result of the obstetric dilemma between the female pelvis and infant cranium. The estimated 2 million women suffering from OF globally are often in pain, immobilized, and ostracized from their families and communities. Reducing global rates of maternal mortality and morbidity is of international concern and a target of the UN Millennium Development Goals. OF research has been conducted almost exclusively in African and South East Asia, with limited research in the Middle East and none in South America. Known risk factors for OF include extreme poverty, high birth rate, poor access to health care, and high maternal mortality rates. We hypothesized that there are women at risk of OF in countries where prevalence has not been examined, especially South America where cesarian pregnancies are on the rise. Using data from the World Bank Data Base, we created 'fistula ranges' for the prevalence of each risk factor by calculating the range and standard deviation in the two countries with highest and lowest rates of fistula researched. Then, we compared the prevalence of each risk factor in unresearched countries. Our results show that countries were no OF research has been conducted fell within the fistula range for multiple risk factors. This is an alarming indicator that research should be conducted to assess the prevalence of fistula in these regions. This also raises interesting questions for the obstetric dilemma theory, as OF rates and cesarian rates can both be indicators of the obstetric dilemma. This study identifies crucial regions where women may be silently suffering or where an outside factor is successfully combating OF for future study.

Keywords: Obstetric dilemma, Obstetric Fistula, Obstetrics, Global Prevelance

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*Speaker

Why are men muscular? Tests of reproductive, hormonal and ecological hypotheses to explain variation in human male muscularity within populations of Bangladeshi and British men.

Kesson Magid * [1]

[1] Queen Mary University of London – William Harvey Research Institute, Centre for Endocrinology, John Vane Science Centre, Charterhouse Square, London EC1M 6BQ, United Kingdom

The development and maintenance of muscularity is metabolically costly and dependent upon testosterone. Humans show considerable sexual dimorphism in skeletal muscle, in comparison to other primates and other species. We contrast two evolutionary explanations of variations in human male muscularity. 1. Sexual selection: men are muscular as a signal of testosterone, demonstrating health, access to resources and reproductive competitiveness. 2. Provisioning: men are muscular because they contribute to subsistence and care of offspring and mates. To test for evidence in support of either or both of these explanations, we collected measures of salivary testosterone, mid-upper arm muscularity and demographic data from a cross-cultural population of men of Bengali ethnicity resident in Bangladesh and the UK, as well as a population of ethnic Europeans resident in the UK. We asked three questions: 1. Is muscularity is a reliable, sexually-selected signal of testosterone after considering social, ecological and ethnic variables? 2. Does testosterone of men cohabiting with a partner or young offspring differ from non-cohabiting non-fathers? 3. Does provisioning, ecology or ethnicity alter the relationship between testosterone and muscle? We found: 1. The strength and nature of correlation between muscularity and testosterone is contingent on social and ecological conditions; 2. Social conditions were not consistently associated with higher or lower salivary testosterone, but are contingent on ecological and ethnic characteristics; 3. Muscularity correlates with provisioning, ethnic and ecological variables in non-salivary testosterone dependent ways. We conclude: 1. Human muscularity is unreliable as a sexually selected signal of daily testosterone levels; 2. Cohabiting is associated with higher testosterone, but not muscularity, while fatherhood is associated with muscularity, but not testosterone; 3. Diurnal testosterone patterns, particularly in the first 30 minutes after waking, vary according to social variables, potentially representing temporal rebalancing of the anabolic and behavioural effects of testosterone.

Keywords: muscularity, sexual selection, testosterone, provisioning hypothesis

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*Speaker

Testing the bargaining model of depression in a forager-horticulturalist society

Sarah Myers [*] [1], Jonathan Stieglitz [2], Michael Gurven [3]

[1] Department of Anthropology, University College London – 14 Taviton Street, London, WC1H 0BW, United Kingdom
[2] Institute of Advanced Study in Toulouse – Institute of Advanced Study in Toulouse – Manufacture des Tabacs 21, Allée de Brienne 31015 Toulouse Cedex 6, France
[3] Department of Anthropology, University of California Santa Barbara – United States

Depression is characterised by low mood and a marked loss of interest in daily activities. Depression is also associated with productivity reductions which, on the face of it, are detrimental to fitness. Stressful life events and social tension precede the onset of most depressive bouts, leading to the suggestion that depression serves an adaptive function, analogous to a labour strike (Hagen, 2003). When an individual perceives that her efforts are benefitting social partners, yet she is not benefiting enough from interactions with those partners, she can, by becoming depressed and decreasing productivity, impose costs on those partners, thus pressuring social contract renegotiation to provide greater benefits for her. Conflicts of interest between group members, inherent in the small-scale cooperative networks that humans relied upon for survival in our evolutionary past, are proposed to have created relevant selective pressures underlying a propensity to facultatively adjust mood and productivity based on one's circumstances. Depression is thought particularly common in women because the alternative strategies of physical aggression or departure from the group would be less effective or too costly. However, it is yet to be ascertained whether depression can bring about beneficial changes as predicted by the bargaining model under conditions more representative of human evolutionary history. Among Tsimane forager-farmers of Bolivia, using longitudinal data on depressive symptoms and perceptions of resource access (n=265 women), we test the following predictions: 1) depressive symptomology prospectively predicts a reduction in perceived concerns; 2) depressive symptomology will decline over time when concerns are reduced. Results largely point *against* prediction 1 and evidence for prediction 2 is *mixed*, providing only limited support for the efficacy of depression as a bargaining tool in this society. We discuss the implications for the bargaining model, and the extent to which these findings are consistent with other models of depression.

Keywords: Depression, cooperation, Tsimane, bargaining model

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[*]Speaker

The origin of medicine and the placebo effect

Michel Raymond [*] [1]

[1] Institut des Sciences de l'Evolution de Montpellier (ISEM) – CNRS, UMR 5554 Institut des Sciences de l'Evolution (Université de Montpellier) – Place Eugène Bataillon 34095 Montpellier, France

How and why medicine evolved ? Medicine, present in all known cultures, is an ancient practice in the human lineage. All known medicines, from the oldest ones historically described, are a mix of drugs and magic effects. Drugs are initially mainly derived from plants, whose secondary compounds can have therapeutic effects. The 'magic' part, called placebo effect in modern societies, corresponds to a positive effect of social interactions involving a dominant individual, and is not restricted to the human species. In fact, various forms of placebo-like effects, or social support effects, could be found in animals, particularly in hierarchical species where dominance interactions generate stressful life. In this context of the unavoidable conflicts for status, the origin of medicine could be seen as a specialization to enhance the positive effect of social help using physiologically-active materials such as plants. This hypothesis will be discussed in details, allowing to understand whether auto-medication, as described in non-human primates, could be seen as a form of proto-medicine or not, and why alternative medicines are now growing in modern societies that promote a scientific approach not taking into account social effects.

Keywords: Evolution of medicine, social hierarchy, drug, social dominance, stress

[*]Speaker

Understanding Reproductive Health in Ethiopia

Rose Stevens * [1], Alexandra Alvergne [1]

[1] School of Anthropology and Museum Ethnography, University of Oxford – 51/53 Banbury Road, Oxford, OX2 6PE, United Kingdom

Objective: To present the methodology for a proposed study which aims to investigate the causes of variation in reproductive hormones, and the impact of such variation on the experience of contraceptive side-effects, before finalising the methodology and pre-registering it with the Open Science Framework.

Study Aims: To characterise the variation in endogenous progesterone levels and associated factors between different socioecological contexts in Ethiopia

To explore whether there is an association between endogenous levels of progesterone before the adoption of the injectable contraceptive and experience and severity of physiological side-effects after injectable adoption.

Methods: Firstly, we will conduct a qualitative investigation to understand the type, frequency and severity of side-effects experienced by Ethiopian women when using the injectable contraceptive. From this, a culturally-specific quantitative side-effects tool will be created.

Secondly, we will measure endogenous progesterone levels cross-sectionally of women living in three socioecological contexts; Ethiopian rural poor, Ethiopian middle class and British immigrant. Naturally cycling women will be recruited and saliva samples to measure progesterone will be collected, along with other measures such as C-Reactive Protein levels (a marker of inflammation and collected through dried-blood spot sampling), anthropometrics and background sociodemographic data in order to investigate their influence on progesterone levels.

Thirdly, the same women will be followed longitudinally and their subsequent contraceptive use and experience of side-effects will be monitored, using the previously created side-effects tool. Only Ethiopian rural poor/urban middle class will be followed in this stage.

Predicted results: We predict that:

a) Ethiopian women living in rural poor contexts will have lower levels of endogenous progesterone levels than Ethiopian women living in middle class contexts, who will have lower levels than British immigrant women.
b) Women with lower levels of progesterone before adoption of the injectable contraceptive will experience more frequent and severe side-effects after adoption.

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*Speaker

ory.

Keeping up with the reproduction: short-legged edition

Anita Magdalena Zalisz * [1], Joanna Żyrek [1], Andrzej Galbarczyk [1], Magdalena Klimek [1], Ilona Nenko [1], Grazyna Jasienska [1]

[1] Department of Environmental Health, Jagiellonian University Medical College – Poland

OBJECTIVE

Life history theory suggests a link between developmental conditions in early childhood and subsequent reproductive strategy. Poor socio-economic conditions often lead to earlier sexual maturity and intensified reproduction among women. Leg length in one of the key indicators of the quality of the environment for growth during childhood development. Therefore, we propose that women with shorter legs will reach menarche earlier, will give birth to their first child at a younger age and have a higher number of offspring.

METHODS

The research was conducted in a group of 325 women (45 to 65 years old) from Polish rural population at the Mogielica Human Ecology Study Site. The questionnaire included data such as: age at menarche (mean=14.5, SD=1.44), age at first marriage (mean=23.1, SD=4.00), age at first reproduction (mean=23.7, SD=3.82), number of children (mean=3.68, SD=1.95) and years of education (mean=11.2, SD=2.97). Standing and sitting heights were measured and used to calculate the legs length, and leg-to-body ratio (LBR).

RESULTS

LBR was positively related to the age at menarche (β=0.16, p=0.003), after controlling for the year of birth of a woman. However, there was no association between LBR and the age at first reproduction (β=-0.02; p=0.46) or the number of children (β=0.01; p=0.84), after adjusting for year of birth, education and age at first marriage.

CONCLUSIONS

Our study suggests that poorer socio-economic environment during childhood, as indicated by shorter LBR is related to faster sexual maturation in women. However, our results do not provide support to the relation between conditions during childhood and reproductive strategy. A plausible explanation for this outcome is that in modern populations, social and cultural fac-

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*Speaker

tors in adulthood are more important determinants of reproduction than environmental quality during development.

Apolipoprotein E (ApoE) polymorphism and women's reproductive success

Joanna Żyrek * [1], Anita Magdalena Zalisz [1], Andrzej Galbarczyk [1], Magdalena Klimek [1], Ilona Nenko [1], Grazyna Jasienska [1]

[1] Department of Environmental Health, Jagiellonian University Medical College – Poland

OBJECTIVE

Some genes influence both health and fertility. The ApoE4 allele of gene encoding apolipoprotein E (ApoE) is potentially harmful and it is linked to higher risk of dementia and cardiometabolic disease. However, women that have this allele have higher levels of progesterone in menstrual cycles. Progesterone is crucial for implementation and maintaining pregnancy, thus the presence of the ApoE4 allele should translate into higher fertility. The main objective of this study was to examine if there is a relationship between the occurrence of ApoE4 allele and the number of offspring in women.

METHODS

The study was conducted in a group of 430 post-reproductive women aged 45–92 from Polish rural population at the Mogielica Human Ecology Study Site. Demographic and reproductive data were collected via questionnaires. Women had 4.0 children (SD = 2.15), including 2.1 sons (SD = 1.50) and 1.8 daughters (SD = 1.43), on average. Women were divided into two groups: 317 women who did not have the ApoE4 allele and 113 women who had at least one ApoE4 allele.

RESULTS

After adjusting for the year of birth of a woman, a number of the years of education and the age at the first marriage, there were no significant differences in the mean number of offspring between women who had or had not an ApoE4 allele ($F_{(1,\ 407)} < 0.01$; p=0.99). There were also no significant differences in the mean number of sons ($F_{(1,\ 406)} = 0.19$; p=0.66) and daughters ($F_{(1,\ 406)} = 0.27$; p=0.60).

CONCLUSIONS

We did not confirm any significant effects of ApoE polymorphism on women's reproductive success. It is likely that in modern populations, social and cultural factors are more important determinants of fertility than genes and physiological quality of menstrual cycles.

*Speaker

Do affective factors predict individual differences in facial expression recognition?

Sarah A. H Alharbi * [1], Lingshan Zhang [1], Kieran J O'shea [1], Vanessa Fasolt [1], Anthony J Lee [1], Lisa M Debruine [1], Benedict Jones [1]

[1] University of Glasgow, Institute of Neuroscience and Psychology – United Kingdom

Objective: Evidence that affective factors (e.g., anxiety, depression, affect) predict individual differences in emotion recognition is mixed. Palermo et al. (2018) recently reported that individuals who scored lower in anxiety performed significantly better on two measures of facial-expression recognition (emotion-matching and emotion-labeling tasks). By contrast, facial-expression recognition was not significantly correlated with measures of depression, positive or negative affect, empathy, or autistic-like traits. Because the range of affective factors considered in this study and its use of multiple expression-recognition tasks mean that it is arguably the most comprehensive investigation of the role of affective factors in facial expression recognition, we propose to carry out a direct replication.

Methods: Participants (N=160) will complete two standard facial expression recognition tasks (an emotion-matching task and an emotion-labeling task). Additionally, they will complete a battery of standard questionnaires assessing different affective factors (e.g., anxiety, depression, positive affect, negative affect, and empathy).

Results: If Palermo et al's (2018) results are replicated, then participants scoring higher on anxiety, but not the other affective factors, will perform more poorly on both the emotion-matching and emotion-labeling tasks. We will carry out additional robustness checks controlling for possible effects of participant sex and age.

Conclusions: Identifying factors that predict why some people are better at emotion recognition may provide important insights into individual differences in social behavior and the evolutionary basis of emotion recognition. Efforts to tackle this issue have been hampered by the lack of preregistered replication studies. Our study will directly address this gap in the literature.

Keywords: emotional expression, face processing, individual differences

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*Speaker

Overlap in social networks drives cooperative norms and strategic behavior

Curtis Atkisson * [1]

[1] University of California [Davis, USA] – One Shields Avenue, , Davis, CA 95616-5294, United States

Objective

Many people have tried to pin down the causes of cooperation in anonymous interactions. But what drives variation in cooperation has been found to be inconsistent across populations, levels of analysis, and types of economic games. A unifying dimension may underlie the effects of variables, causing them to change as a complex. Durkheim proposed an overlap scale that predicts that more closely linked individuals cooperate more with each other and less with strangers. This reasoning can be recast in a modern network and multi-level context and integrated with norm psychology. This study modernizes this scale and tests if it drives variation in different modes of cooperation.

Methods

Data were collected from 270 people from nine Makushi communities. These data include demographics, multiple ego-networks, involvement in indigenous modes of cooperation, and behavior in economic games. The effect of overlap on behavior in both types of cooperation was tested using Bayesian generalized ordered logistic multi-level models.

Results

There is variation between communities and individuals in behavior in both modes of cooperation and overlap in domain networks. Communities with lower levels of overlap contribute more in economic games but participate less in indigenous modes of cooperation. Also, demographic variables are better predictors of individual gameplay in communities with relaxed norms in economic games.

Conclusions

These results show that behavior is being guided by both norm psychology and individual strategizing. Low overlap results in the emergence of a norm of cooperation in economic games, but individuals in communities with relaxed norms of cooperation are freer to respond to their individual circumstances. This is a mechanism that drives the evolution of cooperation currently that might also help account for the rise of cooperation: cooperation is encouraged when individuals do more activities more consistently with the same set of individuals.

Keywords: cooperation, economic games, norm psychology, multiplex networks

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*Speaker

The effect of variation in social encounters on human heuristic strategies

Ine Aertgeerts [*] , Pieter Van Den Berg [1], Tom Wenseleers [2]

[1] KU Leuven, Laboratory of Socioecology and Social Evolution – Naamsestraat 59 3000 Leuven, Belgium
[2] KU Leuven, Laboratory of Socioecology and Social Evolution (LSSE) – Naamsestraat 59 B-3000 Leuven, Belgium

Objective

Humans encounter a wide range of social interactions, some so similar that it is difficult to distinguish between them. Recent theory has shown that evolution may produce social heuristics, in which individuals employ the same behavioural strategy across a wide range of interaction types (rather than perfectly tailoring their behaviour to each specific situation). In this study, we will experimentally investigate how the amount of variation across the different social interaction types that people face affects the degree to which they employ heuristic strategies.

Methods

We are currently conducting a large on-line decision making experiment, in which individuals are paired and faced with various versions of the public goods game. In each game, both interaction partners simultaneously decide how many points to allocate to a common wallet, which is then multiplied with a multiplication factor and finally split in half between both partners. Between experimental treatments, we manipulate how much the multiplication factor varies between the interactions that the participants are confronted with.

Results

We hypothesize that individuals will tend to use more heuristic strategies if the social situations they encounter are more similar (*i.e.* in treatments where the multiplication factor does not vary much between interactions). In contrast, we expect more responsive behaviour if the differences between encountered situations are more pronounced (*i.e.* in treatments where the multiplication factor varies considerably). We will be able to present our full data by the time of the conference.

Conclusions

This study will produce the first quantitative investigation of how the extent of variation in social situations affects the degree to which individuals use heuristic strategies. This will provide an empirical test for recent models showing that evolution produces social heuristics under variation in social contexts, and will help us understand why human social behaviour often deviates from standard predictions.

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[*]Speaker

Evolution of the Family: Theory and Implications for Economics

Ingela Alger * [1], Donald Cox

[1] Toulouse School of Economics Institute for Advanced Study in Toulouse (TSE IAST) – CNRS : UMR5314 – 21 allée de Brienne 31 000 Toulouse, France

Which parent can be expected to be more altruistic toward their child, the mother or father? All
else equal, can we expect older generation members to be more solicitous of younger family
members or vice versa? Policy interventions often target recipients by demographic status: more
money being put in the hands of mothers, say, or transfers of income from young to old via
public pensions. Economics makes predictions about pecuniary incentives on behaviour, but
tends to be agnostic about how, say, a post-menopausal grandmother might behave, just because
she is a post-menopausal grandmother. Evolutionary theory fills this gap by analysing how
preferences of family members emerge from the Darwinian exigencies of "survive and
reproduce." Coin of the realm is so-called "inclusive fitness," reproductive success of oneself
plus that of relatives, weighted by closeness of the relationship. Appending basic biological traits
onto considerations of inclusive fitness generates predictions about preferences of family
members. A post-menopausal grandmother with a daughter just starting a family is predicted to
care more about her daughter than the daughter cares about her, for example. Evolutionary
theory
predicts that mothers tend to be more altruistic toward children than fathers, and that close
relatives would be inclined to provide more support to one anther than distant relatives. An
original case study is provided, which explains the puzzle of diverging marriage rates by
education in terms of heterogeneity in preferences for commitment. Economists are justifiably
loathe to invoke preferences to explain trends, since preference-based explanations can be
concocted to explain just about anything. But the evolutionary approach does not permit just
any
invocation of preferences. The dictates of "survive and reproduce" sharply circumscribe the
kinds
of preference related arguments that are admissible.

Keywords: Family, Hamilton's rule, economics

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*Speaker

Does alloparental care vary across a rural-urban gradient in north-western Tanzania?

Hassan Anushe * [1], David Lawson [2], Susan Schaffnit [3], Mark Urassa [4], Rebecca Sear [5]

[1] Evolutionary Demography Group, London School of Hygiene and Tropical Medicine – United Kingdom
[2] University of California [Santa Barbara] – Santa Barbara, CA 93106, United States
[3] University of California [Santa Barbara] – Santa Barbara, CA 93106, United States
[4] National Institute for Medical Research, Mwanza (NIMR) – Tanzania
[5] Evolutionary Demography Group, London School of Hygiene and Tropical Medicine – United Kingdom

Objective: Human mothers receive substantial support from extended kin in raising their offspring across a number of societies. Evolutionary anthropologists, human behavioural ecologists and demographers have documented this extensively in sub-Saharan Africa and demonstrated considerable flexibility in exactly who cares for children. However, there is still relatively little research that determines which factors predict who provides this help. Here, we compare differences in who helps mothers across a rural-urban gradient, including help from maternal kin, paternal kin and non-kin. We focus on children under age 5-years, a period with high mortality risk which is fundamental in establishing later-life physical and cognitive development.
Methods: Using data on 808 children in two north-western Tanzanian communities (one village, one town), we examine in unusual detail exactly what help mothers receive, often missing from other studies. Regression analyses test differences in multiple types of care provision to each child comparing rural/urban residence: resource allocation, washing, cooking/feeding, playing with, supervising and caring when sick.

Results: Results indicate that maternal kin help mothers more across all six measures than paternal kin, except cooking for/feeding the child for which paternal kin help more in the village and maternal kin in the town. We additionally find that kin members help mothers more in the village whereas more non-kin members (i.e. friends and neighbours) provide help in the town, especially with supervising and playing with the children.
Conclusions: Our findings illustrate the different kin mothers seek help from depending on their residence and are in line with hypotheses suggesting kin networks break down, and non-kin become more important, as societies modernise. We draw on evolutionary models of cooperative breeding and the demographic transition to discuss the potential impact of urbanisation on types and availability of alloparental support for mothers as well as its implications for maternal and child wellbeing.

Keywords: alloparental care, child, cooperative breeding, tanzania, urbanisation

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*Speaker

Further exploration of the evolutionary tradeoffs in psychopathy: is there a fertility-mortality tradeoff?

Nevena Batinić [1], ore Bašić [1], Ognjen Filipović [1], Emilija Romić [* 1],
Nevena Mijatović [2], Svetlana Pavlović [2], ore Cupać [2], Janko Meedović [3]

[1] Faculty of Media and Communications, University of Singidunum, Department of Psychology –
Karaoreva 65, Belgrade 11000, Serbia
[2] Faculty of Philosophy, University of Belgrade, Department of Psychology – Čika Ljubina 18-20,
Belgrade 11000, Serbia
[3] Institute of Criminological and Sociological research – Gračanička 18, Belgrade 11000, Serbia

Objective. The aim of the present research was to examine the associations between psychopathy (a set of personality traits consisted of Deceitfulness, Emotional Coldness and Recklessness) and evolutionary fitness (fertility, longevity and parental investment). Previous research indicated that there may be evolutionary tradeoffs in psychopathy so we hypothesized that psychopathy would be positively associated with fertility but negatively with longevity and parental investment.

Methods. The sample consisted of 424 post-reproductive individuals. All information regarding psychopathy traits and fitness indicators were provided by their offspring. We used rating method for assessing psychopathy (Short Psychopathy Rating Scale - SPRS). We also gathered information about the number of their children and grandchildren, having children with different partners (fertility indicators), if they are still alive and if they were not - their age of death (longevity), and the rated measure of parental investment.

Results. We conducted multiple linear regression analysis for every fitness indicator separately for males and females. Psychopathy traits, year of birth and education were the predictor variables. In males, Deceitfulness positively predicted if the target person was still alive and having children with different partners, while all psychopathy traits were negatively related to parental investment. In females, Deceitfulness positively predicted both longevity indicators and having children with different partners, while it had negative association with parental investment; Recklessness negatively predicted the number of grandchildren.

Conclusions. We expected fertility-longevity tradeoff in psychopathy, however it was not detected in the data; in fact, deceitful individuals tend to have elevated longevity. Furthermore, there were indications of mating-parenting tradeoff in Deceitfulness trait - it was positively associated with having children with different partners but negatively to parental investment. Present findings provide deeper insight in adaptive potentials of psychopathy by revealing the complex relations between this set of traits and different fitness components.

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[*]Speaker

Humans do conceal sex across cultures. But why?

Yitzchak Ben Mocha * [1,2], Simone Pika [3]

[1] Max Planck Institute for Ornithology – Seewiesen, Germany
[2] Max Planck Institute for Evolutionary Anthropology, Department of Primatology – Leipzig, Germany
[3] University of Osnabrück, Institute of Cognitive Science, Comparative BioCognition – Osnabrück, Germany

Over almost a century leading anthropologists, sociologists and zoologists have been maintaining that the preference to conceal even *"socially accepted"* sex from the sensory perception of conspecifics is a *"human universal"*. Surprisingly, despite long interest, no systematic research exists to support this claim, and the few speculations about the selective pressures that have trigged the evolution of this preference have never been tested empirically. Here, we carried out the first systematic survey and analysis of the prevalence and function of concealed sex across human cultures by using the largest existing ethnographic database: eHRAF World Cultures. First results based on the analysis of a total of 110 cultures show that: (i) in 98% of the examined cultures pairs regularly take efforts to conceal the sensory (e.g., visual, auditory) stimulus of their sexual interactions from the perception of other conspecifics; and (ii) the extent to which social norms require exclusive mating relationships between spouses is positively associated with the rigor of sex concealment across and within cultures. These results provide the first systematic evidence that concealed sex is a widespread human phenomenon. Its function will be discussed in light of the "Cooperation-Maintenance" hypothesis and recent evidence of sex concealment in nonhuman species.

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*Speaker

Sex differences in an indicator of stress in a contemporary hunter-gatherer population

J. Colette Berbesque * [1], Kara C. Hoover [2]

[1] University of Roehampton – United Kingdom
[2] University of Alaska Fairbanks – United States

We investigate long-term trends in a physiological indicator of stress in a group of traditionally living hunter-gatherers that are transitioning to market integration. We found that Hadza women had significantly more LEH than Hadza men-however this trend is relatively recent. Hadza males born in the last few decades show decreased incidence of Linear Enamel Hypoplasia. We see this as evidence that market integration has influences parental investment, and most likely is the first step toward greater gender inequality, commonly seen in agrarian societies. Based on our data, it appears this inequality does not stem from a negatively impact on girls so much as a relatively recent improvement in health status exclusively in boys. The timing of this improvement in health for boys is coincident with greater market integration, particularly with increased ethnotourism. These findings have implications for development decisions and also for cultural evolution relative to socio-economic transition.

Keywords: stress, hunter, gatherers, gender, health

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*Speaker

New Challenges to the Comparative Evolutionary Social Sciences

Monique Borgerhoff Mulder [*] [1]

[1] Department of Anthropology, UC Davis – United States

Cross-cultural research is at the heart of anthropology. It increasingly takes centre stage in our interdisciplinary understanding of the range of human diversity, its origins and patterning, particularly as investigators question the validity of inferences drawn exclusively from advanced industrial societies. This development is promoting an intensified focus on research among populations in the global south, bringing with it a range of scientific, logistical, and ethical issues that require greater scrutiny. Here, building on discussions at an MPI-EVA workshop on Field Site Management, I explore – with the objective of opening for discussion – the issues surrounding scientific practice. I review key conceptual and methodological dilemmas with respect to selecting study sites for comparative research, ensuring the comparability of measures from different populations, and establishing sound inferences of causality. In a scientific climate promoting the rigour and reproducibility of research, our workshop concluded that, with insufficient attention paid to the special challenges of conducting scientific research among the highly diverse and vulnerable populations in the global south, new approaches to comparative work are needed to ensure the credibility of our results.

Keywords: comparative anthropology, interdisciplinary, method, fieldwork

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[*]Speaker

Sexual division of labour varies with sex ratio and residence pattern in rural China.

Yuan Chen * [1], Jiajia Wu [1], Juan Du [1], Ruth Mace *

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[1] Lanzhou University – 222 Tianshui South Rd, China
[2] Lanzhou Univeristy – United Kingdom
[3] University College, London – United Kingdom

Objective: to examine ecological determinants of the sexual division of labour, including sex ratio and social organisation

Methods: we use a wearable device (a removable wristband) that can measure physical activity across six populations of rural Sino-Tibetans, with different marriage systems and social structures. We also collect a demographic survey of each population and collected a self-reported time budget of the last 24hrs of wristband use to validate the data from the wristband (N=561 individuals). We use multilevel modelling to examine the determinants of men's and women's activity.

Results: The results showed that the variance coefficient of Miband2 wristband was smaller than that of other devices in terms of measuring activity quantity, and we confirmed that the total number of steps of the subjects was positively correlated with their reported time spent in agricultural and animal husbandry activities, while negatively correlated with the time of entertainment activities and rest. We found that females do significantly more steps than males in patrilocal and duolocal populations (where males do not disperse from the natal home). The best fitting model shows that the number of steps of anyone whom dispersed after marriage was significantly higher, and the number of steps by men was significantly reduced when the community adult sex ratio is female-biased.

Conclusion: This is consistent with our hypothesis when the adult sex ratio in the population is female-biased, males are more choosy and the increased bargaining power of men results in an unfavourable division of labour for women.

Keywords: Division of labour, sex ratio, residence, dispersal, physical activity, China

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*Speaker

Potential demographic variables underlying cross-cousin marriage among the Yanomamo and Dogon people

Arianna Dalzero * [1]

[1] Max Planck Institute for Evolutionary Anthropology – Deutscher Platz 6 04103 Leipzig, Germany

In many human populations, a substantial proportion of marriages are between first-degree cousins. Since such marriages between close kin are known to carry fitness costs in terms of reduced fertility and offspring survival, several hypotheses as to the potential benefits of such marriages have been proposed. Here, we test whether marriages between cousins can be explained through the choices individuals make in limiting ecological conditions or whether parental manipulation shapes human mating strategies. We assess ten different scenarios based on the mechanisms that could evolutionarily maintain the occurrence of cross-cousin marriage either through individual choice or parental manipulation. We perform simulations of population growth rates for these different scenarios using independent stage-structured Lefkovich matrices that differentiate the potential fitness costs and benefits in both women and men and their family members. These matrices are built based on individual life-history data extracted from published sources for relevant populations (including the Yanomami and the Dogon). Our findings indicate that fitness asymmetries between siblings, leading to parental manipulation, are likely to contribute to the occurrence of cross-cousin marriages.

Keywords: Marriage between cousins, parental manipulation, parent, offspring conflict, inclusive fitness, mating strategy, genealogical data, matrix population models, demography

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*Speaker

The Importance of Life History for the Evolution of Social Learning

Dominik Deffner * [1], Richard Mcelreath [1]

[1] Max Planck Institute for Evolutionary Anthropology – Germany

Social Learning and life history interact in human adaptation, but nearly all models of the evolution of social learning omit age structure and population regulation. Previous theoretical models of the evolution of learning have significantly advanced our understanding of the adaptive value of culture, but further progress is hindered by a poor appreciation of how life history and demographics affect the action of selection on learning. We present a model of the evolution of social learning in which demographic properties of the population arise endogenously from assumptions about per-capita vital rates and separate forms of population regulation. We find that, counterintuitively, a stronger reliance on social learning is favored in organisms characterized by "fast" life histories with high mortality and fertility rates compared to "slower" life histories typical of primates. The reason is that long life spans make early investment in learning more profitable and increase the probability that the environment switches within generations. Both effects favor more individual learning. In order to appreciate the implications for human evolution, we need to develop further modelling frameworks allowing strategic learning and cumulative culture, as well as gain a better understanding of the demography of our ancestors.

Keywords: Social Learning, Life History, Cultural Evolution, Demography

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*Speaker

Quantifying spillover effects in cooperative behaviour from common to rare social interaction types

Peter Dewitte * [1], Pieter Van Den Berg [1], Tom Wenseleers [1]

[1] KU Leuven, Laboratory of Socioecology and Social Evolution – Naamsestraat 59 B-3000 Leuven, Belgium

Objective

It has been repeatedly shown that human social behaviour often deviates from predictions of standard economic and evolutionary theory. One explanation for this mismatch is 'behavioural spillover' – behaviour is not a perfect response to the current situation, but is also affected by previously encountered situations. As yet, it is still unclear how the degree of behavioural spillover depends on the encounter rates of different situations. Is spillover more pronounced from common to rare interaction types? If so, exactly how does the encounter frequency of interaction types determine spillover effects? This study addresses these questions experimentally.

Methods

In an on-line behavioural experiment (n=500), we pair individuals in one-shot Public Goods Games, in which both individuals decide how much of their endowment to contribute to a common project. The total contribution to the common project is multiplied by m, and then equally distributed between both interaction partners. We employ two different values of m, one high (leading to relatively high contributions) and one low (prompting lower contributions – we established these values in a pre-experiment). Across five treatments, we systematically vary the encounter rates of high and low m interactions, and determine how behavioural spillover depends on these rates.

Results (hypothesis)

We will conduct this experiment in January 2019 (pilots have already been conducted). We expect that spillover will increase with the rarity of the social situation (*i.e.* we expect more spillover from a situation encountered in 80% of interactions to a situation encountered in 20% of interactions than in a situation where the frequencies are 60% and 40%).

Conclusions

Our results will provide an explanation for why individuals often behave in ways that standard models would not predict. Specifically, it will provide the first systematic quantification of the effect of frequency of social situations on behavioural spillover.

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*Speaker

experiment, Evolutionary biology

The evolutionary transition to theory of mind

Slimane Dridi * [1], Erol Akçay [2]

[1] Institute for Advanced Study in Toulouse – Université Toulouse I (UT1) Capitole – 21 allée de Brienne, 31015, Toulouse, France, France
[2] Department of Biology, University of Pennsylvania – Lynch Labs 204E Philadelphia, PA, United States

Humans have the capacity to try and read other individuals' intentions, which is part of what is called theory of mind. It is unclear however under what conditions evolution would favor the emergence of such a capacity. We study the effect of adding plastic types to symmetric evolutionary games. In our model, plastic individuals can detect the type of their opponent before an interaction and condition their action on it. Even though it might appear as an outstanding advantage, such an ability cannot guarantee evolutionary success in all games for even the smallest positive plasticity costs. We classify games according to whether plasticity can or cannot invade a population of pure types and become the evolutionarily stable strategy. We show that plasticity is favored when the game favors behavioral diversity. We also show that in social dilemma games plasticity and cooperation might co-evolve. We finally show that zero-sum games are the most favorable to plasticity evolution. This study offers a more principled way of thinking about the evolutionary emergence of plasticity in social scenarios and helps demonstrate that such an emergence is strongly dependent on the type of game individuals are faced with.

Keywords: learning, altruism, social behavior, preferences, model, prediction, rationality

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*Speaker

Costly Religious Behaviours in Tibetan Populations

Cai Rang Dung Zhi * , Ge Erhao *

, Juan Du *

[1], Ruth Mace *

2,3

[1] Lanzhou University – China
[2] Lanzhou Univeristy – United Kingdom
[3] University College, London – United Kingdom

Objective:

Religious behaviours or rituals entailing various costs can be seen as honest signal conveying religious commitment, which enhance signaler's prosocial reputation. But the role of extremely-costly religious acts, particularly sending a child off to be a celibate monk sacrificing reproductive opportunity, is unclear. One adaptive argument is that the family reduced the dividing of property and decrease the competition between siblings. Here, we predict that individuals who carry out greater and costlier religious acts would correlate with increased nomination of reputational characteristics, and that sending a child to celibacy will reduce fraternal resource conflict and increased inclusive fitness benefit could potentially compensate for the direct fitness costs of monk themselves, and also enhance reputation and supportive relationship from the family level as a costly behaviour.

Methods:

Demographic census was collected in several Tibetan villages in western China; and in one village, religious practice, reputational standing and social support networks were chronicled. Poisson regression is used to model determinants of RS (number of surviving children) to mothers with and without a monk brother and determinants of long-term RS (number of surviving grandchildren) to grandmothers with and without monk children. We use a hurdle model to measure how investment of religious activities influence number of reputational nominations and use an exponential random graph models (ERGMs) to study the association between religious practice and people's supportive relationships.

Results:

Our model shows that religious involvement, especially dramatic acts of pilgrimage, are correlated with reputational nominations and supportive relationship establishment, but not sending a child to celibacy. Sending a child to celibacy has no negative effect on RS to mothers and long-term RS to grandmother.

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*Speaker

Conclusion:

The results support that some costly religious practice is perceived by peers as a signal that index cooperative motivations and help to foster trusting relationships. Sending a child to become a monk is not associated with lower loss to long-term fitness and maybe help family in other religious ways.

Navigating Landscapes: The Life Course of Mobility in a Historical Dutch Population

Natalia Fedorova * [1], Bret Beheim [1], Richard Mcelreath [1]

[1] Max Planck Institute of Evolutionary Anthropology – Deutscher platz 6, 04103, Leipzig, Germany

Mobility, as seen through hunter-gatherer and pastoralist societies, has long been an important topic in human behavioral ecology. However, applying this body of work to urbanized systems, which are currently the dominant form of human settlement, is problematic. Urbanized systems are unique in their size, density, and permanence and characteristically include high levels of individual mobility. To address this gap, this presentation introduces a project exploring the interaction between demography, mobility, and settlement type in a historical Dutch population. By utilizing the Historical Sample of the Netherlands (HSN), this project aims to track the influence of demographic factors on mobility throughout an individual's life course and thus gain a better understanding of the different mobility strategies available to individuals. The HSN is a database of reconstructed life courses drawn from a representative sample of the Dutch population born between 1812 and 1922. In practice, the HSN enables researchers to follow circa 37,000 individuals from cradle to grave, tracking migration, marriage, family composition, as well as occupation and religious denomination. As such, the HSN constitutes a rare resource which couples longitudinal and high resolution individual level data. We present a typology of mobility strategies and a longitudinal overview of mobility flows in the historical sample. These results showcase the diversity of migration patterns and highlight the importance of not only viewing mobility as a feature of life history, but also of considering how it functions in a system of permanent settlements. Additionally, although this dataset has attracted attention in the fields of migration and demography, it remains under-utilized in the human evolutionary sciences. Hence, this presentation introduces the dataset to the evolutionary scene with the hope of opening avenues for future research and collaboration.

Keywords: mobility, settlement, life history, demography

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*Speaker

Same-sex Friendships among Hunter-Gatherers

Tommy Flint [*] [1]

[1] Harvard University – Massachusetts Hall, Cambridge, MA 02138, United States

OBJECTIVE: Across populations, researchers have observed a difference in the social and cooperative behavior of men and women, with men more apt to form flexible, hierarchical coalitions geared towards competitive pursuits, and women more inclined to establish dyadic, egalitarian friendships that prioritize reciprocal support. While several evolutionary hypotheses have been proposed to explain this pattern, the cross-cultural evidence is notably lacking in studies of hunter-gatherers - the population most relevant to evaluating evolutionary claims. Moreover, 'egalitarian' hunter-gatherers are often cited as exceptions to the sex-stereotyped behaviors observed in agricultural societies. Here, I review ethnographic accounts of same-sex cooperation and friendship in hunter-gatherers, to determine the extent to which they conform to the sex-stereotyped pattern and thus corroborate existing evolutionary hypotheses, and to identify specific cultural or ecological drivers of sex differences in prosocial behavior.
METHODS: I conduct a qualitative and quantitative review of 252 ethnographic accounts of same-sex hunter-gatherer friendships, as sourced via OCM codes from the electronic Human Relations Area Files.

RESULTS: I find that hunter-gatherers broadly conform to the sex-stereotyped patterns observed in agricultural societies, albeit with substantial variation between groups. This variation may be due to ecological factors and between-group dynamics, suggesting that sex-stereotyped cooperative behaviors arise, in part, as adaptive responses to local conditions. The literature also reveals that in societies where men control important resources, men's coalitions play a role in weakening friendships between women; from this, I propose a hypothesis for the emergence of stronger patriarchy in delayed-return hunter-gatherers and agriculturalists.
CONCLUSIONS: Evolutionary hypotheses regarding sex differences in cooperative behavior are generally supported by ethnographic evidence from hunter-gatherer populations. The great variation observed across hunter-gatherer groups demonstrates that these behaviors are flexible, and likely responsive to ecological circumstance. Additionally, men's disruption of friendships between women may serve to reinforce sex differences in social behavior.

Keywords: social networks, sex differences, gender, cooperation, friendship, prosociality, hunter gatherers, ethnography, patriarchy

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[*]Speaker

Inference of ecological and social drivers of human brain-size evolution

Mauricio Gonzalez-Forero * [1], Andy Gardner [2]

[1] University of St. Andrews – United Kingdom
[2] University of St Andrews – University of St Andrews, School of Biology, Dyers Brae, St Andrews KY16 9TH Fife Scotland, UK, United Kingdom

The human brain is unusually large. It has tripled in size from Australopithecines to modern humans and has become almost six times larger than expected for a placental mammal of human size. Brains incur high metabolic costs and accordingly a long- standing question is why the large human brain has evolved. The leading hypotheses propose benefits of improved cognition for overcoming ecological, social or cultural challenges. However, these hypotheses are typically assessed using correlative analyses, and establishing causes for brain-size evolution remains difficult. Here we introduce a metabolic approach that enables causal assessment of social hypotheses for brain-size evolution. Our approach yields quantitative predictions for brain and body size from formalized social hypotheses given empirical estimates of the metabolic costs of the brain. Our model predicts the evolution of adult Homo sapiens-sized brains and bodies when individuals face a combination of 60% ecological, 30% cooperative and 10% between- group competitive challenges, and suggests that between-individual competition has been unimportant for driving human brain-size evolution. Moreover, our model indicates that brain expansion in Homo was driven by ecological rather than social challenges, and was perhaps strongly promoted by culture. Our metabolic approach thus enables causal assessments that refine, refute and unify hypotheses of brain-size evolution.

Keywords: Brain evolution, life history, metabolism

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*Speaker

Sugar consumption and variation of phenotypical traits in humans (cognition, choices, cooperation).

Léonard Guillou * [1], Valerie Durand [2], Michel Raymond [2], Claire Berticat

[1] Institut Jean Nicod, Département d'Études Cognitives – Ecole Normale Supérieure de Paris - ENS Paris – 29, rue d'Ulm, 75005, Paris, France
[2] Institut des Sciences de l'Evolution, Université Montpellier – Université Montpellier II - Sciences et Techniques du Languedoc – France

By moving individuals away from their adaptive dietary peak, rapid dietary changes can lead to health problems. In the human species, the sudden change of diet observed in the twentieth century with the occurrence of massive amount of refined sugars, illustrates such a phenomenon. Beyond the health effects already well described, the recent and massive increase of sugars consumption could lead to more subtle physiologically and behaviorally alterations. The link between consumption of refined sugars and the modification of several traits involved in social life (i.e. cognition, attractiveness, cooperation) was studied on young and healthy subjects, following an experimental and correlative design. The results show that the immediate consumption of sugars increases blood sugar rate but does not affect cognition while the chronic consumption of sugars decreases cognitive performances. In women, chronic sugars consumption also affects attractiveness preferences. These effects on healthy people suggest that the current dietary change affects unexpected behavioral domains. It is therefore crucial to further study the consequences of this dietary change on individual behaviors that potentially influence the functioning of many aspects of the society.

Keywords: dietary change, adaptive peak, glycemic load, cognitive performances, cooperativeness, attractiveness preferences

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*Speaker

Gossip discrimination: A novel mechanism to stabilize cooperation in models of indirect reciprocity with endogenous norms

Toby Handfield [1], Jason Xu [1], Julian Garcia [*] [1]

[1] Monash University – Australia

Indirect reciprocity has been proposed to explain the evolution of cooperation without requiring close genetic relatedness, population structure, or repeat interactions. The mechanism requires a coding system for assigning reputations based on past behavior – what is known as a "social norm". A small subset of possible norms enable reciprocating agents to reliably discriminate between themselves and other types, and these are the only norms that enable cooperation to evolve. Most existing models assume all agents adopt a uniform norm, given as an exogenous parameter. In this study we first show that if norms freely evolve along with behavior, cooperation collapses. This is because agents who use alternative norms lower the quality of reputation information for all agents but suffer no direct fitness penalty. By processes of random drift, undiscriminating norms can take over, and cooperative types cannot then re-invade. We then further extend this endogenous norm framework, to show how cooperation can be re-established using a mechanism we call "gossip discrimination". In gossip discrimination, agents condition behavior not only on reputation, but also on a comparison of moral evaluations. We model pairs of agents who sample a recent encounter in the past and compare the evaluations each would make. If they disagree in evaluations, they defect. If they agree, the agents use their normal behavioral strategy. This creates an environment whereby reciprocators can discriminate in favour of fellow reciprocators while also allowing agents to discriminate against those who use different norms. The resulting mechanism stabilizes cooperative norms and thus sustains high levels of cooperation. The model reflects recent experimental work in evolutionary psychology on the role of moral evaluation and gossip in real human societies and in online social networks.

Keywords: evolutionary game theory, cooperation, reputation, reciprocity

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[*]Speaker

Risk aversion and prosocial preferences: Considering adaptive mechanisms to deal with highly uncertain environments

Shogo Homma * [1], Masanori Takezawa [1]

[1] Hokkaido University – 5 Chome Kita 8 Jōnishi, Kita Ward, Sapporo, Hokkaido Prefecture 060-0808, Japon, Japan

Cooperation and resource sharing are collective devices for risk reduction in resource acquisition and solve a significant adaptive problem in highly uncertain natural environments (Kaplan & Hill, 1985; Kaplan et al., 2018). Recent studies showed that individual differences in risk preference are consistently correlated with cooperative preference and behavior; risk aversive people favor giving resources to a receiver in the dictator game (DG) (Müller & Rau, 2016), and exhibit higher other-regarding preferences to anonymous others (Kameda et al., 2016). Reinforcement learning is a psychological mechanism guiding adaptive responses in highly uncertain environments. Interestingly, previous researches in computational neuroscience showed that risk aversive behaviors inherently emerge from the mechanism of reinforcement learning under a certain parameter region (Niv et al., 2012). Hence, we decided to investigate the relationship between the two adaptive mechanisms in an uncertain environment: cooperative behaviors and reinforcement learning.

163 Japanese university students responded to risk preference task (Eckel & Grossman, 2002) and one-shot DG. Other-regarding preference (i.e., Maximin) was estimated by fitting a quasi-maximin model (Charness & Rabin, 2002) to the tasks developed by Kameda et al. (2016). Individual differences in the two learning rate parameters were estimated by fitting the revised Q-learning model (Niv et al., 2012) to responses in a series of two-armed bandit tasks.

The positive correlations of risk aversion and offers in DG, and other-regarding preference were successfully replicated. We then found that the learning rate for positive prediction error, which is known to be correlated with risk-seeking behavior, is negatively correlated with the above two cooperative behaviors. All the results were successfully self-replicated in two different studies. The implications of the relationship between cooperation and reinforcement learning found in the current studies will be discussed in the context of adaptive psychological and social mechanisms for highly uncertain environments.

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*Speaker

Ecological predictors of allomaternal care across human societies

Adrian Jaeggi * [1,2], Jordan Martin [1], Erik Ringen [1]

[1] Emory University [Atlanta, GA] – 201 Dowman Dr, Atlanta, GA 30322, United States
[2] University of Zürich [Zürich] – Rämistrasse 71CH-8006 Zürich, Switzerland

Allomaternal care is central to our species' unique life history, which couples relatively short interbirth intervals, early weaning, and large birth size with a highly dependent developmental period. Formal models and previous work in cooperatively breeding animals predict higher levels of alloparental care in harsher environments, suggesting that allomaternal care may have evolved in hominins due to increased environmental unpredictability. Although this hypothesis remains difficult to test directly, the relative importance of allomaternal care varies across human societies, providing an opportunity to test how local ecology influences this behavior. Here we investigate associations among allomaternal infant care and key ecological factors across 141 societies in the Standard Cross-Cultural Sample (SCCS). In addition to environmental harshness, we predicted that reliance on agriculture would enhance allomaternal care due to its positive effects on fertility, while severe rates of starvation would decrease care due to prohibitive energetic costs. Using measures of temperature, precipitation, and resource availability, we extracted two principal components-Environmental Harshness and Resource Abundance-consistent with prior biogeographical research. We fit a Bayesian multilevel phylogenetic regression model to test our hypotheses while controlling for population history. As expected, Environmental Harshness and agriculture were associated with greater allomaternal infant care, while starvation was associated with lower rates. Overall, most societies in the SCCS exhibited a moderate degree of allomaternal care, underscoring its importance for human life history. These results are consistent with formal models, and demonstrate continuity in ecological determinants of cooperative breeding across species, supporting the hypothesis that environmental uncertainty led to its evolution in hominins.

Keywords: Cooperative breeding, allomaternal care, environmental unpredictability, human evolution, comparative phylogenetic analyses

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*Speaker

A brief analysis of communication in common pool resources and its potential role in sustainability.

Oliver Juan [*] [1]

[1] University of Kassel – ESCP Europe : MSc. in International Sustainability Management, University of Kassel : EconomicBehavior and Governance – France

The study of common pool resources from a behavioral approach is increasingly important today for two main reasons. First, humankind is, has always been and probably will naturally be faced with the problem of sharing finite common resources and thus wealth not only within but also among economies. Second, our current rational model based on efficiency doesn't tackle properly the real issue of sustainability in limited shared resources. It has been shown in theory and backed up by countless examples that by pursuing blindly the prevailing normative theory- that is, by pursuing his own interests- homo-economicus will find himself running out of resources quickly, especially in an exponential economic growth framework. This paper shorty summarizes the most common and relevant theories concerning common pool resources (CPR) that could be linked with the concept of communication and sustainability. Each significant finding will be interpreted to see what effect it might have on cooperation at the society's scale in the case of external validity. These understandings sometimes result in possible future researches ideas in the working of psychology in common pool resources to clarify how can future policies use communication to build a sustainable society. Finally, by illustrating the ideas with a recent CPR experiment I conducted with Denise Beer in the class of "Experiments in Environmental Economics" in the university of Kassel, we will see how can optimism and priming be of an interest to the ongoing research of CPR and its link with sustainability.

Keywords: Common Pool Ressources, Sustainability, Communication, Behavioral Economics, Experiment, Ressource Economics

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[*]Speaker

Testing evolutionary theories of inter-group conflicts: support for individual selection models

Jaakko Junikka * [1], John Loehr [2], Stephen Heap [1]

[1] University of Jyväskylä – P.O. Box 35 (YFL), FIN-40014 University of Jyväskylä, Finland
[2] University of Helsinki – Yliopistonkatu 4, 00100 Helsinki, Finland

Evolutionary models on human intergroup conflict differ substantially in their assumptions on how the benefits of successful attacks are divided. Parochial Altruism (PA) models treat these benefits as public goods (e.g. territorial gains) whereas the Male Warrior Hypothesis (MWH) and the Chimpanzee Model (CM) as private goods (e.g. increased access to mates, boosted status). Here, we report the results of an experiment designed to test the core assumptions of these models. First, we tested whether attack out-group was done in order to produce public goods for in-group or half less efficient private goods for themselves. We found that in trade-off situation with public and private attack option subjects attacked half via private goods even as it came with efficiency loss for in-group. Further, public good attack contributions seemed to contain substantial proportion of private concerns, as in trade-off situation public good attack rate was 62% smaller in males compared to situation when public good attack was the only option. Second, we tested the premise of PA that tendency to attack out-group is associated with parochial prosociality. We found that attacking was positively associated with both in-group prosociality and out-group prosociality in males. Reasserting this surprising finding, the more in-group bias men were, the less they attacked. Further, in-group prosociality was also associated with out-group prosociality in both genders. This indicates that male prosociality is a double-edged sword in the sense that it extends across group boundaries, but it also allows males to cooperate at the expense of out-groups. Overall, our results partly contrast with the premises and predictions of PA and fit better with the CM and MWH, suggesting that field of intergroup conflicts have been evolutionarily more successful for mutually cooperative males in chase of private goods, rather than for altruistic males sacrificing for public goods.

Keywords: Intergroup conflict, Public goods, Private goods, Parochial Altruism, Prosociality

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*Speaker

Near the Knuckle: Using Traveller Bare-Knuckle Contests to test hypotheses about male-male aggression

Robert King * [1]

[1] University College Cork – College Road, Cork T12 YN60, Ireland

Irish travellers constitute a pre-demographic shift population living among a post-demographic shift one. Their socio-medico profile identifies them as largely to be on fast life-history trajectories. In addition, they are strongly religious (typically using no contraception) highly sexually behaviorally dimorphic, and with strong traditions of male-male competition (bare knuckle fighting) and quasi-symbolic bride capture ("grabbing"). Their male-male competitions thus allow for the comparative testing of a number of interesting theories pertaining to the nature and function of types of violence in society. We used expert raters (some naive to the hypotheses) to analyse a number of real-life bare-knuckle competitions in terms of the support said spectacles offered to theories of this sort of violence as supporting ideas of anti-sociality, hierarchical promotion, inter-sexual signalling, or maintenance of within-group equality. We found good evidence to support theories of within-group, pro-social hierarchical functions for these contests. Limitations and implications for future research–such as direct measurement of fitness–are discussed

Keywords: Behavioral ecology, violence, male, male competition, bare, knuckle fighting

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*Speaker

Cognitive ability and fertility amongst Swedish men Evidence from 18 cohorts of military conscription

Martin Kolk * [1], Kieron Barclay [2]

[1] Stockholm University – Sweden
[2] Max Planck Institute for Demographic Research – Konrad-Zuse-Straße 1, 18057 Rostock, Germany

Objective

We examine the relationship between cognitive ability and childbearing patterns in contemporary Sweden using administrative register data. The topic has a long history in the social and evolutionary sciences and has been the topic of a large number of studies, many arguing for a negative gradient between intelligence and fertility.

Methods

With data on a complete population of males born in Sweden between 1951 and 1967 (N=779,146) we provide, to our knowledge, the first estimates for the relationship between intelligence and fertility based upon population-level data rather than survey data-based estimates. We also have access to registers of fertility histories, and educational careers, which allows to accurately follow-up of the reproductive careers of our male cohorts, and how fertility behavior varies by IQ, educational level, and IQ within educational level. Our administrative data allows us to capture the complete population, including for example institutionalized individuals, unlike previous research that has used more narrow sampling criteria. We also apply statistical regression methods in which we only compare siblings with each other, and examine how intelligence affect fertility net of background factors shared by siblings.

Results and Conclusions

We find an overall positive relationship between intelligence scores and fertility and that is consistent across our cohorts. The relationship is most pronounced for transition to a first child, and that men with the lowest categories of IQ-scores have the fewest children. Using fixed effects models we additionally control for all factors that are shared across siblings, and after such adjustments we find a stronger positive relationship between IQ and fertility. In our models where we compare brothers to one another we find that relative to men with IQ 100, the group with the lowest IQ scores have 0.58 fewer children, and men with the highest IQ scores have 0.14 more children.

Keywords: Fertility, Sweden, Cognitive ability, Intelligence, Conscription Data

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*Speaker

Kinship Ties Across the Lifespan in Human Communities

Jeremy Koster * [1], Dieter Lukas , David Nolin , Eleanor Power , Alexandra Alvergne , Ruth Mace , Cody Ross , Karen Kramer , Russell Greaves , Mark Caudell , Shane Macfarlan , Eric Schniter , Robert Quinlan , Siobhan Mattison , Adam Reynolds , Chun-Yi Sum , Eric Massengill

[1] University of Cincinnati – United States

A hypothesis for the evolution of long post-reproductive lifespans in the human lineage involves asymmetries in relatedness between young immigrant females and the older females in their new groups. In these circumstances, inter-generational reproductive conflicts between younger and older females are predicted to resolve in favor of the younger females, who realize fewer inclusive fitness benefits from ceding reproduction to others. This conceptual model anticipates that immigrants to a community initially have few kin ties to others in the group, gradually showing greater relatedness to group members as they have descendants who remain with them in the group. We examine this prediction in a cross-cultural sample of communities, which vary in their sex-biased dispersal patterns and other aspects of social organization. Drawing on genealogical and demographic data, the analysis provides general but not comprehensive support for the prediction that average relatedness of immigrants to other group members increases as they age. In rare cases, natal members of the community also exhibit age-related increases in relatedness. We also find large variation in the proportion of female group members who are immigrants, beyond simple traditional considerations of patri- or matrilocality, which raises questions about the circumstances under which this hypothesis of female competition are met. We consider possible explanations for these heterogenous results, and we address methodological considerations that merit increased attention for research on kinship and reproductive conflict in human societies.

Keywords: Kinship, Descent, Residence, Dispersal, Reproductive Conflict, Life History Theory

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*Speaker

Ritual Behavior, Religious Badges, and Within-Group Trust

Martin Lang * [1,2], Radek Kundt *

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[1] LEVYNA, Masaryk University – Czech Republic
[2] Human Evolutionary Biology, Harvard University – United States

Objective

Several evolutionary theories contend that religion is critical to stabilizing risky coordination in situations where kin-selection and reciprocity might be insufficient. These theories argue that religions provide a mechanism for finding trustworthy group members by requiring individuals to signal their commitment to group norms through ritual behaviors that impose fitness costs. However, in anonymous contexts, the frequency or intensity of ritual participation usually cannot be observed; therefore, people use religious badges as proxies for ritual participation to facilitate cooperation. Research on American undergraduates showed that people adoring religious badges are indeed trusted more. Surprisingly, this effect extended even across religious divides, which is in contrast with the assumption that religions facilitate only within-group cooperation, often at the expense of competing groups. We test this conjecture in Mauritius and further investigate how religious identities interact with other essential group-membership signals, such as ancestry.

Methods

Ninety-seven Mauritian Christians and Hindus first rated the trustworthiness of 10 faces on a computer, which varied according to religious and ethnic identity. We digitally manipulated these faces to adore a religious badge that indicated ritual participation and that was either congruent or non-congruent with the faces' ethnic identity. Upon rating the faces, participants played a modified version of the Trust Game, in which they distributed endowed money among these faces.

Results

We find that markers of ritual participation increase monetary investments only among ingroups and not across religious divides. Moreover, out-group religious markers on faces of in-group ancestry decreased reported trustworthiness.

Conclusion

Our findings suggest that local ecologies influence the relationships between religion and trust. Markers of ritual participation were associated with cooperative behavior among religious ingroups, but seeing people adoring out-group religious badges may have opposite effects. We conclude that ritual behaviors evolved to facilitate within-group cooperation, and to some extent regulate coalitions.

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*Speaker

Shared interests or sexual conflict? Spousal age gap, women's empowerment & fertility in rural Tanzania

David Lawson [*] [1], Susan Schaffnit [2], Anushé Hassan [3], Mark Urassa [4]

[1] University of California [Santa Barbara] – Santa Barbara, CA 93106, United States
[2] University of California, Santa Barbara – United States
[3] London School of Hygiene and Tropical Medicine – Keppel StreetLondonWC1E 7HT, United Kingdom
[4] National Institute of Medical Research – Tanzania

Objective: The marriage of older men to younger women is common across cultures. On one hand, husband-older marriage may serve the interests of both sexes; a conclusion consistent with reported gender differences in mating preferences, and, although data are scarce, higher male and female reproductive success when husbands are older. On the other hand, *men only* may benefit from marrying younger women if male seniority enables them to exert dominance in conflicts of interest between the sexes. Indeed, large spousal age gaps are often considered to contribute to gender inequality, predicting low women's empowerment and wellbeing when husbands are substantially older, and could predict that spousal age gap is either positively or negatively correlated with female fertility depending on local reproductive strategies. We investigate these alternative models using data from rural Tanzania. **Methods:** We carried out a cross-sectional survey of women's marital history and wellbeing in Mwanza, northwestern Tanzania (n=1,000). **Results:** Larger age gaps were most common when women marry young, in polygynous marriages, and in rare cases were a woman did not choose her own husband. Women preferred older husbands, but typically married with a larger gap than stated ideals. Women who married much older men were also more likely to divorce, indicating lower long-term compatibility. However, large spousal age gaps do not appear to diminish female reproductive success or wellbeing. Preliminary analyses reveal that while women who marry young have higher fertility, spousal age gap and fertility are unrelated. Women's mental health is also unrelated to spousal age gap, and a larger age difference predicts greater not lower female autonomy in household decision-making. **Conclusions:** In this context, women may often marry men older than they would prefer, but this does obviously diminish female wellbeing. We discuss potential implications for evolutionary models of mate choice and population health.

Keywords: mate choice, marriage, sexual conflict, reproduction

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[*]Speaker

Current and childhood environmental harshness are linked to adult levels of cooperation

Niels Lettinga * [1], Pierre Jacquet [1], Nicolas Baumard [1], Coralie Chevallier [1]

[1] École normale supérieure – Ecole Normale Supérieure de Paris - ENS Paris – France

Although humans cooperate universally, there is variability across individuals, times and cultures in the amount of resources people invest in cooperative activities. The origins of such variability are not known but recent work highlights that variations in environmental harshness may play a key role. A growing body of experimental work in evolutionary psychology has demonstrated that humans adapt to their specific environment by calibrating their life-history strategy. In this paper, we test the association between current and childhood environmental harshness, life-history strategy and adult cooperation. This is done using structural equation modeling and by analyzing two large scale datasets: the World Value Survey and the European Value Survey. The present study supports existing research linking a harsher current and childhood environment with a faster life-history strategy. Our study extends these findings into the domain of cooperation. Specifically, we find that a harsher current and childhood environment is indeed associated with less cooperation. Interestingly, this effect is mediated by one's life-history strategy.

Keywords: Cooperation, life, history theory, environmental harshness, childhood, poverty, evolutionary psychology, World Value Survey, European Value Survey, structural equation modeling

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*Speaker

Early Plant Learning in Fiji

Rita Mcnamara * [1], Annie Wertz [2]

[1] Victoria University of Wellington – PO Box 600 Wellington 6140 NEW ZEALAND, New Zealand
[2] Max Planck Research Group Naturalistic Social Cognition, Max Planck Institute for Human Development, Berlin, Germany – Lentzeallee, 94, Berlin 14195, Germany

Objective

Plants may provide an evolutionarily important learning opportunity that crafted early cognition to pay particular attention to them and avoid touching them as potential hazards. Work with Western urban infants suggest a context-general learning mechanism to avoid plants but not other objects. However, if children live in a context with frequent interaction with plants, ability to interact with plants presents a key skill to acquire for success in community life.

Method

We test for an early-developing plant learning bias in communities of Indigenous iTaukei Fijians who rely upon plants for everyday activities. We first map the plant learning landscape through adult interviews on plant uses in horticulture, medicine (interview 1) and what children should and should not be allowed to do with plants (interview 2).

We follow this with a pre-registered study that uses a within-subjects time-to-touch paradigm to test whether children between 6 and 48 months old (N=33) show an aversion to interacting with plants.

Results

Our interview results confirm that plant knowledge in daily and medicinal uses is widely known throughout the comminities; children are rarely explicity taught about plants.

Preliminary results find children are fastest to interact with highly familiar household items (spoon, pot) and slowest to interact with novel artificial plants (Figure 1); children are similarly most likely to refuse to touch artificial plants. We also find only 13% of item touch trials showed any social referencing, and this referencing does not depend on object type.

Conclusions

Results show greater speed and willingness to interact with familiar entities; as real plants and other natural objects like shells form a part of the typical environment for these children, they may similarly be a part of the normal learning environment. Results further suggest learning strategies may differ based upon requirements of their environments.

Keywords: Learning Mechanisms, Social Learning, Traditional Community, Learning Strategies

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*Speaker

A natural history of song

Samuel Mehr * [1], Manvir Singh [1], Dean Knox [2], Christopher Lucas [3], Daniel Ketter [4], Daniel Pickens-Jones , Nori Jacoby [5], Timothy O'donnell [6], Steven Pinker [1], Max Krasnow [1], Luke Glowacki [7]

[1] Harvard University [Cambridge] – United States
[2] Princeton University – United States
[3] Washington University in St. Louis – United States
[4] Missouri state university – United States
[5] Max Planck Institute for Empirical Aesthetics – Germany
[6] McGill University – Canada
[7] Pennsylvania State University – United States

We built corpora of ethnographic text and audio recordings from many human societies and analyzed them with tools of quantitative social science, to explore universals and cross-cultural variability in music. In the corpus of ethnographic text, we find that music appears in every society measured; that variation in musical behavior is well-characterized by three dimensions capturing the formality, excitement, and narrative importance of song events; that musical behavior varies more within societies than across societies on those dimensions; and that many common hypotheses about the behaviors regularly associated with music are supported by the ethnographic record. We then analyze four quantitative representations of the audio corpus; in all four cases, musical features are predictive of the behaviors associated with songs. We then outline the specific musical features that most consistently characterize specific song types worldwide and show that musical features of singing reduce to two dimensions mapping melodic and rhythmic complexity. By applying quantitative social science to rich swaths of humanistic work, the findings address longstanding debates about the nature of music.

Keywords: Music, culture, universals, variability, anthropology, quantitative social science

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*Speaker

Dyadic patterns of smiling predict interactive styles and outcomes of face-to-face negotiation.

Marc Mehu [*] [1]

[1] Webster University Vienna – 23, Praterstrasse, A-1020 Vienna, Austria

Previous research suggests that smiling contributes to the formation of cooperative relationships as it may reliably disclose cooperative dispositions and prosocial interactive style. In this context, we tested the hypothesis that emotional "investments" made at the beginning of an interaction forecast interactive style and, when reciprocated, lead to positive relational outcomes and joined material benefits. Sixty-five pairs of unacquainted men and women were observed in same-sex dyadic interactions consisting of a mixed-motive negotiation exercise. Micro-analysis of smiling behavior was performed on the first 30 seconds of each interaction. Overall, the reciprocation of low intensity smiles was associated with assertive behavioral style during the negotiation and with lower joined material outcomes for the pair. On the other hand, the mimicry of high intensity smiles was positively correlated with positive negotiation behavior and joined material outcome. In addition, while the reciprocation of low intensity smiles in women was correlated with a perceived competitive and negative atmosphere, reciprocation of high intensity smiles was positively correlated with mutual evaluations that the partner demonstrated a cooperative attitude and that the negotiation atmosphere was friendly. Sex differences were also observed in the effects that different smile types had on interactive outcomes. These results will be discussed in relation to signaling theory, whereby emotional costs incurred at the beginning of an interaction reliably forecast negotiation style and promote behavioral investments towards joined material and relational benefits. Sex differences in interactive style will also be discussed in the light of evolutionary theory.

Keywords: social signalling, social interaction, communication, cooperation, negotiation

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[*]Speaker

Conflicts within and between groups over military alliances inhibit the evolution of large-scale human societies

Alberto Micheletti * [1], Graeme Ruxton [2], Andy Gardner [2]

[1] IAST – Institute for Advanced Study in Toulouse – Manufacture des Tabacs 21, Allée de Brienne 31015 Toulouse Cedex 6, France
[2] University of St Andrews – University of St Andrews, School of Biology, Dyers Brae, St Andrews KY16 9TH Fife Scotland, UK, United Kingdom

Objective: The evolution of human societies from small foraging groups to large-scale multi-ethnic states represents one of the most striking facets of our species' history, and understanding the drivers of this major transition remains an enduring challenge for researchers across multiple disciplines. Warfare is often argued to have played a key role in welding small human groups together to form larger alliances that are able to field more combatants and thus win more confrontations. This suggestion has given rise to the view that war-stricken regions are cradles of civilization. However, whilst these arguments have focused on potential benefits to the nascent alliance as a whole, the wider study of major evolutionary transitions – including the evolution of the eukaryotic cell, multicellularity and eusociality – has repeatedly shown that conflicts of interest at lower levels are often crucial in determining whether and how new higher-level entities emerge.
Methods: Here, we develop mathematical models of alliance formation via conquest to assess the scope for – and consequences of – conflicts of interest between and within human groups.

Results: We reveal that between-group conflict will often arise over the reproductive concessions that defeated parties must make to their conquerors. Moreover, we show that negotiation of alliances will often present collective-action problems that manifest as within-group conflicts – such that the likelihood of alliance formation need not be greater in more bellicose populations.
Conclusions: Taken together, these results suggest that conflicts of interest may inhibit the emergence of complex societies, unless they are counteracted by mechanisms ensuring suppression of within-group competition.

Keywords: warfare, alliances, conflicts of interest, major transitions, social complexity

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*Speaker

How does the impact of social information depend on its distribution?

Lucas Molleman * [1,2], Andrea Gradassi , Alan Tump , Ralf Kurvers ,
Wouter Van Den Bos

[1] Center for Adaptive Rationality, Max Planck Institute for Human Development – Germany
[2] School of Economics, University of Nottingham – United Kingdom

Objective

To examine how the impact of social information on decision making depends on its distribution.

Methods

Participants complete an experimental task in which they briefly observe an image with 50-100 animals and estimate the total number. Subsequently, they receive social information (the estimates of three pre-recorded peers) and provide a second estimate. The degree to which participants adjust their estimates quantifies the impact of social information. We manipulate the variance and skewness of the distribution of social information, holding fixed the distance between a participant's first estimate and the mean of peers' estimates. We develop a computational model to explore the cognitive processes underlying social information use.

Results

The distribution of social information strongly affects its impact on behaviour. When peers are in close agreement with each other (low variance condition), people adjust their estimate about 2/5 of the distance towards the mean observed social information. Dissent among peers (high variance condition) reduces the impact of social information to a level observed in a benchmark one-peer condition. Interestingly, holding fixed the variance of peer estimates, skewness strongly influences the impact of social information: observing one peer in close agreement with one's own first estimate ('skew near' condition) leads to substantially less adjustment than observing the closest peer being farther away ('skew far' condition). Our model indicates that these aggregate patterns can be explained by a process of Bayesian updating with overweighting of peer estimates in close proximity to one's own. Furthermore, our model accurately predicts decision-level phenomena of keeping one's own estimate (i.e. not adjusting at all) and copying one's nearest peer.

Conclusions

The impact of social information on behaviour is shaped by the variance and skewness of its distribution. Our work sheds new light on human social information use and its underpinning cognitive processes.

*Speaker

making, social influence, conformity

Ecological predictors of gender inequality: A 54-nation study of ecology, opportunity, and economic inequality

Naomi Muggleton [*] [1,2]

[1] Department of Psychology, University of Warwick – University of Warwick, Coventry, CV4 7AL, UK, United Kingdom
[2] Behavioural Science Group, Warwick Business School – University of Warwick, Coventry, CV4 7AL, UK, United Kingdom

The past century has seen an unprecedented shift in gender attitudes, with women achieving suffrage in 188 of 195 countries, the proportion of women in the workforce rapidly increasing, and many societies challenging traditional codes of female sexuality. Due to the importance of gender equality across human societies, several theories have been offered to account for these changes, variously highlighting specific cultural events (e.g., women's contributions during WWI; development of the contraceptive pill), technological advancements, or a general trend towards global democratisation and egalitarianism as fostering gender equality. Although insightful, these theories typically record isolated factors rather than providing a generalised account for these patterns. We test this proposition directly by analysing the sixth wave of the World Values Survey. Following Principal Component Analysis, we identified and aggregated relevant questionnaire items to provide a gender attitudes score for 80 399 individuals in 54 countries. We then used a multilevel model analysis, where individuals are nested by their nationality.

Analysis revealed that, after controlling for individual-level factors, the gap between the sexes' political and economic empowerment positively predicted unequal gender attitudes. Put another way, in cultures where women depend on men for economic support and political leadership, individuals are less likely to view men and women as being equal. Nonetheless, the gap in education attainment and health did not predict gender attitudes. Taken together, this suggests that it is women's dependence on men, rather than gender inequality per se, that promotes sexist attitudes.

The observed association between environmental harshness and gender attitudes highlights the complexity of gender attitudes, as well as the previously underweighted role of ecology in shaping social attitudes of gender and equality. More broadly, the findings demonstrate the importance of socio-ecological factors in the emergence of cultural differences.

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[*]Speaker

Universality and linguistic experience in the perception of speech rhythm, and its relevance for speech evolution

Mikhail Ordin * [1,2], Leona Polyanskaya [1], David Maximiliano Gomez [3], Arthur Garry Samuel [1,2,4]

[1] Basque Centre for Cognition, Brain and Language – 20009, Donostia-San Sebastian, Mikeletegi 69, Spain
[2] Ikerbasque - Basque Foundation for Science – Spain
[3] Institute of Educational Sciences, Universidad de O'Higgins – Avenida Libertador Bernardo O'Higgins 611, Rancagua, Chile, Chile
[4] Stony Brook University [The State University of New York] – 100 Nicolls Road, Stony Brook, NY 11794, United States

Objective: We investigated whether rhythm discrimination is mainly driven by the native language of the listener or by the fundamental design of the human auditory system and universal cognitive mechanisms that are shared by all people, irrespective of rhythmic patterns in their native language.

Methods: In multiple experiments, we asked participants to listen to two continuous acoustic sequences and to determine whether their rhythms were the same or different (AX discrimination). Participants were native speakers of four languages with different rhythmic properties (Spanish, French, English, German), to understand whether the predominant rhythmic patterns of a native language affect sensitivity, bias and reaction time (RT) in detecting rhythmic changes in linguistic (Experiment 2) and in non-linguistic (Experiments 1 and 2) acoustic sequences. We examined sensitivity and bias measures, as well as RTs. We also computed Bayes factors in order to assess the effect of native language.

Results: All listeners performed better (i.e., responded faster and manifested higher sensitivity and accuracy) when detecting the presence or absence of a rhythm change when the first stimulus in an AX test pair exhibited regular rhythm than when the first stimulus exhibited irregular rhythm. This result pattern was observed both on linguistic and non-linguistic stimuli and was not modulated by the native language of the participant.

Conclusions: We conclude that rhythmic cognition is based on general auditory and cognitive mechanisms and are not modulated by linguistic experience and are shared by all mammals. We suggest that the mechanisms are related to vocal learning, beat induction, and rhythmic entrainment (the ability to coordinate motor output with sensory input). As the ability to discriminate rhythmic patterns of utterances is a prerequisite for successful language acquisition, the suggested mechanisms of rhythmic cognition function as the pre-cursors of speech emergence in the phylogenetic development of the human genus.

Keywords: rhythm perception, speech evolution, speech emergence, auditory system design

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*Speaker

Who cares? Demography and cooperative breeding in Agta foragers

Abigail E Page * [1], Emily Emmott [2], Andrea B Migliano [3]

[1] London School of Hygiene and Tropical Medicine – LSHTM, Keppel Street, London, WC1E 7HT, United Kingdom
[2] Department of Anthropology [University College of London] – Gower Street - London - WC1E 6BT, United Kingdom
[3] University of Zürich [Zürich] – Rämistrasse 71CH-8006 Zürich, Switzerland

Women in many hunter-gatherer populations frequently care for multiple dependent offspring. This usually entails more provisioning than mothers alone can provide, thus they require assistance from non-maternal caregivers. Previous evolutionary anthropological literature has tended to focus on key relatives such as grandmothers, fathers and siblings, meaning nuclear and extended family perspectives have dominated the research focus. However, recent work has hinted at the functional importance of our wide social networks beyond immediate kin. Here we build on these studies by exploring the diversity of childcare in the Agta hunter-gatherers from the Philippines based on 720 hours of observational data of 80 children aged 0-5 years. Our results highlight that children are looked after by a wide range of caregivers; on average 50% of children's care originates from distant and non-kin, often in juvenile playgroups. In contrast, grandmothers are only notable in their absence, averaging at 0-3% of childcare events. Our findings reveal that 'who cares' in the Agta is dependent on social structure, demography and life history schedules. Due to high mortality and residential mobility, only 28% of children resided with a grandmother. Even in the reduced sample of children with grandmothers ($n = 34$), grandmaternal involvement only increased to 1-5%. This seems to be a consequence of reproductive competition: only 3 of 148 caregivers were post-reproductive as many 'grandmothers' had dependent offspring (aged 11 or under) due to an early age of first reproduction. Furthermore, increased childcare by non-kin significantly predicted a decrease in maternal childcare. In contrast, grandmaternal care was associated with *increased* maternal care, indicating it was not substitutive. Consequently, while grandmaternal childcare did not reduce maternal efforts, a larger 'playgroup' network did. Without such wide childcare networks, Agta mothers may not be able to maintain a rapid reproductive rate in a high fertility and mortality environment.

Keywords: Cooperative breeding, Hunter, gatherers, Evolutionary demography, Life, history, Cooperation, Grandmothering

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*Speaker

Witches or wizards? The co-evolution of witchcraft phenotypes and social systems

Sarah Peacey * [1], Olympia Campbell [1], Ruth Mace [1]

[1] University College, London – United Kingdom

Objective Belief in witchcraft, or that certain individuals can harm others through supernatural means, exists in many societies in varying forms - there can be serious consequences for those accused. This study investigates whether the sex of witches (our "witchcraft phenotype") in a population is determined by ecological factors. Social anthropologists have suggested accusations follow patterns of conflict and competition within societies, and these patterns result from social systems such as descent, which determines inheritance, and post-marital residence (where couples live after marriage). We hypothesized that where descent is patrilineal (through the male line) and residence is patrilocal (with the husband's family) women may be more likely to be accused of witchcraft, as unrelated females living with their husband's family have to compete with his kin for resources. Also, polygyny is associated with patrilineal-patrilocal societies, and accusations between co-wives (inferentially resulting from competition for reproductive resources) have been frequently observed.

Methods We use ethnographic data from sub-Saharan African societies, and code witch phenotypes as 1) predominantly male, 2) predominantly female or 3) either sex. We use phylogenetic comparative methods, which control for non-independence between cultures, and test whether the most common sex of witches is predicted by societal-level variables.

Results We find the sex of witches is variable across forms of social organisation. However, preliminary results suggest patrilocal residence, and to a lesser extent patrilinearity, predict predominantly female witches more than other social systems.

Conclusions In line with our hypothesis, the sex of witches may be affected by social organisation. Supernatural beliefs such as witchcraft may be determined by ecological factors, and could help explain the conception of witches as female in many societies. Further work is needed to determine the robustness of this result.

Keywords: social organisation, witch, supernatural belief, competition

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*Speaker

Tragedy of the Commons or Tragedy of the Private Land?

Bai Peng-Peng * [1] , Mattia Mancini , Juan Du , Ruth Mace [2,3]

[1] Lanzhou University – 222 Tianshui South Road Lanzhou, China
[2] Lanzhou Univeristy – United Kingdom
[3] University College, London – United Kingdom

Bai Peng-peng, Mattia Mancini, Juan Du, Ruth Mace

Abstract:

Objective: The tragedy of the commons proposed by Harding in 1968 has gradually become the basis for the privatization of common land in many countries and regions around the world have similar cases (Gill 2004; Benjaminsen et al. 2006; Mark Moritz 2013; Claire Manoli et al. 2014; Alisher M et al.2016; Ayodele O. Majekodunmi 2016); yet the problem of ecological degradation is still prominent. Here we test the hypothesis that the privatization of the commons curbs ecological degradation in a grassland area of China.

Methods: We focus on part of the Qinghai-Tibet Plateau where a stringent privatization and settlement process has been implimented by government over the past 20 years. We collected data on perception of grassland conditions of herdsmen before and after privatization by fencing the grassland into indiviudal plots in 5 villages in the Qinghai-Tibet Plateau. In addition, we use local NDVI data by analyzing satellite images, combined with meteorological data. We use GLMM, to analyze how the different grassland management practices are associated with different NDVI values. We also compare the herder's perception of grassland conditions and the actual impact of privatized grassland management practices on grassland ecology.

Results: Both herder's perception of grassland conditions and changes in NDVI values displayed by satellite images, indicate that the privatization by fencing process exacerbates the degradation process of grassland ecology. The results of GLMM analysis also shows that the grassland in smaller smaller fenced plots where herders graze individually are deteriorating more significantly than those in larger fenced areas where there is herding in groups.

Conclusions: The herder's perception of the grassland situation matches our evidence that suggests that the tragedy of private land has occurred in pastoral areas in northwest China.

Keywords: Public goods, Grassland, Herders, Overgrazing, China.

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*Speaker

Group size and collective action

Jorge Peña * [1], Georg Nöldeke [2]

[1] Institute for Advanced Study in Toulouse – University of Toulouse 1 Capitole – France
[2] University of Basel – Switzerland

We consider a game-theoretic model of collective action: the private provision of a public good with non-refundable binary contributions. A fixed amount of the good is provided if and only if the number of contributors reaches an exogenous threshold. The threshold, the group size, and the identical cost of contributing to the public good are common knowledge. Our main result shows that the maximal probability of reaching the threshold (and thereby obtaining the public good) which can be supported in a symmetric equilibrium of this participation game is decreasing in group size. This generalizes a well-known result for the volunteer's dilemma – in which the threshold is one – to arbitrary thresholds and thereby confirms a conjecture by Olson for the class of participation games under consideration.

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*Speaker

Isochrony and meter convergence in speech as coalition signals

Leona Polyanskaya * [1], Arthur Samuel [1,2,3], Mikhail Ordin [1,3]

[1] Basque Centre for Cognition, Brain and Language – 20009, Donostai-San Sebastian, Mikeletegi 69, Spain
[2] Stony Brook University [The State University of New York] – 100 Nicolls Road, Stony Brook, NY 11794, United States
[3] Ikerbasque - Basque Foundation for Science – Spain

Objective: Rhythm entrainment is claimed to promote pro-social behavior and to signal social bonding and cooperation. Yet it is unknown if the convergence of rhythm in speech is perceived and used to make pragmatic inferences regarding the cooperative urge of the interactors, and whether this decision is conscious or unconscious. We aimed to address these questions.
Methods: For analytical purposes, we separate pulse (recurring acoustic events) and meter (hierarchical structuring of pulses based on their relative salience). We asked the listeners to make judgements on the hostile or collaborative attitude of interacting agents who exhibit different or similar pulse (experiment1) or meter (experiment2), and, on each trial, to indicate their confidence in the response. We estimated the percentage of trials when participants responded that the interactants are cooperating for the conditions when their rhythm was similar vs. different. To understand whether the decision is made consciously, we used a signal detection theoretic approach and estimated d' and meta d' for both experiments.

Results: Rhythmic convergence is perceived as a marker of cooperative behavior only at the level of meter, and the decision is made without awareness. At the level of pulse, not convergence but isochrony matters. Isochronous pulse is perceived as a cooperation signal, even when it is emitted by only one of the interactors, and participants are aware of using pulse isochrony as a social coalition cue.
Conclusions: Meter convergence and isochronous pulse can be used to make inferences about social coalition of the interacting agents by a third-party observer even when the referential meaning of the utterance is opaque or non-existent. Potentially, this phenomenon could also be used to *emit* information regarding the level of cooperation in a group. At the end of the talk, we will discuss the implications of these findings for speech evolution in humans.

Keywords: speech evolution, rhythm, isochrony, rhythm convergence, rhythm entrainment, cooperation signal

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*Speaker

The relative contributions of relatedness and kinship to social support in rural Tamil Nadu

Eleanor Power * [1], Elspeth Ready [2]

[1] London School of Economics and Political Science – Houghton Street London WC2A 2AE UK, United Kingdom
[2] Max Planck Institute for Evolutionary Anthropology – Deutscher Platz 6 04103 Leipzig, Germany

Evolutionary ecologists have shown that relatives are important providers of support across many species. Among humans, cultural reckonings of kinship are more than just relatedness, as they interact with systems of descent, inheritance, marriage, and residence. These cultural aspects of kinship may be particularly important when a person is determining which kin, if any, to call upon for help. We use social support networks from two villages in South India to ask how relatedness and kinship structure support. While these Tamil villages are nominally patrilocal and patrilineal, matrilateral kin relations play essential social roles and many women reside in their natal villages, letting us tease apart the relative importance of genetic relatedness, kinship, and availability. We find that people often name both their consanguineal and affinal kin as providing them with support, and we also see some weakening of support with lesser relatedness. Matrilateral and patrilateral relatives are roughly equally likely to be named, and the greatest distinction instead is in their availability, which is highly contingent on post-marital residence patterns. People residing in their natal village have many more consanguineal relatives present than those who have relocated. Still, relocation has only a small effect on an individual's network size, as non-natal residents are more reliant on the few kin who they have present, most of whom are affines. In sum, marriage patterns have an important impact on kin availability, but the flexibility offered by the broadening of the concept of kin helps people develop the cooperative relationships that they rely upon, even in the absence of genetic relatives.

Keywords: social support, kinship, relatedness, social network analysis, cooperation, kin selection

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*Speaker

Explaining Diversity in Foraging behavior of Children in Pemba Island, Zanzibar

Ilaria Pretelli * [1], Haji Massoud Hamad [2], Barnabas Caro

[1] Max-Planck-Institut für evolutionäre Anthropologie – Deutscher Platz 6, 04103 Leipzig, Germany
[2] Department of Forestry and Non-Renewable Natural Resources – Wete Pemba, Zanzibar, Tanzania

Evolutionary explanations for the role of childhood in humans require data on children behavior from different settings. Observing and comparing what children do will help define the selective pressures that underlie human life history traits, such as delayed maturation or the contemporary presence of multiple dependent offspring. Foraging is, to various degrees, an important activity in children's lives all over the planet, but available data are restricted to a small number of societies. To help fill this gap, we collected information on children's foraging behavior in Pemba, Tanzania. Communities on the island live at the margin of market economy and subsist mainly of small-scale agriculture, fishing and clove cultivations. The products of foraging supplement the diet, especially of children, and this behavior is widespread across the island. To investigate the common practices and relevance of foraging, we interviewed students from all 106 non-urban administrative units (*shehias*) and collected data on several of the commonly harvested sea and forest products. These include birds, fruits, mollusks, arthropods and small mammals. In order to better understand how foraging behavior is learned throughout development, we investigate the relationship between sex, age of participation and task complexity. Preliminary results show high spatial variability across the island in age at beginning of harvesting, and sex differences in foraged products. Our poster will pose questions for discussion about how and why foraging activities might be variably structured by age and sex in different localities.

Keywords: Foraging, childhood, Pemba Island.

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*Speaker

Gendered division of labour and childbearing in low-fertility settings.

Alyce Raybould * [1], Rebecca Sear [1]

[1] Evolutionary Demography Group, London School of Hygiene and Tropical Medicine – United Kingdom

Objective: The cooperative breeding hypothesis predicts that, all else equal, when mothers have more support with childrearing, including from their partners, their fertility will increase. We aim to evaluate evidence for this hypothesis in low-fertility settings.

Methods: We first performed a systematic review including all papers studying the relationship between gendered division of labour in the household, and fertility intentions and outcomes in low-fertility settings. In order to fill in some gaps revealed by this review, we then conducted our own analysis of National Longitudinal Survey of Youth (1974-2014) data from the US, an understudied region in this research area, to examine the probability of progressing to second birth, dependent on gendered division of labour and gender attitudes.

Results: The systematic review, of 61 papers, highlighted that overall there is good evidence that fertility increases when men participate in domestic work. However, there is also evidence that fertility is relatively high in 'traditional' relationships, e.g. male breadwinner-female home-maker, where men help little with domestic tasks but are expected to provide resources. For example, studies exploring gender role attitudes consistently found that only women with 'traditional' attitudes desired and had more children. In our analysis of NLSY data, we also found that 'traditional' women had a second child more quickly than those with more egalitarian views.

Conclusion: Even in low-fertility settings, there is some evidence that support with childrearing may be associated with higher fertility. However, support from partners can take different forms, either providing resources or direct help with domestic labour or childcare. This highlights both the flexible nature of our cooperative breeding strategy and the flexible nature of gender attitudes and roles in human societies.

Keywords: Gender, Gender Roles, Fertility, Childbearing, Division of labour, Cooperative Breeding, Low, fertility settings

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*Speaker

Cooperation, Conflict and Social Status in a Small-Scale Society

Daniel Redhead * [1], Chris Von Rueden [2]

[1] Department of Human Behavior, Ecology and Culture, Max Planck Institute for Evolutionary Anthropology – Deutscher Platz 6, Leipzig 04103, Germany
[2] Jepson School of Leadership, University of Richmond – United States

Human social life is structurally patterned. The webs of interpersonal relationships that we forge and maintain do not develop in isolation. Rather, network multiplexity patterns relational behaviors, with ties from one network predicting the formation of ties in another. Such network multiplexity has recently been attributed to the formation of positive ties, with evidence indicating that multiplex ties-and multiplex dyadic and triadic configurations-may provide important information about the overall structure and formation of cooperation networks. There is, however, a scarcity of empirical investigation on the relationship between positive and negative ties. The current research proposes that conflicts (negative ties) are more likely to emerge between individuals who are cooperators (positive ties), and that both of these networks are patterned by status differentiation. More specifically, individuals high in social status are often thought to be popular choices as cooperation partners, as they possess both an ability and willingness to provide benefits to individuals within their group. However, friction may emerge among friends, particularly those close and/or high in social status. Using exponential random graph modelling, we assess the overlap in friendship and conflict networks-and how these networks are patterned by status differentiation-between males among the Tsimane forager-horticulturalists of Bolivia. Our findings suggest that there is some overlap between conflict and friendship networks. Moreover, results indicate that individuals higher in social status were more likely to have friends and also be involved in conflicts. In conclusion, the present research highlights the importance of network multiplexity between positive and negative ties, and further indicates that status may generate both popularity and conflict for individuals.

Keywords: Social Hierarchy, Social Networks, Social Status, Cooperation, Conflict

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*Speaker

Southpaw advantage: left-handed men are over-represented in combat sports and win more fights in two large samples.

Thomas Richardson * [1], Tucker Gilman [1]

[1] University of Manchester [Manchester] – Oxford Rd, Manchester M13 9PL, United Kingdom

Objective

Handedness is a heritable, sexually dimorphic trait in humans that is thought be associated with fitness costs. The fighting hypothesis argues that left-handedness is maintained in humans despite this as it provides a negative frequency-dependent advantage to males in combat. While several studies have noted that left-handers are over-represented in combat sports, most do not find differences in the fighting success of left and right handed fighters. These studies usually had

small sample sizes and/or only examined top tier fighters. Our objective was to test this hypothesis using very large samples of professional fighters showing a range of abilities.

Methods

We tested for over-representation of left-handed fighters in two samples. One consisted of every currently active professional boxer (6090 fighters), the other was 2013 active mixed martial arts (MMA) fighters. We compared left and right-handed fighters on their win:loss records, and compared boxers on their Boxrec score, a comprehensive measure of overall boxing ability. Boxers were also divided into 3 samples based on ability: low, medium and high.

Results

We found strong over-representation of left-handed fighters in both boxing (17.3%) and MMA (18.7%) compared to the general male population (12.3%). In boxing, representation was significantly higher among top-tier fighters (18.8%) than lower tier fighters (15.6%). Contrasting to previous work, we found that left-handed fighters had significantly better win:loss records and Boxrec scores, though this did not differ by fighter tier in boxers.

Conclusions

Left-handed men are over-represented in combat sports, with greater representation at higher tiers, and have better records than right-handed fighters. Previous studies may not have found these effects due to much smaller samples and only examining top tier fighters. Our study suggests that left-handedness may have evolved to provide an advantage in male intrasexual competition.

Keywords: Intrasexual, competition, fighting, violence

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*Speaker

Why do older people fall in love? Partnership transitions and family relations in later life

Anna Rotkirch * [1], Lenka Krenkova

[1] Population Research Institute, Väestöliitto (PRI) – POB 849 FIN-00101 Helsinki, Finland

Rates of divorce, remarriage, cohabitation and dating are rising among the elderly as the so-called "second demographic transition" is now reshaping old age in high-income societies. This poses interesting new questions about "grey divorce" and "grey remarriage", or the costs and benefits of forming new pair bonds at older age. While evolutionary studies have addressed the effects of menopause on grandparenting and intergenerational relations, there is a lack of both empirical studies and theoretical understanding about the preferred forms and consequences of couple relations in old age. to what extent and why do older people fall in love, or out of love? Why do so many women with a new partner prefer not to marry? How does remarriage affect relations to grandchildren for women and men? We present worldwide trends in marital status among the 55+ and the effects of remarriage in older days on kin relations using nationally representative, longitudinal survey data from Finland in 2008-2018.

Keywords: love, pair bond, marriage, remarriage, kin relations, lifespan

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*Speaker

Husband, Lover, Pater, Genitor: Concurrency and Paternity in Himba Pastoralists

Brooke Scelza * [1], Sean Prall [2], Natalie Swinford [3], Shyamalika Gopalan [4], Elizabeth Atkinson [5], Richard Mcelreath [6], Jacob Sheehama [7], Brenna Henn [3]

[1] Department of Anthropology, University of California, Los Angeles – United States
[2] UCLA Department of Anthropology – United States
[3] UC Davis Department of Anthropology – United States
[4] SUNY Stony Brook – United States
[5] Broad Institute MIT – United States
[6] Max Planck Institute for Evolutionary Anthropology – Germany
[7] University of Namibia – Namibia

There is general consensus among researchers that nonpaternity rates in humans are negligible, hovering around 1%. However, these data are in conflict with the anthropological literature, which has documented much more variable rates of concurrent partnerships around the world. This conflict occurs in part because the nonpaternity data that is available comes almost exclusively from western nations where the costs of misallocated investment by fathers is high and the benefits to women of engaging in concurrent partnerships relatively low. Furthermore, we have almost no data matching men's and women's assertions about paternity with genetic paternity data, which is critical to understanding decision-making about paternal investment. Here we match demographic and genetic data from a population of Namibian agropastoralists who regularly practice socially sanctioned concurrency and present rates of nonpaternity among married couples and paternity confidence for both husbands and wives. The nonpaternity rate is 49% (n=177 father-child pairs), significantly higher than any previously reported rate. Paternity confidence, the percent of time that men and women are accurate in their assertions, is high for both men and women (72% and 76% respectively). These data demonstrate the importance of studying nonpaternity in a broader suite of populations and opens the door to future studies that can use genetic data to shed light on the roles of social and biological fatherhood. We end by discussing some of the ethical and practical implications of doing nonpaternity research in diverse populations and the importance of community involvement and consent throughout the process.

Keywords: paternity, genetics, Himba

Parent-offspring conflict unlikely to explain 'child marriage' in northwestern Tanzania

Susan Schaffnit * [1], Anushé Hassan [2], Mark Urassa [3], David Lawson [4]

[1] University of California [Santa Barbara] – Santa Barbara, CA 93106, United States
[2] London School of Hygiene and Tropical Medicine (LSHTM) – United Kingdom
[3] National Institute for Medical Research, Mwanza (NIMR) – Tanzania
[4] University of California [Santa Barbara] – Santa Barbara, CA 93106, United States

Approximately 40% of women in sub-Saharan Africa marry before their 18th birthday. Within the international development sector this phenomenon is referred to as 'child marriage', widely equated to forced marriage, and recognized as damaging to multiple dimensions of female wellbeing. An escalating global campaign to end early marriage typically assumes that its high prevalence is driven by a conflict of interests between parents and daughters, with parents coercing daughters to marry early for the parents' economic benefit. However, a parent-offspring conflict model of early marriage has not been explicitly tested. Here we present a study of marriage transitions in rural Tanzania, where marriage before or just after 18 years is normative. Consistent with parental coercion, we find that bridewealth transfers are highest for younger brides. However, autonomy in partner choice is very common at all ages, relationships between age at marriage and female wellbeing are largely equivocal, and women who marry early achieve relatively higher reproductive success. We conclude that in contexts where adolescents have autonomy in marriage choices, and where marriage promotes economic and social security, early marriage may be better understood as serving the strategic interests of both parents and daughters.

Keywords: parent offspring conflict, evolutionary anthropology, Tanzania

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*Speaker

Formal leadership and collective action in two horticulturalist populations in Bolivia

Edmond Seabright * [1], Hillard Kaplan [2]

[1] The University of New Mexico [Albuquerque] – Albuquerque, Nouveau-Mexique 87131, United States
[2] Chapman University – Orange, CA 92866, United States

Political leadership is thought to have evolved in part as a solution to complex collective action problems in human societies. Effective leadership can be an important tool allowing groups to coordinate activity, resolve conflicts, enforce collective behaviors and norms, and interact with outside groups. While leaders may often receive benefits in the form of resources, mating opportunities, or social support, their position can be accompanied by significant burdens on their time, resources, or even social capital. In many societies, the desire to become a formal leader is far from universal, raising the question of why and under what conditions leadership might arise. Here we compare two horticultural populations in lowland Bolivia with similar ethno-linguistic backgrounds, but different levels of cultural, political and market integration with neighboring towns. The Tsimane, for whom sustained contact with Spanish-speaking Bolivia dates back to their missionization in the 1970s, have leaders with limited authority and engage in little community-wide collective endeavors . In contrast, Moseten villages were established after missionization by the Catholic church as early as the 18th century, and have complex, authoritative political hierarchies and strong community-wide engagement the political system. We utilize social networks, wealth and income surveys, and election records to compare past and present community leaders in Tsimane communities, the expected cost that leaders incur, and the traits of individuals who are both desirable and willing to take on the role of leader. We find low levels of political ambition and high inter-community agreement on the desirability of specific individuals as future leaders, suggesting that leaders may take on their roles because of community pressure more than the desire for personal gain. We also find a greater preference for experience and education in leaders in Moseten rather than Tsimane villages, likely reflecting the more involved nature of their leadership roles.

Keywords: Leadership, cooperation, small, scale societies

No evidence that becoming a grandparent benefits well-being: What does this mean for evolutionary theories of grandparenting?

Paula Sheppard * [1], Christiaan Monden [1]

[1] University of Oxford [Oxford] – Wellington Square, Oxford OX1 2JD, United Kingdom

Darwinian reasoning predicts that becoming a grandparent is beneficial for inclusive fitness and, as such, should evoke positive, motivational, psychological mechanisms. Indeed, a large body of literature suggests that grandparenting does positively impact on subjective well-being, improved mental health, and happiness. These findings are, however, based on studies that compare grandparents to non-grandparents within a population. This is problematic because many unobserved characteristics such as genes and personality are unaccounted for. This is especially important when studying self-reported measures of well-being given their subjective nature - people have different internal concepts about how happy they are. The grandmother hypothesis further predicts that grandmothering is associated with increased lifespan because post-menopausal women who contributed to raising their grand-offspring would have increased fitness, and passed longevity genes to future generations. In this study, we tested whether becoming a first-time grandparent is associated with increased self-reported well-being and subjective life expectancy. We used fixed effects models with longitudinal data which allows well-being to be compared, within the individual, before and after the grandparent event. This design therefore enables any unobserved heterogeneity between people to be controlled for. Using large, nationally-representative data from fifteen countries in Europe (SHARE survey) we found very little convincing evidence for an effect, nor when we replicated these tests in England (ELSA data), or in the USA (HRS data). We discuss what these findings mean for evolutionary theories of grandparenting.

Keywords: grandparent, subjective well, being, subjective life expectancy, grandmother hypothesis, fixed effects models

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*Speaker

Association between immune system reactivity and facial attractiveness in men

Žaneta Slámová * [1,2], Dagmar Schwambergová [1,2], Jitka Fialová [1,2], Vít Třebický [1,2], Jan Havlíček [1,2]

[1] Faculty of Science, Charles University – Vinična 7 Prague 2 128 44, Czech Republic
[2] National Institute of Mental Health – Topolová 748 Klecany 250 67, Czech Republic

Previous studies have suggested possible positive association between immune function and facial attractiveness in humans. Mating with individuals with more reactive immune system could lead to higher reproductive success and thus it is possible that processes facilitating detection of relevant visual cues in others may have evolved.

The main aim of the present study was to test a possible association between the reactivity of the immune system in response to foreign antigens and facial attractiveness in men.

We collected standardized facial photographs of 21 men aged 18-40 years before and two weeks after they received hepatitis A and meningococcal vaccine. Analogously, we obtained participants' blood samples to determine levels of IgG and IgM antibodies (markers of reactivity of immune system) and CRP (marker of inflammation) at the same time intervals and one month after the vaccination. Further, we measured skin colour before and after vaccination from the facial photographs. Women (N=88, aged 18-40 years) assessed the photographs regarding their attractiveness.

Our results showed no association between measures of reactivity of the immune system and perceived facial attractiveness. However, participants with activated immune system (two weeks after vaccination) were rated as significantly less attractive and were significantly paler. Moreover, we found significant negative relationship between CRP levels and perceived attractiveness. The results suggest that people are sensitive to visual cues to current health status and perceive individuals with activated immune system (indicator of possible illness) as less attractive. In contrast to previous studies, we did not find an association between immune system reactivity and facial attractiveness. This could be due to relatively smaller sample size and/or activation of different components of the immune system.

Keywords: Facial attractiveness, mate choice, sexual selection, immune system, disease, avoidance, skin colour

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*Speaker

Grandmothers are crucial for grandchild survival between the first and second year of life in families with low SES

Petr Turecek * [1,2], Jan Havlíček [1], Alice Velková [1]

[1] Faculty of Science, Charles University, Prague, – Czech Republic
[2] National Institute of Mental Health, Klecany – Czech Republic

It was previously shown that grandmothers contribute to the survival of their grandchildren. However, this effect might modulated by socio-economic status (SES) of parents, since individual with high SES can afford to replace missing familial caretakers with payed unrelated labour force. We further evaluated whether grandmaternal care varies with the age of grandchildren. To assess these questions, we employed a large database of church records from West Bohemia between 1709-1834. Parental social status, grandmother presence and survival until the age of 5 was unambiguously identified in 6712 individuals (2692 high SES farm holders, 2269 intermediate SES cottagers and 1751 low SES houseless lodgers). We controlled for the relatedness between the individuals because of possible genetically transmitted benefits. The relatedness was based on the extension of this dataset that contained 15902 individuals. The association between the grandmother presence (at least one grandmother alive and living in the same or nearby village) or absence (both grandmothers dead or not present in the data) and survival was evaluated for the period from 0 to 5 years of age and for each year within this period separately.

Cox proportional hazards model showed that absence of both grandmothers lowered the probability of survival only in children from families with the lowest SES. This difference was most pronounced between the first and second year of life (HR=1.93, 95% CI = 1.57-2.39, z=3.11, p< 0.01). A child of a houseless lodger without an access to any grandmother was almost twice more likely to die in said period than a child who could benefit from a presence of at least one grandmother. Children with grandmothers were, nevertheless, more likely to survive in every year of early childhood.

Keywords: grandmother hypothesis, menopause, child mortality

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*Speaker

How do hunter-gatherers decide to move their camps?

Vivek Venkataraman [*] [1], Thomas Kraft [2]

[1] Institute for Advanced Study in Toulouse – Institute for Advanced Study in Toulouse – 21 Allee Brienne Toulouse 31000, France
[2] Department of Anthropology, University of California Santa Barbara – United States

Objective

Central-place foraging is a defining aspect of human ecology that is associated with derived aspects of our species' physiology, life history, and cognition. Hunter-gatherers are distinctive among the great apes as central-place foragers with highly coordinated camp movements. Recent evidence has shown that the timing of camp movements is sensitive to depleting foraging returns and maximizes foraging efficiency at the level of the group. Our objective here is to identify the social factors that might generate such a pattern among a group of self-interested foragers with some degree of common interests. Ethnographic reports suggest that camp movements are accompanied by much argumentation about movement decisions. Based on these considerations, we hypothesize that group-level foraging efficiency may be maximized via a feedback mechanism involving pooled energy budgets (e.g. profligate food sharing, division of labor), public knowledge of foraging returns, and consensus via argumentation regarding the value of current and prospective foraging sites.

Methods

We constructed a simple agent-based model to explore how variation in food sharing, the extent to which foraging returns are public, and strength of argumentation can influence the foraging efficiency of human groups with heterogeneous foraging skill and variation in daily foraging success.

Results

Our model demonstrates that group-level maximization of foraging efficiency can emerge among self-interested individuals given only modest levels of interdependence and shared information. The structure of sharing networks also moderates the degree to which sharing influences group-level maximization, with a low global clustering coefficient promoting efficiency at modest levels of sharing.

Conclusions

These results shed light on the factors that maintain group living and efficient central-place foraging in humans. Our results also highlight the ways in which unique human behaviors (e.g. language, extensive sharing) fundamentally change consensus decision processes as compared to other organisms.

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[*]Speaker

Influence of skin color and a prosocial priming in costly sharing in children from Northeast Brazil

Maria Emilia Yamamoto * [1], Mayara Medeiros , Wallisen Hattori , Genildo Araújo , Ana Karla Silva

[1] Universidade Federal do Rio Grande do Norte [Natal] – Campus Universitário Lagoa Nova, CEP 59078-970 — Natal/RN, Brazil

Brazil's population is very diverse, comprising many races and ethnic groups, that experienced mixed breeding from the colonial period. In the Northeast more than 60% of the population is of mixed race, or "pardo". Moreover, part of those reported as black leave in quilombos, ancient runaway slave settlements. We investigated costly sharing, preceded by a prosocial priming, in auto-declared black, white and pardo children, part of the black and pardo ones from quilombos. The prosocial priming presented a skin color bias. Our hypotheses, in accordance with the literature on social exclusion and group coalition, were that (i) pardo and black children would be more generous than white ones, and (ii) white children would show enhanced sharing when presented to own skin color biased priming but not black and pardo children. Preliminary results confirmed the first but not the second hypothesis.

Keywords: sharing, skin color, priming, quilombo, northeast Brazil

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*Speaker

The Evolutionary Ecology of Menopause Symptoms

Yuping Yang * , Ruth Mace *

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[2] University College, London – United Kingdom
[1] Lanzhou Univeristy – United Kingdom

Objective: Evolutionary anthropologists are unsure as to why selection would have ever favored menopause. Úbeda et al (2014) made a prediction about menopause symptoms: Consistent with the Grandmother Hypothesis, based on the intragenomic conflict, they find in populations with greater female-biased dispersal, women will experience a smaller degree of intragenomic conflict, shorter and less symptomatic peri-menopause and later menopause. There have been few studies testing it; and thus we propose to investigate the validity of the theory.

Methods: We use the Menopause symptoms Rating Scale (MRS) Questionnaire data from villages in Lugu lake and Zhaba in Sichuan province in China from 2 patrilocal populations and 2 matrilocal populations. The respondents experience of the menopause was collected using the MRS that was developed by the Berlin Center, in which participants respond to statements (e.g. "I have hot flashes", "I get heart palpitations") on a 4-point likert scale. For each individual, a 'menopause symptoms score' (MSS) was created by summing the respondent's report of symptoms. This includes a total MSS, in additional to a vaso-motor MSS, a psychological MSS, and a physical MSS. Using these scores, we tested whether the residence pattern (matrilocal or patrilocal) of the individual is predictive of the severity of menopause symptoms. For the hypothesis to be supported, we would expect the matrilocal Mosuo and Zhaba to report worse symptoms than the patrilocal Han and the Yi.

Results: So far, according to the collected data, my conclusion is converse to the Úbeda's prediction. In my study, the primary results are: Whatever the female-biased dispersal is, the menopause timing is no difference; The Mosuo and the Zhaba females (smaller female-biased dispersal) have lower symptoms score than the Han (greater female-biased dispersal).

Conclusions: There is no evidence to support the intragenomic conflict hypothesis for the symptoms of peri-menopause.

Keywords: Peri menopause, Menopause symptoms, Intragenomic conflict hypothesis, Female biased dispersal, Matrilocal or patrilocal.

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*Speaker

Evolutionary ecology of non-reproductive monks

Liqiong Zhou * , Ruth Mace *

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[1] Lanzhou University – China
[2] University College London - London's Global University (UCL) – Gower Street - London, WC1E 6BT, United Kingdom

Objective: Why parents in many societies send some children, especially boys, to live in religious institutions where they never reproduce, is an evolutionary puzzle. In traditional Tibetan society, around one in seven boys in a village would be expected to be sent to live as a monk in the local monastery. They get a new name and they cannot marry. Here we want to test whether male-male competition for marriage partners and resources explains why parents send a son to the monastery in an agro-pastoral Amdo population in the eastern Tibetan Plateau.
Method: We collected demographic data including 21 villages and 3600 people in a demographic survey in 2016~2017, which included any family members that had become monks. We used a mixed-effects model to analyze how village sex ratio, birth order, wealth, distance to town effects the probability of being a monk.

Results: We found later born boys with older brothers and in families with many yaks, and those in villages with a more male-biased sex ratio are more likely to be monks.
Conclusion: These results support the hypothesis that male-male competition for marriage partners and resources, both within the family and within the village, are driving in the practice of boys being sent to the monastery to live as monks in this patrilineal society.

Keywords: non reproductive monks male male competition agro pastoral Amdo

*Speaker

High social status is associated with child health among women, but not men, in an acculturating horticulturalist population

Sarah Alami * [1], Christopher Von Rueden [2], Michael Gurven [1]

[1] University of California [Santa Barbara] – Santa Barbara, CA 93106, United States
[2] Jepson School of Leadership Studies, University of Richmond. – Jepson School of Leadership Studies 221 Richmond Way, University of Richmond, VA 23173, United States

In both nonhuman social species and human societies, male social status is associated with higher reproductive success. However, less is known about the potential fitness benefits of high social status to females. Greater female political representation is positively associated with improvements in group level outcomes for child health, suggesting that improving child survivorship might be a mechanism by which women may increase their fitness when opportunities arise. Here we examine whether women's social status, as measured by three proxies ("Political Influence", "Project Leadership", and "Respect"), leads to better child nutritional status and health in a small, rapidly acculturating community of Amazonian horticulturalists. We find that only maternal Political Influence has a direct effect on child health outcomes. Comparing mothers and fathers in terms of their influence on their children's health, we find that maternal, but not paternal Political Influence is associated with better child health outcomes. Children of politically influential women have higher weight-for-age (B=0.27; 95%CI=0.11-0.43) and higher height-for-age (B=0.22; 95%CI=0.05-0.39) from ages 0-5 and are less likely to be diagnosed with common illnesses (OR=0.31; 95%CI=0.16-0.54). Results are consistent with women leveraging their social status to improve their reproductive success, but through improvements in child health rather than fertility or number of mating partners. We discuss these results in light of parental investment theory and their implications for the evolution of female social status in humans and nonhuman primates.

Keywords: women's status, women's political participation, child health

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*Speaker

Uncertainty about social interactions leads to social heuristics: evidence from a cooperation experiment

Pieter Van Den Berg * [1], Dewitte Siegfried [2], Tom Wenseleers [3]

[1] KU Leuven, Laboratory of Socioecology and Social Evolution – Naamsestraat 59 3000 Leuven, Belgium
[2] KU Leuven Behavioral engineering Research group – Naamsestraat 69, 3000 Leuven, Belgium, Belgium
[3] KU Leuven, Laboratory of Socioecology and Social Evolution – Naamsestraat 59 B-3000 Leuven, Belgium

Objective

When humans engage in social interactions, they are often uncertain about what the potential outcomes may be. For example, they may be aware that they are facing a cooperative interaction, but have difficulty assessing the exact consequences of cooperating or defecting. Recent theory predicts that uncertainty leads to the evolution of social heuristics: simple strategies that perform well across a range of different situations (rather than perfectly calibrated strategies for each specific situation that may arise). Here, we experimentally investigate how the uncertainty about the nature of social interactions affects human social behaviour.

Methods

In a laboratory experiment (N = 188), we confronted individuals with a variety of social interaction types. In each interaction type, participants had to repeatedly decide whether or not to provide a benefit to their interaction partner, at some (variable) consequence to themselves. Between experimental treatments, we varied the degree of uncertainty that individuals had about their own payoff consequences of cooperating. We did this by providing participants with a range in which the consequence lies, and varying the width of this range between treatments.

Results

As expected, we find that individuals use social heuristics in the face of uncertainty about payoff consequences in cooperation interactions. In addition, we find that with increasing uncertainty, social heuristics lead to increased cooperation levels (the average cooperation rate in the treatment without uncertainty was 60.8%, whereas it was 75.0% in the full uncertainty treatment – cooperation in intermediate uncertainty treatments was in between).

Conclusions

Our study provides direct empirical support of recent theoretical models predicting increased use of heuristic strategies and increased cooperation rates when there is more uncertainty about the nature of social interactions that people encounter. More generally, it helps us understand why human social behaviour often violates standard predictions of economic and evolutionary theory.

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*Speaker

She Always Steps in the Same River: Similarity Among Long-Term Partners in Their Demographic, Physical, and Personality Characteristics

Zuzana Štěrbová * [1,2], Petr Tureček [1,2], Karel Kleisner [3]

[1] Faculty of Science, Charles University, Prague, – Czech Republic
[2] National Institute of Mental Health, Klecany – Czech Republic
[3] Faculty of Science, Charles University (FS CUNI) – Viničná 7 Prague 2, Czech Republic

In mate choice, individuals consider a wide pool of potential partners. It has been found that people have certain preferences, but intraindividual stability of mate choice over time remains little explored. We tested individual consistency of mate choice with respect to a number of demographic, physical, and personality characteristics. Only mothers were recruited for this study, because the study was part of bigger project. Women (N = 537) of 18–45 years of age indicated the demographic, physical (by using image stimuli), and personality characteristics (by using Ten Item Personality Inventory) of all of their long-term partners (mean number of partners per respondent 2.98, SD =1.32). Then we compared the average difference between an individual's long-term partners with the expected average difference using a permutation test. Our results revealed that women choose long-term partners consistently with respect to all types of characteristics. In particular, consistency was found in residence size, education level, body weight, body height, age difference, attractiveness, masculinity, eye colour, hair colour, body mass index, relative body height, leg to body ratio, extraversion, agreeableness, conscientiousness, emotional stability, and openness, but not in facial masculinity, beardedness, muscularity, and hirsuteness. Although effect sizes for the individual characteristics were rather weak, maximal cumulative effect size for all characteristics together was high, which suggests that relatively low effect sizes were caused by high variability with low correlations between characteristics, and not by inconsistent mate choice. These results suggest that mate choice may be guided by relatively stable but to some degree flexible preferences, which makes mate choice cognitively less demanding and less time-consuming. Further longitudinal studies are needed to confirm this conclusion.

Keywords: repeatability, intraindividual variability, stability of preferences, sexual selection, mating behavior, female preferences

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*Speaker

Rhesus macaques use probabilities to predict future events

Francesca De Petrillo [*] [1,2], Alexandra G. Rosati [2]

[1] Institute for Advanced Study in Toulouse – Université Toulouse 1 Capitole – Manufacture des Tabacs 21, Allée de Brienne 31015 Toulouse Cedex 6, France
[2] University of Michigan [Ann Arbor] – 500 Church Street Ann Arbor, MI 48109-1090, United States

Humans can use an intuitive sense of statistics to make predictions about uncertain future events, a cognitive skill that underpins logical and mathematical reasoning. What are the evolutionary roots of this ability? Comparative studies of nonhumans can address whether this represents a unique aspect of human cognition, and further disentangle the kinds of experiences that are necessary for logical reasoning capacities to emerge in humans. We tested free-ranging rhesus macaques (*Macaca mulatta*) from Cayo Santiago on a task in which they could use probability information to infer the most likely outcome of a random lottery. We measured monkeys' looking responses as an index of their cognitive processes, a technique commonly used with preverbal infants. In Experiment 1, each monkey (n=80) saw a 'lottery' machine containing a mix of two types of fruit. Then they saw either the more common fruit (*expected trial*) or the relatively rare fruit (*unexpected trial*) fall from the machine. We found that monkeys looked longer when they witnessed the unlikely outcome. In Experiment 2, (n=80) we removed the causal relationship between the sample and the population: when experimenter pulled the sample from her pocket, monkeys looked equally at both outcomes. This lack of difference suggests that in Experiment 1 monkeys reacted to what was probable and improbable, given the distribution of the items in the population. Therefore, like humans, rhesus macaques might exhibit an intuitive sense of probability to form expectations about the future.

Keywords: intuitive statistics, probabilistic reasoning, logical inferences, non, human primates

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[*]Speaker

The Emergence of Primate Calls

Valentin Thouzeau [*][1], Guillaume Dezecache [2], Ewan Dunbar [3], Philippe Schlenker [4,5], Emmanuel Chemla [6], Robin Ryder [7]

[1] CEREMADE – université Paris Dauphine, PSL Resarch University, Centre National de la Recherche Scientifique - CNRS, UMR 7534, CEREMADE – France
[2] DEC – Institut Jean Nicot, Ecole Normale Supérieure de Paris - ENS Paris, École des Hautes Études en Sciences Sociales [EHESS], Centre National de la Recherche Scientifique - CNRS – France
[3] Laboratoire de Linguistique Formelle – Laboratoire de linguistique formelle, Centre National de la Recherche Scientifique - CNRS, Université Paris VII - Paris Diderot, Sorbonne Universités, UPMC, CNRS – France
[4] DEC – institut jean nicod, Ecole Normale Supérieure de Paris - ENS Paris, Ecole des Hautes Etudes en Sciences Sociales (EHESS), Centre National de la Recherche Scientifique - CNRS – France
[5] Department of Linguistics, New York University – United States
[6] Laboratoire de Sciences Cognitives et Psycholinguistique – Laboratoire de Sciences Cognitives et Psycholinguistique, Ecole Normale Supérieure de Paris - ENS Paris, Ecole des Hautes Etudes en Sciences Sociales (EHESS), Centre National de la Recherche Scientifique - CNRS – France
[7] CEREMADE – Ceremade, Centre National de la Recherche Scientifique - CNRS, Université Paris IX - Paris Dauphine – France

The history of human languages has been extensively studied using modern statistical methods. But human languages have a fairly recent history, and no comparable effort has been made to study how animal communication systems evolved. In recent years, ethologists have been able to document how primates use calls to communicate, carefully looking at one species after another. We formalised two models of the evolution of calls, and applied several Approximate Bayesian Computation methods over bibliographic data on primate calls, to test the process by which new calls arose over 80 million years of primate evolution. Our results favored a model in which specialised calls (e.g., "there is a terrestrial predator") may appear independently from the existence in the repertoire of more general calls (e.g., "there is some danger"). This allowed us to infer the kinds of functions that early, ancestral primate calls had: rather than necessarily being constrained to simple, broad, general-purpose functions, early calls are just as likely to have had specialized functions. Our results also demonstrate that it is feasible to study the history of non-human communication systems using recent machine learning methods. This opens new avenues for inferring the evolutionary history of communication systems.

Keywords: Linguistics, Phylogeny, Primatology, Machine Learning, Modelling

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[*]Speaker

Sex and violence: Is chimpanzee belligerence a byproduct of selection for mating competition?

Michael Wilson * [1,2], Anthony Massaro , Ian Gilby , Alexander Weiss ,
Joseph Feldblum , Anne Pusey

[1] University of Minnesota – Department of Anthropology 395 Humphrey Center 301 19th Ave S
Minneapolis, MN 55455, United States
[2] Institute for Advanced Study in Toulouse – IAST – Manufacture des Tabacs 21, Allée de Brienne
31015 Toulouse Cedex 6, France

Studies of chimpanzees (*Pan troglodytes*) and bonobos (*P. paniscus*) provide important comparative data for understanding the evolution of aggression in humans. Male chimpanzees hunt and fight more frequently than male bonobos. Proposed explanations include socioecology favoring intergroup killing in chimpanzees, and reduced mating competition among male bonobos. In both species, intergroup encounters occur much less often than mating competition; mating competition may thus shape species-typical temperament more strongly. Here we examine 32 years of data (1976-2007) from 24 males of the Kasekela community, Gombe National Park, Tanzania to test for correlates of mating success, measured as the annual mating rate (number of matings with parous female per observation day) for each male. We used general linear mixed models to test a set of a priori hypotheses, controlling for identity; the proportion of days observed; and mean rank and age for each year. Hypothesized correlates included personality rating high in Dominance; frequent participation in border patrols and other visits to the range periphery; and frequent participation in hunting. We used information theoretic model selection to determine model weight and model averaged parameter estimates. For five parameters, the 95% CI excluded zero: dominance rank (beta = 0.19 (0.10 - 0.28); participation in hunting (beta = 0.17 (0.01-0.34); participation in patrols (beta = 0.11 (0.01-0.20); participation in other visits to the periphery (beta = 0.08 (0.01-0.15); and proportion of days observed (beta = -0.48 (-0.70--0.26). These findings support the view that personality traits favored in competition for mating predispose males towards hunting and patrolling as well.

Keywords: chimpanzee, aggression, hunting, territorial behavior, reproductive success, personality, temperament

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*Speaker

An evolutionary perspective on sex differences in mobile instant messaging

Dorothea Cosima Adler * [1], Benjamin P. Lange [1]

[1] Julius-Maximilians-Universität Würzburg [Wurtzbourg, Allemagne] – Universität Würzburg, Oswald-Külpe-Weg 82, 97074 Würzburg, Germany

Introduction

Human cognition, sociality, and language can be seen as a result of a triadic coevolution (Tooby & DeVore, 1987). Thought further, this could have led to the emergence of smartphones and mobile instant messaging (mim). As media use and sex differences can be investigated from an evolutionary perspective (Hennighausen & Schwab, 2015), sex differences could be reflected in texting/ voice messaging (vm) of mim.

Method

Survey 1. N=235 (158, 3 na) were asked for average mim use, frequency texting/ vm, amount of vm sent (pw), length of texts/ vm and personality.

Survey 2. N=168 (117, 3 na) were asked for frequency of texting/ vm, motives, and target group behind the channels.

Results

Survey 1. While no sex differences emerged (e.g., average mim use, $t(224)=-1.69$, $p=.09$, $d=0.27$, ...), at least some effects of moderate size were found. Several correlations emerged with personality characteristics.

Survey 2. While no sex difference emerged on frequency of vm use ($t(163)=-1.78$, $p=.08$, $d=0.30$), women texted more than men ($t(163)=-2.20$, $p=.03$, $d=0.36$). Women texted relatives ($t(101.84)=-3.12$, $p< .01$, $d=0.52$) and same-sex friends ($t(72.34)=-2.68$, $p=.01$, $d=0.48$) more often than men. The channels correlated with several underlying motives.

Discussion

Unexpected little sex differences were found whereas personality seems important. However, women seem to value texting more.

Summarising, we present a first insight into texting/ vm in mim from an evolutionary perspective.

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*Speaker

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Fairness as an " incentive landscape " for cooperation

Jean-Baptiste André * [1], Nicolas Baumard [2]

[1] Evolution and Social Cognition - Institut Jean Nicod - Département d'Etudes Cognitives – Ecole Normale Supérieure de Paris - ENS Paris – 29 rue d'Ulm 75005, France
[2] Institut Jean-Nicod (IJN) – CNRS : UMR8129, École normale supérieure [ENS] - Paris, Ecole des Hautes Etudes en Sciences Sociales (EHESS) – Pavillon Jardin 29, rue d'Ulm 75005 Paris, France

Evolutionary theoreticians understand since the 70s that natural selection can lead to the evolution of cooperation. Yet, so far, they have been less successful in explaining the fine grained properties of this cooperation: Why do we cooperate the way we do and, in particular, why is our cooperation governed by the logic of fairness? In this talk, we will present modeling work focusing on this second question. We will argue that, in a cooperative species, individuals are under a specific selective pressure: they must be good at attracting cooperation. To do so, human beings have evolved a mental organ, the sense of fairness, whose function is to make it adaptive for others to cooperate, that is to *incentivize* their cooperation. We will show that this view of fairness (i) explains the most important properties of our cooperation such as our intuition that people should be rewarded in function of their efforts and talent, (ii) resolves apparent moral paradoxes such as the fact that fairness often consists in refusing the consequences of power-struggle, and (iii) can account for the variability of human cooperation across societies.

Keywords: Social evolution, Evolutionary game theory, Biological contracts, Bargaining theory

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*Speaker

Cohesive opponents increase the perception of harmful intent: an experimental approach to understanding the perception of conspiracy

Greenburgh Anna * [1], Nichola Raihani *

[1], Vaughan Bell *

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[1] University College of London [London] – Gower Street, London WC1E 6BT, United Kingdom

Judging the intent of groups is essential to both social safety and success but leads to frequent misperceptions that manifest as a belief in harmful conspiracy. Most studies look at characteristics of believers to investigate conspiracy thinking but we report a large N (> 1,000) pre-registered experimental study where we measured levels of paranoia, manipulated the cohesiveness of rivals and tested the effect on the attribution of harmful intent during strategic social interaction. We found that people attribute greater levels of malevolent intent to cohesive opponents than to same-sized but non-cohesive opponents. Recruiting across the full clinical and non-clinical spectrum of paranoia, we show that paranoia increases the overall tendency to attribute malevolent intent to opponents but does not interact with cohesiveness. These results suggest that the perception of cohesion among rivals increases perception of harmful conspiracy and that people who have higher pre-existing paranoia have a lower threshold for detecting social threat rather than a dysregulated response to it.

Keywords: Conspiracy, group cohesion, paranoia

*Speaker

Do 2D:4D and hand-grip strength associate with risk-taking and aggression in men

Yulia Apalkova * [1], Marina Butovskaya [1,2]

[1] Institute of ethnology and anthropology Russian Academy of Science – Russia
[2] Russian State University for the Humanities – Russia

The goal of this study was to test the association between the risk-taking and aggression with 2D:4D and physical strength in adult males from Russian population. We predicted the anthropometric and personality differences in men who are constantly exposed to risky situations due to their occupation or hobbies (high risk takers) vs. men who are not regularly exposed to risk. The data were collected in 2017 - 2018 in Caucasus and Moscow. These include anthropometric measures, self-ratings on risk-taking, Big-five and aggression in three groups of males: professional military units (Group 1), non-professional mountain climbers and parachutists (Group 2), and control sample of men who were not exposed to risky situations in everyday life (Group 3). Total sample size: 394. It was demonstrated that the representatives of the Group 1 showed significantly lower right hand 2D:4D ratio, and higher hand grip strength in comparison with other two groups. We have also revealed significant differences in aggression and some personality traits in the three compared samples. The high risk takers (Group 1) rated themselves significantly lower on anger, hostility and verbal aggression compared to other two groups. These results are discussed in the light of sexual selection theory. This study was supported by RFBR, grant 17-29-02203.

Keywords: risk taking, aggression, 2D:4D, hand grip strength, sexual selection, men

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*Speaker

Homo Strategos: An emotion perspective

Elise Bausseron * 1

1 University of Queensland – UQ Business School, Brisbane QLD 4072, Australia

Objective: The novel concept of strategic emotional intelligence (SEI) is defined as using EI for self-interested reasons without causing external harm. From an SEI perspective, most human behaviors are, ultimately, guided by self-interest and cannot be marked as being altruistic. Yet, the literature essentially compartmentalizes EI's utility as prosocial or deviant. The current study aims to nuance this Manichaean vision of adaptation by exploring the motives that drive leaders to value emotions in social interactions. Two main categories are initially distinguished, self- and others-focused motives, but it is hypothesized that leaders possess mixed motives.

Methods: Fourteen leader-follower triads (1 leader + 2 followers = 1 triad; total N= 42) recruited from 11 organizations across Australia took part in individual semi-structured interviews. The interviews focused on the leaders' perceptions about: (a) the role of emotions for leadership, (b) the ways they manage emotions, and (c) their motives for managing emotions. All transcripts were segmented into meaningful units following thematic analysis and double-coded. Followers' data served to ascertain validity through triangulation.

Results: Self- and others-focused motives emerged as quasi equal in importance in a preliminary count of the motivation units. After merging the data (matching responses within triads), however, a slight majority of self-focused leaders was found. Twelve subcategories were also identified, among which *self-actualization* and *advancing the organization's goals* showed, overall, the highest values. Interestingly, the lowest number of units reported, by quite a considerable margin, was for the submotive *altruistic aspirations*. Cross-matching key codes (e.g., level of processing x type of motives) further indicated that leaders tend to use emotions for goal pursuit predominantly on an automatic (unconscious) basis.

Conclusions: These findings provide some first qualitative evidence for the plausibility of SEI. Philosophically, they suggest that evolutionary theories of motivation are still able to explain, arguably most pragmatically, human choices.

Keywords: emotions, motivation, leadership, strategic behavior, self interest

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*Speaker

Human self-domestication: where language evolution meets language change

Antonio Benítez-Burraco [*] [1]

[1] University of Seville – Spain

Objective: Reconciling two narratives of language(s) evolution which have been usually teased apart: the evolution of the faculty of language and language change. Whereas the former has been hypothesized to result mostly from changes in our brain/cognition, the latter has been hypothesized to result mostly from external factors, like cultural contact, geographic isolation, or the physical environment.
Methods: Literature review, in silico research, and proposal of an original hypothesis

Results: The self-domestication hypothesis claims that our distinctive physical, cognitive, and behavioral phenotype resulted in part from the attenuation of features found in wild primates, in the line of what can be observed in domesticated mammals. In this talk we will argue that changes associated to self-domestication might have contributed to the creation of the cultural niche that allowed languages to gain complexity over time, via enhanced learning by children, increased teaching by parents and caregivers, and improved playing behavior by both (these changes in our behavior seemingly resulted from the enhanced sociability, the reduced aggression, and the prolonged childhood brought about by self-domestication). Self-domestication is also expected to have had a direct, but subtler effect on our brain/cognition, contributing to the emergence/refinement of our faculty of language. However, we will argue that the most important effect was an indirect one, via the development of cognitive gadgets aimed to facilitate the learning and use of the resulting more complex languages. We will support our claims with additional evidence from clinical linguistics, showing that cognitive disorders entailing problems with languages exhibit an abnormal presentation of features associated to domestication.

Conclusions. Self-domestication can help reconcile the biological and cultural changes that seemingly contributed to the emergence of complex, modern languages, in the spirit of current eco-evo-devo theories in biology, with their heavy reliance on aspects like niche construction.

Keywords: self, domestication, cultural niche, faculty of language, language change, prehistoric languages

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[*]Speaker

Attachment, self-control, and intimate partner cyber aggression

Natalie Booth [1], Gail Derefaka [1], Gayle Brewer * [2], Roxanne Khan [1]

[1] University of Central Lancashire – United Kingdom
[2] University of Liverpool – United Kingdom

A substantial body of research has investigated offline aggression between intimate partners. Relatively few studies have, however, considered cyber aggression between partners, and such research is typically limited to undergraduate populations. Therefore, the current study investigated the role of romantic attachment and dispositional self-control in cyber aggression perpetration and victimisation. Participants ($N = 201$) completed a series of standardised online measures assessing anxious and avoidant attachment, dispositional self-control, and experience of intimate partner cyber aggression (psychological, sexual, and stalking) as both a perpetrator and victim. Anxious and avoidant attachment were associated with increased perpetration of stalking and psychological abuse respectively. Further, those high on avoidant attachment were more likely to report that they were victims of psychological abuse and stalking. Self-control did not predict experience of intimate partner cyber aggression as a perpetrator or victim. Interactions between self-control and attachment were also non-significant. Future research should investigate attachment and responses to perceived cyber aggression and support the development of interventions to reduce online aggression directed at romantic partners.

Keywords: attachment, online aggression, partner violence, romantic relationships, self, control

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*Speaker

The Bio-Cultural Origins of Gender Roles

Lynda Boothroyd * [1], Catharine Cross [2]

[1] Durham University – United Kingdom
[2] University of St. Andrews – United Kingdom

The causes of sex differences in human behaviour are contested, with 'evolutionary' and 'social' explanations often being pitted against each other in the literature. Recent work showing positive correlations between indices of gender equality and the size of sex differences in behaviour has been claimed to show support for 'evolutionary' over 'social' approaches. In this paper, we synthesise these competing approaches with cultural evolution theory and argue that gendered behaviour is best understood as the result of relatively trivial sex-linked differences in motivation being magnified and shaped by generalised social learning biases with children as active self-socialisers. We further argue that this process is an adaptive and efficient route to producing complementary gendered behaviour in a cooperatively reproducing species with flexible mating systems, such as humans. Losing stereotyped sex-linked behaviours likely increased our capacity to occupy diverse ecological niches in early homo. Proliferation of material and visual culture in post-industrial societies, however, increases the opportunities for cultural evolution of gendered behaviour and allows children to self-socialise in a manner which is more disconnected from obligate sex roles than in pre-industrial societies. As such, attempts to investigate the role of structural gender equality on psychological and behavioural sex differences are likely missing a vital source of socialisation. We therefore propose key future lines of research which may elucidate this process.

Keywords: gender, sex differences, social learning, culture, testosterone

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*Speaker

Mating choice and career choice: Understanding the gender gap at work in an industrialized nation

Sylvie Borau * [1], Jeanne Bovet *

[2], Paul Seabright [3]

[1] Toulouse Business School (TBS) – PRES Université de Toulouse – 20, bd Lascrosses, BP 7010 31068 Toulouse Cedex 7, France
[2] Boston College – 140 Commonwealth Avenue, Chestnut Hill, MA 02467, United States
[3] Institute for Advanced Study in Toulouse (IAST) – IAST – Toulouse School of Economics, Manufacture des Tabacs, 21 allée de Brienne, 31015 Toulouse Cedex 6, France, France

Despite a substantial increase in women's participation in higher education and in the labor force in industrialized countries, gender differences in education and labor market outcomes remain substantial. Here, we explore the links between the labor and mating markets in an industrialized and gender-equal nation among an homogeneous population of students who are in the process of making their mating and career choices. The objective is to replicate previous results on sex differences in career and mating choices and investigate further, in the same population, if preferences in one domain are linked to the other.

We conducted an online study among 1102 heterosexual students in management in France. Respondents were randomly exposed to pairs of vignettes presenting different job positions and pairs of vignettes presenting potential long-term mates. All these vignettes differed on five dimensions: job sex-typicality (feminine vs. masculine), status (high vs. low), salary (high vs. low), flexibility (high vs. low) and dress code (mandatory or not). For each pair, respondents were asked to click on the profile they were more interested in. Other personality and socio-demographic variables were measured.

For the career choices, we found that 1) women prefer sex-typical jobs and flexible jobs more than men 2) men prefer high-status jobs more than women 3) no significant sex differences were found for the salary and the dress code required for the job. For the mating choices, we found that 1) women with high mate value prefer mates with sex-typical jobs 2) women prefer high-status mates, particularly women with low job prospects 3) no significant preferences were found among men.

Our results indicate some links between the career choices of men and women and their perception of possible payoffs to these choices in terms of their attractiveness as long-term mates. Future research will explore these links in greater detail.

Keywords: career, mate choice, gender gap, sex differences, preferences

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*Speaker

The Role of Happiness in Moderating the Effect of Intelligence (IQ) on Economic Growth

Nik Ahmad Sufian Burhan [*] [1]

[1] Universiti Putra Malaysia (UPM) – Department of Social and Development Sciences, Faculty of Human Ecology, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor., Malaysia

Previous studies have shown that national average level of intelligence (IQ) was robust in raising the economic growth rate at a cross-country level. The impact of IQ in determining productivity of a country was stronger compared to educational level and life expectancy. This study scrutinized the interaction between national IQ and happiness, and their impacts on economic growth during the 1960 – 2015 period. Using a robust regression analysis, the results of moderation analysis proved that happiness was significant to reduce the positive impact of national IQ on economic growth across 94 countries. These findings were corroborated by the negatively significant (p< 0.01) interaction term (i.e. IQ × happiness) between IQ and the happiness variable in the regression. This study suggests that higher level of happiness tend to reduce people's desire for higher achievement, thereby reducing the positive effect of IQ on economic growth. Hence, it is proposed that workplaces should provide their employees with not only happy environment, but also an environment that motivate the employees to fully utilize their IQ potential to generate higher productivity.

Keywords: Productivity, intelligence, happiness

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[*]Speaker

Sharing and fairness in rural adolescents: WEIRD - non-WEIRD societies compared

Marina Butovskaya * [1,2], Valentina Burkova , Julia Apalkova , Daria Dronova

[1] Institute of Ethnology and Anthropology, Russian Academy of Sciences – Leninsky Prospekt 32A, 117334 Moscow, Russia
[2] National Universoty Higher School of Economics, – Moscow, Russia

Social norms and the associated altruistic behavior are decisive for the evolution of human cooperation and the maintenance of social order. In accordance with these assumptions we tested the assertiveness in prosocial, sharing and fairness decisions in rural adolescents from Tanzania and Russia.

The data for this study were collected in 2015-2016 and 2018 in Tanzania and Russia. The total sample consisted of 500 adolescents (300 from Tanzania and 200 from Russia), mean age = 14 y.

Experimental method, originally developed by Fehr and colleagues (Fehr et al., 2008), and slightly adjusted for this study was used. Each child played the Prosocial game, the Envy game and the Sharing game against imagined partners (friends and unknown peers). Participants were ensured that no one will be informed about their decisions.

We conducted a set of Chi-Square tests to reveal the differences in readiness for prosocial behavior, fairness and sharing in direction towards friends and anonymous peers in both samples.

It was found that adolescents were more ready to behave prosocially towards friends, than towards unknown peers. In the fairness condition, children demonstrated assertiveness in resource allocation. Certain proportion of participants in both samples demonstrated propensity for high altruism by taking costly decisions in favor of friends. Sex differences in decision-making were found for fairness treatment only. Females were more driven by fairness principles both in direction of friends and anonymous peers.
These results are discussed in light of the co-evolution of altruism and parochialism. Genders differences are considered. Supported by the Russian Science Foundation, grant 18-18-00075.

Keywords: procosiality fairness altruism adolescents Tanzania Russia

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*Speaker

The selective, the modest, and the lustful – Variations in mating strategies

Zsófia Csajbók * [1,2], Mihály Berkics [3], Jan Havlíček [2,4]

[1] Charles University, Faculty of Science (CUNI) – Ovocný trh 3-5 Prague 1 116 36, Czech Republic
[2] National Institute of Mental Health – Czech Republic
[3] Institute of Psychology, Eötvös Loránd University – Hungary
[4] Charles University, Faculty of Science – Ovocný trh 3-5 Prague 1 116 36, Czech Republic

Objective. Sexual Strategies Theory (SST) suggests that men and women have different benefits when engaging in long- and short-term relationships with multiple distinguished objectives (e.g., acquiring good genes or resources). Several previous studies tested variation in mating strategies using preferred characteristics with inconclusive results. Here we aimed to explore the underlying mating strategies using non-preferred characteristics (delabreakers).
Methods. Heterosexual adults (N = 2,445; 48% female) rated seven dealbreakers along how likely they make them reject a potential long- and short-term partner. Self-ratings on seven desirable factors of mate preferences, sociosexual orientation, and desire for a casual relationship were administered. Two logistic regressions across sex predicted the desire for a casual relationship. We used Latent Profile Analysis (LPA) to distinguish mating strategies based on the patterns of long- and short-term dealbreakers.

Results. Men and women were more likely to desire casual relationship if they had higher sociosexual orientation, lower warmth, and younger age. LPA categorized women in two types of long-term strategies: the 'selective' group had higher self-perceived traits and stricter dealbreakers than the 'lenients'. Three males' long-term strategies were identified: the 'selectives' had the highest standards and the highest dominance and status; the 'modests' had the lowest dominance and status, and low expectations especially concerning attractiveness; and the 'lustful', young group, high in sociosexual attitudes and low in patience gave middle ratings of the dealbreakers. No female short-term strategies were identified based on the dealbreakers, but two male strategies were found: the group with low characteristics but high sociosexual desire had lower standards than the other group, except for attractiveness.
Conclusions. In contrast to the SST, women did not show differentiated short-term strategies. The extracted strategies were predicted by their self-perceived qualities. We suggest that the sexual strategies reflect rather the mating potentials than the objectives of the relationships.

Keywords: dealbreakers, mating strategies, mate choice, casual relationship, sexual strategies theory

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*Speaker

Validation of an evolutionary approach to human motivation

Val Curtis * [1], Robert Aunger , Dugald Foster

[1] London School of Hygiene and Tropical Medicine – Keppel StreetLondonWC1E 7HT, United Kingdom

Objective: Many attempts have been made to identify a complete set of human motives. We recently postulated that there are 15 distinct motives that allow us to meet the evolved needs associated with life in the human niche (Aunger and Curtis 2013). Here we test for the existence of these 15 motives using standard psychometric techniques.

Methods: English-speaking respondentstoan online study questionnaire (n = 510) rated their level of agreement with a set of 150 statements relating to the hypothesised motives, using a 5 point Likert scale. We conducted confirmatory factor analysis (CFA) on the data, with the analysis set to produce 15 factors. All study hypotheses were pre-registered on the Open Science Framework, and the data and coding scripts used in the analysis are available upon request.

Results: CFA results indicate that 14 factors closely align with the motives we identified as: Lust, Hunger, Fear, Disgust, Attract, Love, Nurture, Hoard, Create, Affiliate, Status, Justice, Curiosity and Play – can be reliably identified. The 14 factor model also exhibits good fit, with a Comparative Fit Index of 0.736, and a Root Mean Square of Error Approximation of 0.088. The postulated 'Comfort' motive failed to fit.

Conclusions: This study shows that survey data combined with factor analytic methods are capable of producing factors that align with motives predicted by evolutionary theory. The motive of Comfort was not confirmed, perhaps because it is primarily physiological in nature and has too many facets to function as a unitary motive. We will next aim to replicate these findings using cross-cultural data, in order to establish whether these behavioural motives hold universally.

Keywords: motivation, psychometrics, niche

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*Speaker

Decision-making: evolutionary view

Eugene Dotsenko [*] [1]

[1] University of Tyumen, Tyumen – Russia

Simplest way to understand decision making process is biological one. Libet-type experiments refer to brain activity as automatically produced choice which a person accepts like a self-made decision. More sophisticated way puts into the base logical processes which take into account mainly social conditions. Both ways put a decision-maker into limp recorder position, as a slave of non-personal processes.

K. Dabrowski (1973) introduced the concept of "third factor" - a person who is "autonomous in relation to the first factor (hereditary) and the second (environmental) factor". The "third factor" can be understand by means of inner dialogue, which takes place on two levels: implicit and explicit.

Objective of the experiment is to discover the process of that internal dialogue becoming. The experiment is designed according to L. Vigotsky theory by using an artificially created tool (managed dialogue) in the situations of choice between alternative values.

Results. The artificially created tool improves maturity of decision-making differently in different ages. Decisive force which effects decision-making is level of development of the dialogical self (in terms of H. Hermanns).

In discussion some arguments in favor of the idea that the "third factor" is "growing point" for humanity are proposed. And that personality is main evolutionary factor of civilization development.

Keywords: decision making, internal dialogue, personality

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[*]Speaker

Birth order does not affect ability to detect kin

Vanessa Fasolt * [1], Iris Holzleitner [1], Kieran O'shea [1], Anthony Lee [1],
Lisa Debruine [1]

[1] University of Glasgow (Glasgow Univ.) – Glasgow G12 8QQ Scotland, United Kingdom

Objective: Some evidence shows that birth order affects third party kin recognition. Kaminski et al. (2010) argue that firstborns use facial cues combined with contextual cues e.g. perinatal association to assess kinship in their own family, leading to a disadvantage in assessing kinship from facial cues only in strangers. In contrast, laterborns do not have the contextual cue of perinatal association hence rely more on facial cues, leading to an advantage in detecting kin from facial cues only. Preregistration, code, data and preprint available on the Open Science Framework.

Methods: We replicated this study with raters looking at child siblings rather than parent-neonate sets. 100 raters viewed 132 pairs of photographs of children (age 3-17), and indicated whether each pair was related or unrelated. Half of the pairs were sibling pairs and half were unrelated child pairs that were age- and gender- matched to a related pair. No image was shown more than once, related pairs were not related to any other image in the study, and individuals from unrelated pairs were not related to any other image.

Results: We used binomial logistic mixed effects modelling to predict kinship judgments from relatedness and birth order (with image pair & rater as random factors and maximally specified slopes). Relatedness was the main factor driving kinship judgments (ß=1.7, SE=0.19, z=8.98, p < .001); related child-pairs were more than twice as likely as unrelated pairs to be judged as kin. Kinship judgment accuracy was unaffected by raters' birth order (ß=-0.06, SE=0.14, z=-0.45, p = 0.653).

Conclusions: These findings indicate that laterborns do not have an advantage in detecting child siblings compared to firstborns.

Keywords: kinship, face perception, kin recognition, birth order

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*Speaker

Family factors in the development of Dark Triad traits

Tas Ferencz , Petra Gyuris [1], András Láng , Ferenc Kocsor [*] [1]

[1] University of Pécs, Institute of Psychology – Hungary

Objectives

Though studies about the Dark Triad (DT) have been extensive recently, we poorly understand which environmental factors contribute to the formation of these personality traits. In the current two studies we focused on sibling relations as a source of variation in DT traits.

Methods

In study 1, we asked adult participants (N = 170, 31 men and 139 women, mean age = 30,99, SD = 10,68) to complete the SRQ-HU (Hungarian version of Sibling Relationship Questionnaire) and the SD3 (Short Dark Triad) questionnaire. In study 2, we asked participants aged under 18 (N = 120, 53 men and 67 women, mean age = 16,03, SD = 1,46) to compete the same questionnaires, and in addition, the sEMBU-A questionnaire.

Results

Results show differences between the two age qroups, on the other hand, we can draw these conclusions about both groups: financial state of the family, nature of sibling relationships, relationship with the parents and parentals bias towards one of the siblings have an effect on the development of personality traits of the Dark Triad. In contrast, the birth order has no correlation with the development of these traits. The sex of the sibling only shown correlation with the development of the personality traits in the case of the adult participants.

Keywords: Dark Triad, family, sibling relationship, sibling conflict, narcissism, machiavellian, psychopathy

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[*]Speaker

Adult attachment and typical disputes' process among French and Moroccan couples

Anna Fišerová * [1,2], Gilles Lecocq [2], Marie Chen [3]

[1] Charles University, Faculty of Humanities, Prague – U Kříže 8, Praha 5, 158 00, Czech Republic
[2] L'Institut Libre d'Éducation Physique Supérieur – L'Institut Libre d'Éducation Physique Supérieur (ILEPS) – 13 Boulevard de l'Hautil, 95000 Cergy, France
[3] École de Psychologue Praticiens de Paris – École de Psychologue Praticiens de Paris – 23 Rue du Montparnasse, 75006 Paris, France

From an evolutionary perspective, attachment is important e. g. in adult behaviour strategies or emotional regulation within relationship interactions. An individual's adult attachment can be determined through three dimensions: security, anxiety and avoidance. Quantitative research shows that the most secure individuals use constructive communication strategies and experience less conflict situations. However, there is a lack of qualitative interview based research to deeply investigate how individuals perform within dispute interactions with regard to their adult attachment.

Our main aim was to investigate typical dispute themes, process and frequency, taking into account every individual's adult attachment. Consequently, we compared the typical disputes between firstly married French and Moroccan adults living in France for at least 6 years.

We qualitatively analysed semi-structured in-depth interviews concerning: typical dispute themes, process and frequency of married (M = 6,13, SD = 5,03) middle class individuals: 6 French women, 6 French men, 6 Moroccan women and 6 Moroccan men. Dispute themes were coded by using a coding system by Hsueh et al. (2009). The attachment dimensions were measured by the Experiences in Close Relationships Questionnaire (ECR-RS).

Women scoring higher on anxious dimensions marked themselves as initiators and winners of the dispute, with a tendency to argue more during its duration. Typical dispute themes of French couples were: "Household chores, division of labor", "Child/parenting" all initiated end ended by women once a workweek evening. On the contrary, Moroccans often dealt with themes like "In-laws/extended family/parents", initiated by one of the partners once a month, followed by a discussion in order to calm the situation for family stability.

Our preliminary results confirmed that anxious individuals use hyperactivating strategy (overwhelming of a partner). We furthermore revealed differences between French and Moroccan couples whose interactions are largely influenced by collective cultural-family foundations.

Keywords: adult attachment, couples, typical dispute

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*Speaker

Attractiveness, agency and communion of a romantic partner and an opposite-sex friend (OSF) moderate sexual attraction toward friend in male-female friendship dyads

Natalia Frankowska * [1], Aleksandra Szymkow *

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[1] SWPS University of Social Sciences and Humanities/ Faculty of Psychology – Chodakowska 19/31, 03-815 Warsaw, Poland
[2] SWPS University of Social Sciences and Humanities, Sopot Campus – ul. Polna 16/20 81-701 Sopot Poland, Poland

OBJECTIVE: Men report more attraction to their OSF than women do. This sex difference has been documented in many studies, for instance Kaplan and Keys (1997) showed it among individuals who are asked to report on an OSF. Men also prioritize attractiveness in OSFs more than women do, and declare the potential for sexual opportunity in OSFs more often than women do (Bleske-Rechek & Buss, 2001). However, little is known about moderators of the effect. We tried to investigate whether attractiveness as well as agency and community (of both romantic partner and OSF) may play a role on the sexual attraction in male-female friendship dyads.

METHOD: We asked 80 young Polish participants (40 heterosexual friendship dyads, engaged in other romantic relationship in the same time) to fill out a questionnaire about their OSF who is not their romantic partner and with whom they do not have (or had) a sexual relation. We asked about the cognitive (e.g., fantasies), affective (e.g., sexual arousal) and behavioral (e.g., sexual signals) levels of sexual attraction as well as the attractiveness, agency and communion of participant's OSF and romantic partner.

RESULTS: As predicted: attractiveness, agency and communion of both a friend and romantic partner significantly moderated the effect of sex on sexual attraction on all investigated levels. But effects were significantly stronger for men than for women.

CONCLUSION: We conclude that sexual attraction in OSFs is common, but strategic, as it depends on attractiveness, agency and communion of one's current romantic partner and one's friend.

Keywords: OSF dyads, evolutionary psychology, attractiveness, sexual attraction, agency, communion

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*Speaker

Cross-cultural agreement on animal attractiveness and dangerousness: example of snakes and spiders

Daniel Frynta * [1]

[1] National Institute of Mental Health – Topolova 748 250 67 Klecany, Czech Republic

A hypothesis of evolutionary psychology states that our ancestors have developed an adaptive sense of "animal attractiveness" that became part of human mind before geographic and cultural diversification of our kind. Thus, experiments were performed to assess the possible aesthetic cross-cultural differences using animal pictures as evolutionarily relevant stimuli for humans. In Papua New Guinea, which is inhabited by highly venomous elapid snakes, villagers evaluate the beauty of boid snakes similarly to Czech students; the cross-cultural agreement on beauty ranking was relatively high (r2 = 0.76). This is despite an entirely different cross-cultural background of the Papuans who are exposed to a higher envenoming risk than people in Central Europe. A broader cross-cultural agreement (r2 ranging from 0.56 up to 0.92) on beauty of these snakes was also found between the Papuans and villagers from Bolivia, Philippines, India, Malawi, and Morocco.

The cross-cultural agreement does not apply only to the aesthetic judgement of snakes, but also on the fear they evoke in humans. We compared preferences for snakes and fear elicited by these animals between respondents from the Czech Republic and Azerbaijan. Both groups rated vipers as highly fear eliciting, while slender bodied elapids were perceived as less fear eliciting. Now we continue our studies in Africa, where we compare preferences of Europeans with the natives of Somaliland and the pygmy hunter gatherers from Cameroon. Moreover, although snakes have been used as an example of prototypical fear-activating stimulus, the most common specific fear in Western societies, reported by 55% of women and 18% of men in the U.K, is the fear of spiders. Our next focus will thus be cross-cultural agreement of dangerousness and aesthetic judgement of these invertebrates.

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*Speaker

Social networks and patterns of cooperation in small-scale societies

Gianluca Grimalda * [1], Elinor Power

[1] Kiel Institute for the World Economy (IfW) – Kiellinie 66 D-24105 Kiel, Germany

We test two theories to explain the evolutionary "puzzle" of cooperation. Indirect reciprocity emphasizes the value of individual reputation, as people with positive social image are rewarded by receiving help from others. Costly punishment emphasizes individuals' propensity both to act altruistically and to sanction those who do not do the same. Our background hypothesis is that both theories may have been relevant in human evolution, but at different stages. Indirect reciprocity is more effective in relatively small groups, where information on one's social image can be reliably transmitted within the group. Hence, indirect reciprocity may have been the main mechanism underlying cooperation at the early stages of human evolution, where groups were small in size. Costly punishment is likely to be more effective in larger groups, where "broadcast efficiency" (on one's reputation) is low, and where many encounters are ephemeral. We shed light on this hypothesis by comparing patterns of cooperation in various villages of Bougainville, Papua New Guinea. Our strategy is to sample villages of different size and measure their social density after having mapped social network. Villages are populated by horticulturalists and foragers of sedentary populations. We test the hypothesis that the higher the social density, the higher the effectiveness of indirect reciprocity (compared to baseline) and the lower the effectiveness of costly punishment (compared to baseline). Preliminary analysis shows marked heterogeneity of patterns of cooperation across villages. Third Party Punishment appears more effective in increasing cooperation than reputation, but no significant effect is detected in either case compared to baseline. Contrary to our hypotheses, social density seems to be negatively correlated with cooperation rates when reputation matters. This may be due to the small size of sampled villages, and that direct reciprocity - rather than indirect reciprocity - prevails as mechanism for cooperation in these environments.

Keywords: Cooperation, Reputation, Punishment, Social networks

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*Speaker

Do sacred value attitudes function as signals of cooperative or competitive traits?

Toby Handfield * [1], William Ridge [1]

[1] Monash University [Melbourne] – Victoria 3800, Australia, Australia

Sacred values (also known as protected values) are commitments to moral rules which are held to be absolute and beyond price (Baron and Spranca 1997). In addition to inspiring very high levels of commitment, asking or encouraging agents to contravene a sacred value will generate distress, outrage, or other distinctive moral emotions (Tetlock 2003). This study is motivated by the hypothesis that this complex of attitudes serves a signaling function. Existing work has suggested that sacred value commitments may be signals of group membership (Iannoccone 1992), of trustworthiness (Bulbulia 2012), or of bargaining toughness (Ginges et al 2007). In this study we develop a broader theoretical framework to relate these diverse signaling functions to distinct types of sacred value objects and make conjectures about the evolutionary history of these functions. We use a laboratory experiment to obtain evidence that bears on this framework. An incentivized method (from Berns et al 2012) is employed to elicit our subjects' value attitudes to a variety of potential value objects. Subjects then play an economic game against an anonymous partner. Across different treatments, more or less information is provided about the sacred value commitments of each subject's interaction partner. We find evidence that, at least for the particular sacred values we were able to elicit in the lab, revealing sacred value commitments inspires from an interaction partner both greater trust in cooperative games and greater trepidation in competitive games, thus providing some initial evidence that sacred values serve as signals of both toughness and trustworthiness. We discuss the significance of these findings for the overall framework, and contrast it with related recent work which shows that differential treatment is accorded to individuals based on whether they exhibit utilitarian or deontological styles of moral reasoning (e.g. Everett et al 2016).

Keywords: sacred values, morality, cooperation, competition, signaling

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*Speaker

Comparing theory-driven and data-driven attractiveness models using images of real women's faces

Iris Holzleitner * [1], Anthony J Lee [1], Amanda C Hahn [2], Michal Kandrik [3], Jeanne Bovet [4], J Renoult [5], David Simmons [1], Oliver Garrod [1], Lisa Debruine [1], Benedict Jones [1]

[1] University of Glasgow – Glasgow G128QQ Scotland, United Kingdom
[2] Humboldt State University – 1 Harpst St, Arcata, CA 95521, United States
[3] Vrije Universiteit Amsterdam [Amsterdam] – De Boelelaan 1105 1081 HV Amsterdam, Netherlands
[4] Boston College – 140 Commonwealth Avenue, Chestnut Hill, MA 02467, United States
[5] Centre d'Ecologie Fonctionnelle et Evolutive – Université de Montpellier : UMR5175, Université Paul-Valéry - Montpellier 3 : UMR5175 – 1919 route de Mende - 34293 Montpellier cedex 5, France

Objectives

Facial attractiveness plays a critical role in social interaction, influencing many different social outcomes. However, the factors that influence facial attractiveness judgments remain relatively poorly understood. Here, we compare the predictive utility of existing theory-driven models of attractiveness to a data-driven (theory-neutral) model based on colour and shape data.

Methods

We took standardized, colour-calibrated facial photographs of 594 young adult women, as well as measurements of height and weight. Facial photographs were rated for their attractiveness by 32 men and women, delineated with 132 landmarks, and analyzed regarding their asymmetry, averageness, sexual dimorphism and representational sparseness. Principal component analysis (PCA) was used to extract data-driven measures of shape and colour information. In a last step, cross-validated regression analysis was used to compare the performance of theory-derived measures and shape and colour PCs in predicting facial attractiveness (see https://osf.io/jurcq/).

Results

Our data-driven model reliably explained significantly more variance in attractiveness than did theory-driven models including various different combinations of traits commonly studied in facial attractiveness research (asymmetry, averageness, sexual dimorphism, body mass index, and representational sparseness). While a combined model of all theory-driven predictors still performed significantly worse than the data-driven model, the difference in variance explained was slight (6%).

Conclusions

Our results present important new evidence for the utility of data-driven approaches to studying facial attractiveness. They highlight the limitations of current theory-driven approaches, and indicate the importance of considering multivariate, rather than univariate, models when investigating facial attractiveness.

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*Speaker

Habitat selection theory and flower preferences- is there empirical support?

Martin Hůla * [1], Jaroslav Flegr [1]

[1] Charles University, Faculty of Science – Viničná 7, Prague 2, 128 00, CZ, Czech Republic

Attraction towards flowers, a well-known aspect of human behaviour, is manifested in many ways, from ornamental gardens and product design to get-well gifts and therapeutic horticulture. Surprisingly, theories about the origin of emotional responses to flowers are missing, except for the evolutionary approach to habitat selection by Orians and Heerwagen. Following the principles of evolutionary aesthetics, they suggest that ability to discriminate between "beautiful" and "ugly" is adaptive because it was crucial for the survival of our ancestors. Dangerous objects or environments were considered ugly and avoided, beneficial ones beautiful and approached. Flowering and fruiting plants are associated with resources and should elicit positive emotional responses.

Our objective was to test the validity of this theory empirically. Following its logic, preference of a positive signal should grow with its strength. Fruits are a direct signal of food availability and should be preferred more than flowers, which are just a promise of the future presence of food.

In two online questionnaires, we presented photographs of plant species with edible fruits. The first questionnaire contained 14 Czech species, the second one 28 species from African savannas. There were two photographs for each species, varying in vegetative stage (flowering, fruiting) Respondents (n = 3354, resp. 744) rated on a six-point scale how they liked each plant. We then compared the difference between the preference of flowers and fruits.

Paired t-tests found statistically significant, but extremely weak preference for Czech plants in fruiting stage (p< 0.01, Cohen's d = 0.09) and a very strong preference for African plants in flowering stage (p< 0.0001, Cohen's d = 1.24). Sex or age of the raters did not affect the rating. Our results show that the tested theory can not sufficiently explain the origin of human liking of flowers. This topic deserves a renewed attention of the scientific community.

Keywords: evolutionary aesthetics, phytophilia, habitat selection, flower preference

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*Speaker

Competition impedes cooperation in the stag hunt game

Keith Jensen * [1], Liam Pollock

[1] The University of Manchester [Manchester] (UM) – Oxford Rd, Manchester M13 9PL, United Kingdom

The stag hunt is a potential solution to the "cooperation problem". Both partners should choose to work together for a larger mutually beneficial payoff (stag) rather than individually pursue a lesser one (hare). However, while children have been shown to solve this dilemma by playing mutualistically (Duguid et al., 2014), adults do not always succeed (Al-Ubaydli, Jones, & Weel, 2013). The stag hunt does not ensure cooperation.

To test the limits of cooperation in a weak dilemma, children, from 4 to 8, played repeated-rounds stag hunt games. In the first experiment, 118 children played a stag hunt game with their parents, with half informed of the game structure in advance and half discovering it through the course of play. Regardless of information, and despite the cooperative efforts of parents, children across all ages were predominantly non-cooperative. In the second experiment, when playing against peers (122 children, from 4 to 8 years of age) still chose hare surprisingly often. Age did not influence cooperativeness, although children were more cooperative when playing against siblings and friends rather than strangers.

Children appear to have been trying to "win" the stag hunt. Rather than maximise their personal payoff or achieve the best mutually beneficial outcome, they were playing for relative advantage over their partners. This irrational behaviour supports the notion that humans are "hyper-competitive", that gains relative to others can interfere with cooperation.

Keywords: cooperation, coordination, competition, game theory, stag hunt, experimental economics, child development

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*Speaker

IT'S NOT THE ECONOMY, AMIGO: EVOLUTIONARY SOCIAL PSYCHOLOGY AND THE ELECTORAL VICTORY OF DONALD TRUMP

Ángel Jiménez [*] [1], Adam Flitton [2], Alex Mesoudi [2]

[1] University of Exeter – Biosciences, University of Exeter Cornwall Campus, Penryn TR10 9FE, United Kingdom, United Kingdom
[2] University of Exeter – Biosciences, University of Exeter Cornwall Campus, Penryn TR10 9FE, United Kingdom, United Kingdom

A popular evolutionary theory of social hierarchy and leadership draws a distinction between 'dominance' and 'prestige' as two evolved strategies for attaining influence (Henrich & Gil-White 2001). Recently this distinction has been applied to the political sphere. The recent rise of right-wing populist leaders like Donald Trump, who are often described as "dominant" leaders in contrast to "prestigious" leaders like Hillary Clinton, is usually explained by either economic or ideological factors. Economic explanations posit that the current preference for dominant leaders is due to an increase in economic uncertainty (e.g. job insecurity, poverty, inequality) after the 2008 financial crisis. Ideological explanations posit that the preference for populist leaders is motivated by a cultural backlash against the values of feminism, environmentalism, anti-racism and LGBT rights. Kakkar and Sivanathan (2017) recently found support for the economic hypothesis that economic uncertainty predicts preference for Trump over Clinton. Here, we argue that this conclusion is misleading, as it does not appropriately address the role of political ideology. Our reanalysis shows that political ideology is the strongest predictor of preference for Trump over Clinton, while the role of economic uncertainty is negligible. We raise concerns about the application of Henrich and Gil-White's (2001) distinction between dominance and prestige to modern politics, emphasizing the importance of considering whether dominance and prestige strategies are directed towards either the in-group or the out-group, and how perceptions of the prestige and dominance of political leaders is influenced by political ideologies.

Keywords: DOMINANCE, PRESTIGE, DONALD TRUMP, RIGHTWING POPULISM, EVOLUTIONARY PSYCHOLOGY, CULTURAL EVOLUTION, POLITICAL PSYCHOLOGY

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[*]Speaker

Women choose partner resembling their father in body odour

Lucie Kuncová * [1], Zuzana Štěrbová [1,2], Jan Havlíček [1,2]

[1] Faculty of Science, Charles University – Viničná 7, Prague, Czech Republic
[2] National Institute of Mental Health – Topolová 748, Klecany, Czech Republic

Women tend to choose partner resembling their father. This effect known as imprinting-like effect was observed in several characteristics, such as hair and eye colour or ethnicity. Although the body odour plays an important role in women's mate choice, the olfactory imprinting-like effect was not explored yet. In our study, we tested perceived similarity between women's partner and father in body odour. We also explored whether the partner-father similarity is influenced by the quality of relationship with father during childhood (at least 12 years). We collected body odour samples from 25 women's partners and fathers. Each woman completed a questionnaire (s-EMBU) to assess a quality of relationship with her father during childhood. The body odour similarity was evaluated by 128 independent female raters. Results showed that raters ordered partner's body odour as the most similar to the father's body odour with frequency higher than chance. Contrary to our assumption, the quality of relationship with father during childhood had no influence on the similarity. Our findings show that women choose partner with similar body odour to their father. This suggests that the imprinting-like effect could be a mechanism for reaching optimal balance between inbreeding and outbreeding. The resemblance was not influenced by the quality of relationship with father, which supports our hypothesis that the resemblance between women's partner and father is due to the imprinting-like effect rather than to other mechanisms such as associative learning. Future studies should focus on the resemblance of the woman's partner and father body odours chemical composition and a relation between woman's partner and father body odours and MHC similarity.

Keywords: imprinting, similarity, body odour, mate choice

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*Speaker

Evidence for separate defensive responses towards ectoparasite and pathogen cues

Tom R Kupfer * [1], Daniel M T Fessler [2]

[1] VU Amsterdam – Netherlands
[2] UCLA – United States

Existing research has not distinguished between human behavioural defence responses to microscopic pathogens and macroscopic ectoparasites, and has viewed disgust as the primary defensive response to both. Disgust's component features, such as withdrawal, nausea, appetite suppression, and the urge to vomit, are well suited for defence against pathogens encountered through ingestion or contact. However, disgust offers limited defence against ectoparasites which tend to more actively pursue the host and attach to the host's body surface. Accordingly, humans, like other animals, may have a separable ectoparasite defence response that includes cutaneous sensations and grooming behaviours. Participants viewed twelve videos showing a range of ectoparasite and pathogens cues and reported their feelings, physiological sensations and behaviours during each video. Findings confirmed that responses to pathogens and ectoparasites are separable. We discuss the extent to which humans can be said to have an ectoparasite defence system distinct from the emotion disgust.

Keywords: ectoparasite, pathogen, disgust, emotion

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*Speaker

Exploring the potential for kinship signaling in the human voice

Rebecca J. Lai [*] [1], Kieran J O'shea [1], David R. Feinberg [2], Benedict C Jones [1], Lisa M Debruine [1]

[1] Institute of Neuroscience and Psychology – University of Glasgow, Scotland, G12 8QB, United Kingdom
[2] Department of Psychology, Neuroscience Behaviour – McMaster University, Hamilton, Ontario, Canada

Objective: Kinship and similarity judgments of faces are highly correlated, indicating that perceived similarity acts as a graded kin recognition signal (Maloney & Dal Martello, 2006). Here we test this in relation to vocal stimuli. We examine if listeners can discriminate between vocal samples from sibling and friendship pairs and whether sibling voices are perceptually more similar than those from friendship pairs.
Methods: Voice samples (monophthong vowels and longer passages) were collected from kinship (full sibling; $N = 17$) and long-term friendship pairs ($N = 21$). In Experiment 1, participants ($N = 35$) judged whether voice pairs were related or not. Binary logistic generalized linear modeling (GLM) was used to test if kin are more likely to be judged as related than friendship pairs. In Experiment 2 (data collection ongoing), a second group of participants rated these pairs on similarity (0 = not at all similar; 10 = very similar). Cumulative link mixed models will be used to determine if kinship influences similarity judgments. Similarity judgments will be converted to binary to create a "thresholded model" using binary logistic GLM.

Results: Analysis for Experiment 1 revealed that participants correctly identified whether voice pairs were sibling or friendship pairs in vowel samples ($\beta = 0.54$, $SE = 0.24$, $p = 0.027$) and longer passages ($\beta = 0.62$, $SE = 0.28$, $p = 0.027$) at levels significantly greater than chance. In Experiment 2, we expect that vocal samples from siblings will be more similar than those from friendship pairs. We predict that the kinship judgment and thresholded models will not differ significantly. Data and analysis scripts will be available at the associated pre-registrations (https://osf.io/tzav6/ and https://osf.io/zbfp8/).
Conclusions: Preliminary results indicate that listeners can distinguish between kin and non-kin speakers.

Keywords: kin recognition, voice perception

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[*]Speaker

Snakes as emotionally salient stimuli for humans: Fear and disgust emotions evoked by snakes

Eva Landová * [1], Šárka Pelešková [1], Kristýna Sedláčková [1], Markéta Janovcová [1], Jakub Polák [1], Barbora Žampachová [1], Silvie Rádlová [1], Daniel Frynta [1]

[1] National Institute of Mental Health – Topolova 748 250 67 Klecany, Czech Republic

Snakes are ancestrally prioritized stimuli and due to the risk they posed in human evolutionary history, they attract our attention and evoke fear and other negative emotions as well - disgust. We tested a subjective experience of fear or disgust with 80 snake photographs. We investigated a link between this self-report and scores on specialized questionnaires that measure fear of snakes (SNAQ) and disgust propensity (DS-R). Some snake species eliciting fear or disgust were subsequently used as stimuli (10 fear evoking, 10 disgust evoking, 10 leaves as a controls) presented one by one in 5s interval and in a block design (10 stimuli in a row per each category, 25s blocks) during measuring a physiological response (galvanic skin response, etc.). Results of a cluster analysis showed that people perceive fear-eliciting and disgust-eliciting snake morphotypes as two distinct stimulus categories. Analysis of morphological characters of the snakes confirmed that fear is especially triggered by "vipers" or "rattlesnakes" while disgust is elicited by snakes with a worm-like body. Some physiological parameters of the emotional response to snake stimuli were individually repeatable, regardless of the presentation method. According to multivariate RDA analysis, physiological responses to fear- and disgust-eliciting stimuli were mostly explained by self-reported disgust evaluation of some species and by respondent's scores in SNAQ, however this model explains only 16% of total variation.

Thus, subjectively (consciously) we evaluate fear and disgust evoked by snakes as two distinct emotions, but both are related only slightly with physiological response. Conscious evaluation of the emotional response is related to the basis of self-report whether people complete questionnaires or rate pictures. However, a physiological (partly unconscious) component of such response does not correspond well to the self-reported intensity of both emotions

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*Speaker

Do humans have cognitive adaptations for reasoning about threat? Evidence from the Wason selection task.

Aaron Lenihan [*] [1]

[1] The University of Georgia - (USA) – United States

I conducted an experiment using the Wason selection task to test the hypothesis that humans have specialized cognitive adaptations for reasoning about threats. It makes sense that specialized threat psychology would evolve, because threats perform a specific adaptive function. Threats allow individuals to lay claim to rival resources without having to engage in costly, negative sum contests. As the range of resource claims expanded with the evolution of cooperation and tool use, so too would the range of resource rivalries and the range of costs one could threaten to impose on a rival. Threat psychology would have been selected to operate across these diverse resource rivalry contexts. This likely led to the evolution of a generalized threat schema in the mind, which enables individuals to communicate claims over any conceivable good by threatening to impose any conceivable cost. However, the flexibility of this threat schema would have brought new challenges. Namely, evolution would have selected for strategies that make insincere threats to trick rivals into yielding their resources. To counter this, humans should have evolved cognitive mechanisms designed to detect false threats, or bluffs. I tested for the presence of a bluff detection mechanism using the Wason selection task. The Wason selection task measures people's ability to infer what facts violate a conditional rule. People generally perform poorly on the task. However, I predicted that people would perform well on the task when the conditional rule was a threat and where inferring a rule violation corresponded to detecting a bluff. I tested this prediction by comparing reasoning performance on threats with other types of conditional rules. I found that people are better at identifying bluffs than other conditional rule violations, but only when the bluff refers to hidden intentions ("is bluffing"), and not as a behavioral outcome ("was bluffing").

Keywords: Wason selection task, conditional reasoning, threat, bluff detection

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[*]Speaker

The relationship between paternal facial traits and offspring health

Linda Lidborg * [1], Lynda Boothroyd [1]

[1] Durham University – United Kingdom

Building on a hypothesised suppressive effect of testosterone on immunity, testosterone-dependent male traits, such as facial masculinity, are commonly argued to signal heritable genetic quality. Thus, facially masculine men should produce more viable, healthier offspring. There is tentative evidence that paternal facial masculinity may be associated with offspring numbers and offspring survival; however, to our knowledge, no previous research has directly tested the link between paternal facial traits and offspring health. We tested the prediction that facially masculine men have healthier offspring in a sample of British men and their children (N=40) from the longitudinal Tees Valley Baby cohort. Facial photographs of fathers were rated by observers for masculinity, attractiveness, and perceived health. Offspring health was parent-reported and indexed by autoimmune and mild illnesses; the latter measured in bouts of colds, flus, and gastroenteritis and instances of antibiotic use in the last three months and in the last three (at age 10) or the last four (at age 16) years. Regression models, controlling for socioeconomic status, offspring-experienced stress and maternal facial attractiveness, perceived health, and femininity, showed no significant relationships between paternal facial traits and offspring health at age 10. Contrary to our predictions, at age 16, paternal facial masculinity was associated with an increased number of flus and overall mild illnesses experienced by offspring in the last four years. We observed no other significant relationships. These findings were largely supported by Bayesian outcomes. We also tested the hypothesis that paternal facial masculinity is associated with earlier sexual onset in offspring, controlling for pubertal stage, but the results did not support this. We conclude that our findings show very little evidence that paternal facial traits predict health and/or sexual behaviour in offspring.

Keywords: facial masculinity, facial traits, sexual dimorphism, immunocompetence, offspring health, reproductive success, sexual onset

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*Speaker

Basal testosterone is linked to dominance behavior in the context of intramale competition to attract a preferred female

Jitka Lindova * [1,2], Katerina Slavikova [1], Jakub Binter [1], Katerina Klapilova [1,2]

[1] Faculty of Humanities, Charles University in Prague – Czech Republic
[2] National Institute of Mental Health – Topolova 748 250 67 Klecany, Czech Republic

Testosterone levels are known to rise in men in response to challenge and reproduction. Simultaneously, basal levels of testosterone are supposed to adaptively predispose men to be efficient both in competition with other men and in the mating context. One way higher testosterone might affect the likelihood of being chosen by a female partner might be increased frequency of dominant behavior. In our study, we systematically observed microscopic behaviors of 44 men aged 16-18 years to test for the hypothesized link between basal testosterone levels and dominant versus submissive behavior. The experimental procedure included recording a self-presentation video that was supposed to be presented to a preferred female. Testosterone was collected from saliva prior to video-recording. Two additional saliva samples were collected after video-recording a) in connection to an encouraging outcome – the participant was told that he was one of two men chosen by a preferred female – b) discouraging outcome – the participant was finally told that the same preferred female chose another man. Behavior was coded from the videorecorded self-presentation. A composite index of dominance was positively loaded by the duration of open leg position, arms apart from body, chest leaning and by the frequency of self-touch on chest, neck or lower jaw and cheek, and negatively by duration of bent chest, arms by body, bent head and head in palms and the frequency of joint hands. We also coded friendly behavior, which was a combined measure of the duration of an open arms position, smile and laughter, direct gaze, nodding and open palms, and of the frequency of mimic expressions and gestures. We found basal testosteron levels to be positively related to dominant behavior (parcial $\eta2 = 0.11$), and negatively to friendly behavior (parcial $\eta2 = 0.13$). Reactive testosterone levels were unrelated to behavior during self-presentation.

Keywords: mate choice, dominance, nonverbal behavior, testosterone, sexual selection

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*Speaker

Relationship between adult personality and perceived inequality as a child: Narcissism has an association with perceptions of privileged, and secondary psychopathy with perceptions of deprived childhood

Minna Lyons * [1], Gayle Brewer , Angela Donohue

[1] University of Liverpool [Liverpool] (ULIV) – Liverpool L69 3BX, United Kingdom

According to the Life History Theory (LHT), childhood conditions provide a powerful proxy for the type of environment that people are likely to find themselves in as adults. In insecure environments, impulsive, risky, future-discounting behaviours could bring more adaptive benefits. Much research has investigated socially aversive personality traits, namely, the Dark Triad, (i.e., psychopathy, Machiavellianism, and narcissism) within the LHT framework. In this study, we report findings of a study on the Dark Triad, childhood socio-economic status (SES), and perceived childhood social and economic inequality. In an on-line study, +2000, (mainly British) participants filled in measures on primary (i.e., callousness, low empathy) and secondary (i.e., risk-taking, impulsivity) psychopathy, Machiavellianism (i.e., manipulativeness, cynicism), narcissism (i.e., grandiosity, entitlement), perceived social and financial inequality in childhood, and childhood socio-economic status (post-code information and parental occupation). We found that both actual poverty and perceived childhood inequality were significant positive predictors of secondary psychopathy. Narcissism was predicted by perceptions of being richer than other children when growing up, but not by actual childhood SES. Primary psychopathy and Machiavellianism did not have a significant association with actual SES or perceived inequality. The findings provide evidence for the importance of resource-poor childhood conditions in the development of adult personality traits associated with risk and impulsivity. We suggest that out of the Dark Triad traits, secondary psychopathy is the most likely candidate for a personality trait that facilitates a fast life history strategy,

Keywords: Life History Theory, Personality, Childhood inequality, Socio, economic status, The Dark Triad

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*Speaker

Facial Reactions towards social robots

Isabelle Maria Menne [*] [1]

[1] Julius-Maximilians-Universität Würzburg [Wurtzbourg, Allemagne] – Universität Würzburg, Oswald-Külpe-Weg 82, 97074 Würzburg, Germany

Robots are moving from industry halls to our private homes, which leads to new questions, such as: How do people react emotionally towards this new "form of life"? External observable cues, such as facial expressions, are an important factor for an interaction partner's ability to infer the affective state of its communication partner. Research indicates, facial expressions are associated with emotions. As emotions are a complex multilevel phenomenon, their measurement could profit from a multi-method approach to increase the validity of results. Furthermore, systematic research on spontaneous facial (emotional) expressions towards robots remains rather scarce. Thus, we studied whether a human's emotional reaction towards a robot can be observed in the face. We used the Facial Action Coding System as it is the most widely and most frequently used method for facial expression analysis in multiple fields. As stimulus material we used the robot Pleo and showed participants videos of Pleo either being tortured or being treated friendly. Participants ($N = 62$) displayed more facial expressions associated with unpleasantness and fear/disgust (Action Units 9, 10, 15, 39) when watching Pleo being tortured. Participants also reported feeling more negatively after the torture video. The results indicate an evolutionary explanation of emotional reactions towards social robots.

Keywords: Robotics, Emotion, Evolution, Psychology, Human, Robot Interaction

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[*]Speaker

Acceptance of Sugar Dating Relationships in Young Women: Personality, Attachment and Motives

Norbert Meskó * [1], András Láng , Dóra Ipolyi

[1] University of Pecs – Ifjusag st. 6. Pecs 7624 Hungary, Hungary

Objectives. Sugar Dating is phenomenon where individuals who are older and has higher socioeconomic status (typically males) engage in relationships with younger individuals who has lower socioeconomic status (typically females). Sugar Dating relationships usually involve an exchange of financial consideration (money or gifts) from the older and richer partner for the companionship of the younger partner. **Aims**. The purpose of our research was to map out the psychological background of young women's motivation for Sugar Dating relationships. We hypothesized that greater openness to Sugar Dating relationships is related to lower self-esteem, extrinsic motivation, dark trilateral personality traits, borderline personality organization, and attachment anxiety. **Method**. We have prepared an online questionnaire package to test our hypothesis. 1607 women filled our questionnaire anonymously (age=20.83 years±2.77 years, min: 18y, max: 28y). It contains following scales: Acceptance of Sugar Dating Relationships Scale (own developed scale based on Acceptance of Cosmetic Surgery Scale (Henderson-King & Henderson-King, 2005); Borderline Personality Inventory (Leichsenring, 1999); Short Dark Triad (Jones & Paulhus, 2014); General Attachment (ECR-RS) (Fraley, 2014); Self-esteem (RAS) (Rosenberg, 1965); Aspiration Index (Kasser & Ryan, 1993). **Results**. We found a positive correlation between the openness to Sugar Dating Relations and low self-esteem, extrinsic motivation, Machiavellism, subclinical psychopathy, subclinical narcissism, borderline personality organization, and attachment anxiety. **Discussion**. In our research, we have found that borderline personality structure and dark triad personality traits, as well as the tendency toward out-of-paced psychological functioning and anxiety attachment, are associated with openness to sexual intercourse in return for material reparation. Our results are well understood based on the Life History Theory. Accordingly, individuals with larger environments experiencing threats during the early stages of development are on a path of development that can include sexuality free of emotional attachment and direct access to resources for sex.

Keywords: openness to Sugar Dating relationship, Life History Theory, mating

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*Speaker

Norm followers, cheaters and costly signallers in a sport charity campaign

Judit Mokos * [1], Scheuring Istvan [1,2]

[1] Theoretical Biology and Evolutionary Ecology Research Group (MTA-ELTE) – Pazmany Peter setany
1 Budapest 1117, Hungary
[2] Evolutionary Systems Research Group, MTA Centre for Ecological Research, Tihany, Hungary –
Klebelsberg Kuno u. 3. Tihany 8237, Hungary

Objective

Good reputation is crucial for humans. Using altruism, like charitable donation is a potential strategy to gain reputation. As reputation is based on the judgment of the reference group, we hypothesized that donators wish to inform others about their altruistic act if it does not violate social norms but conceal if it does. We also investigated whether the fundraisers' costly signalling results to higher collected donation.

Methods

We investigated a real-life situation where charity runners collected donations. Donators had a free choice of publishing their name and donation on the website. We expected non-average donators to show only their name to avoid social punishment. We hypothesized that fundraisers who signal their altruistic act with running longer distance and/or aimed for a higher target amount, collect more donation.

Results

We found that under-average contributors indeed behaved as we have hypothesized, however, outstanding donators tended to publish only the amount. We pointed out that fundraisers who invest more cost in their fundraising act collected more donations.

Conclusions

Humans use charitable donation to gain higher reputation, and they inform others about their altruism according to the cost of the altruistic act. An explanation of the under-average donators' anonymity preference could be that they try to dissemble their "freeriding" act by donating a small, masked amount and publishing only their identity. The motivation of generous donators who publish only the given amount might be to support the aim of the foundation or the high reputation of the runner. Therefore, the potential reputation gaining is not a priority for them, but visible high donations could function as a quality signal for the charitable goal and/or for the runner. Long distance running and a high target amount also could function as a costly signal about the runner's altruism and the quality of the charity.

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*Speaker

Support for redistribution: An experimental approach

Daniel Nettle [*] [1]

[1] Newcastle University – United Kingdom

All human societies develop mechanisms for redistributing resources, but the form these mechanisms take, and the support for them, varies across people, places and times. We investigate the psychological principles underlying support for redistribution, focussing on the cues in the social context that trigger redistributive motivations. Using an experimental approach where participants design institutions for hypothetical villages, we show that individuals are not consistently either pro- or anti-redistribution: indeed, individual differences in political orientation explain rather little variation. Rather, support for redistribution is triggered by the presence of cues that chance is important to productivity, and to a lesser extent by cues that the villages are socially homogeneous. These results help explain why support for redistributive welfare systems changes in response to large economic shocks, and to changes in perceived social homogeneity.

Keywords: inequality, cooperation, redistribution, altruism

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[*]Speaker

Evolutionary perspectives on ethnic conflicts between minority and majority youth - the importance of language

Pia Nyman-Kurkiala * [1], Henrik Kurkiala *

[1], Jean D'amour Banyanga [1], Lillemor Östman [1]

[1] Abo Akademi University [Turku] – Tuomiokirkontori 3FI-20500 Turku, Finland

Objective

This paper describes minority young people's experiences of conflicts with majority young people based on qualitative data gathered in Finland. These ethnic conflicts arise due to the different languages of Finland-Swedish (the minority, whose mother tongue is Swedish) and Finnish-speaking (the majority, whose mother tongue is Finnish) young people in Finland. To understand these language conflicts between minority and majority youth we use an evolutionary perspective on ethnicity and intergroup conflict.

Methods

The empirical material consists of essays written by ninth-grade pupils (15-16 years old) in Swedish-speaking upper-level schools in several cities in Finland. The cities are chosen taking into consideration different language environments. The essays are analysed by qualitative content analysis using NVivo 12.

Results

Our data is collected over time repeatedly with this same method. In the older data one of the themes, which stood out conspicuously, was conflicts with Finnish-speaking young people. These conflicts seem to be related to the identity work and ethnic identity of the young people. We theorize that language as the main sign of genetic kinship and ingroup membership can explain the occurrence of these ethnic conflicts, considering the differences between the Swedish-speaking and Finnish-speaking population are very small when it comes to culture, genetics and socioeconomic status.

Conclusion

The dimension of language as a marker of ethnic belongingness could be a helpful way of understanding why these conflicts occur in different parts of Finland where there is both a Swedish-speaking and a Finnish-speaking

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*Speaker

population. This in turn relates to the fact that ethnicity plays an important evolutionary role in human group behavior and in this way affects modern societies in different ways.

Further evidence for associations between short-term mating strategy and sexual disgust

Kieran J. O'shea * [1], Lisa M. Debruine [1], Benedict C. Jones [1]

[1] Institute of Neuroscience Psychology, University of Glasgow, Scotland, UK. – United Kingdom

Objective: Al-Shawaf et al. (2015) found that people (N=530) who were more interested in pursuing a short-term mating strategy (indexed by higher total scores on the Revised Sociosexual Orientation Inventory) reported less sexual disgust (indexed by lower scores on the sexual disgust subscale of the Three Domain Disgust Scale). By contrast with these results for sexual disgust, they observed no significant associations between interest in pursuing a short-term mating strategy and moral or pathogen disgust. Thus, they concluded the link between mating strategy and disgust was specific to the domain of sexual disgust. Here we attempted to replicate Al-Shawaf et al's (2015) findings in a large online sample (N=7166).

Methods: 5087 women and 2079 men completed the Revised Sociosexual Orientation Inventory (SOI-R) and the Three Domain disgust Scale (TDDS). Questionnaire order was randomized across participants.

Results: Analyses revealed that women reported significantly greater disgust sensitivity, but less interest in short-term mating, than men did. Correlations between global SOI-R (overall SOI-R scores) and the different subscales of the TDDS showed significant relationships between SOI-R and sexual disgust (men: r = -0.52, p < 0.001; women: r = -0.57, p< 0.001). There were additional relationships between SOI-R and moral disgust, but these were much weaker (men: r = -0.12, p < 0.001; women: r = -0.16, p< 0.001). There were no significant correlations between SOI-R and pathogen disgust (men: r = 0.04, p = 0.07; women: r = -0.03, p = 0.07). Data and analysis codes are available on the Open Science Framework (https://osf.io/n2dmy/).

Conclusions: Like Al-Shawaf et al. (2015), our results suggest a robust relationship between disgust and short-term mating that is relatively specific to sexual disgust. This pattern of results may indicate specific cognitions that counter disgust responses otherwise associated with engaging in short-term mating.

Keywords: sexual strategy, soxiosexuality, health

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*Speaker

PATRILATERAL AND PATRILINEAL KIN CAREGIVING IN RURAL KYRGYZSTAN AS AN EXCEPTIONAL EXAMPLE OF ASYMMETRIC KIN INVESTMENT

Alexander Pashos [*] [1]

[1] Max Planck Institute for Social Anthropology – Advokatenweg 36, 06114 Halle (Saale), Germany

Humans invest differentially in their kinspersons. Evolutionary and social sciences research found asymmetric matrilineal caregiving patterns universally in all modern societies. On average, female relatives invest more in children than male relatives. And, the child-care of matrilateral grandparents, aunts and uncles is greater than that of patrilateral relatives. Only a few studies found exceptions where patrilateral grandparental caregiving is the cultural and practical rule. The most prominent example is rural Greece (Pashos 2000).

Here, I present data from a small sample collected in rural Kyrgyzstan (Chuy valley, N = 65). Rural Kyrgyzstan is characterized by a patrilocal residence and a traditional patriarchic family structure, similar to traditional rural Greece. However, there are also formal differences between both cultures. The Kyrgyz have a patrilineal kinship system and practice spatial and kinship exogamy, whereas the Greeks recognize kinspersons bilaterally and practice spatial endogamy (i.e., marriage partners are usually from the same village or surrounding area).

The analysis of the Kyrgyz data reveals a patrilateral kin investment bias for grandparents, much stronger than found in rural Greece. The same pattern is true for the grandchildren's feelings of emotional closeness to their grandparents. Unlike rural Greece, there was also a strong patrilineal bias of aunt and uncle investment in nieces and nephews (as well as with regard to emotional closeness to aunts and uncles). This bias is, however, coincident with residential distance, due to the exogamous kinship system. The results are discussed against the background of universal matrilineal kin caregiving and the evolutionary paternity uncertainty hypothesis.

[*]Speaker

Human body fluctuating asymmetry and immunocompetence

Boguslaw Pawlowski * [1], Barbara Borkowska [2], Judyta Nowak [2], Daria Augustyniak [2], Zuzanna Drulis-Kawa [2]

[1] University of Wroclaw, Poland (UWr (PL)) – Dept. of Human Biology, ul. Kuźnicza 35, 50-138 Wroclaw, Poland
[2] University of Wroclaw – Poland

Objectives: More symmetric organisms are perceived as more attractive. Fluctuating asymmetry (FA) i.e. small, random deviations from perfect bilateral symmetry, is supposed to inform about developmental instability. According to the good genes hypothesis, a low level of FA is a putative cue to an organism's biological quality. An important aspect of this quality is the immune system functioning (ISF). The aim of this study was to evaluate the relationship between immune system functioning and body symmetry in healthy people.

Materials and Methods: The composite body fluctuating asymmetry (cFA) was assessed on the basis of six bilateral traits (on hands and feet). The ISF was determined by many innate (total complement and lysozyme activity, neutrophils function) and adaptive immune parameters (T CD3 and B CD19 lymphocytes, total IgA and IgG and response to flu vaccine). 98 men and 92 women were subjected to flu (among them 37 men and 30 women also to tetanus) vaccination. The blood samples were collected before and 4 weeks after the antigens exposure. Immunomodulatory factors: participant's age, body fat and free testosterone level, were controlled.

Results: Apart from the weak positive association between CD3 or CD19 and cFA in men, we found no association between the level of body symmetry and the rest of the analysed immune parameters for both sexes.

Conclusions: Our results do not confirm the *good genes hypothesis* prediction and suggest that in western population, human mate preferences for more symmetric bodies are not related to the cue of immune competence which is the significant aspect of biological quality.

Keywords: fluctuating asymmetry, developmental stability, immunocompetence, good genes hypothesis, flu vaccination, testosterone

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*Speaker

"Can Race Be Erased?" Revisited: Critical tests of the hypothesis that racial categorization is a byproduct of alliance tracking.

David Pietraszewski * [1]

[1] Max Planck Institute for Human Development – Lentzeallee 94, 14195 Berlin, Germany

Objective

The 2001 paper, "Can race be erased?" by Kurzban, Tooby, & Cosmides is one the most frequently-cited empirical findings of early 21st Century Evolutionary Psychology. That paper attempted to demonstrate (1) that people spontaneously and implicitly categorize others according to their alliances, such as their team membership, and (2) that categorization of people by their race is a malleable byproduct of evolved cognitive systems whose function is to track alliances. The current talk will argue that due to experimental design issues, it is in fact unclear the results of Kurzban et al. show. A series of studies will then be presented which adequately test the predictions of the hypothesis presented in Kurzban et al..

Methods

The same "Who Said What?" memory confusion paradigm used in Kurzban et al. was used. An extensive set of control and baseline conditions that were absent in Kurzban et al. were also included. These between-subjects comparisons constitute a necessary empirical test of the hypothesis that racial categorization is a byproduct of a psychology whose function is to track alliances.

Results

Results demonstrate that (1) spontaneous categorization by contextually-relevant alliance membership does in fact occur, and cannot be due to experimental confounds, and (2) categorization by race is reduced when race is crossed with antagonistic sports team membership and the same experimental manipulation has no effect on categorization by sex.

Conclusions

These results support the predictions of the hypothesis that racial categorization is a byproduct of alliance tracking cognitive mechanisms. Critically, racial categorization was affected by cross-cutting alliance information, whereas categorization by sex was not. The implications of these and other recent results for our understanding of how the mind tracks alliances will be discussed. A brief up-to-date summary of the evidence collected thus far will also be presented.

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*Speaker

A Cross-Cultural Examination of the Relationship among Sexual Orientation, Sociosexuality, and Dark Triad Traits in Women and Men

Vania Rolon * [1], David Schmitt [1]

[1] Brunel University London – Kingston Ln, London, Uxbridge UB8 3PH, United Kingdom

Previous research has found bisexual women tend to have higher levels of Dark Triad personality traits (i.e., Machiavellianism, narcissism, and psychopathy) than heterosexual or homosexual women, which may be partly due to bisexual women having more unrestricted sociosexual orientations. In the current study, multiple mediation analyses using data from the second wave of the International Sexuality Description Project were conducted to further explore the relationship among sexual orientation, sociosexuality, and Dark Triad traits across seven world regions – North America, Central/South America, North/West Europe, South/East Europe, Middle East and Africa, South/Southeast Asia, and East Asia. Sociosexuality mediated significant Dark Triad differences – particularly in psychopathy – between bisexual and heterosexual women across North America, North/West Europe, and South/East Europe; and between bisexual and homosexual women across North America, and North/West Europe. No similar patterns were observed for men, as sociosexuality did not mediate Dark Triad differences between bisexual and heterosexual men nor between bisexual and homosexual men. Results partially support previous findings that sexual orientation differences in Dark Triad are mediated by more unrestricted sociosexualities among bisexuals. Limitations and future directions are discussed.

Keywords: sexual orientation, sociosexuality, dark triad, cross, cultural

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*Speaker

Sex differences in cooperative behavior of Buryats: evidence from "face-to-face" experiment

Victoria Rostovtseva * [1], Anna Mezentseva [2], Marina Butovskaya [1,3]

[1] Institute of Ethnology and Anthropology, Russian Academy of Sciences – Moscow, Russia
[2] Lomonosov Moscow State University – Moscow, Russia
[3] Russian State University for the Humanities (Moscow) – Russia

The aim of this study was to test for sex differences in human cooperativeness. The data was collected in experiment using economic games. We investigated cooperation in same-sex groups among Buryats (Mongoloid people of Southern Siberia, traditionally nomadic pastoralists). Experimental design was based on iterated Public Goods Game (iPGG), which was held in groups of 4 participants, interacting "face-to-face" (no verbal communication, stranger condition, same-sex groups). Experimental game allowed estimating individual cooperativeness and efficiency of cooperation at the group level. All participants completed a number of personality tests and general questionnaire.

Subject sample consisted of 200 individuals (100 males, 100 females, mean age of 20 ± 2 y.).

Results revealed that Buryat females were characterized by significant increase in neuroticism (NEO FFI), anger, and hostility (Buss-Perry, 1992) compared to Buryat males, they also were less socialized – had less friends, spent less time with friends (by self-reports), had less sexual partners than males. The analysis of behavior in iPGG revealed 4 types of individual strategies applied in the game: unconditional selfish, conditional cooperator, unconditional altruist, cheater.

It was demonstrated that Buryat females significantly more often applied selfish and cheating strategies in female groups, whereas males were more prone to behave altruistically and pro-socially in male collectives. Economic success of the groups was positively associated with cooperativeness of their members. Thus female groups were significantly less successful than male groups. Individual advantage of selfish behavior was significant only in male groups due to higher probability for cooperativeness of other group members.

We conclude, that significant sex differences obtained in pro-social and cooperative behavior, have been presumably rooted in cultural and economic status of Buryat women. Results are to be discussed in evolutionary perspective with special emphasis on multilevel selection paradigm. The study was supported by Russian Science Foundation (project 18-18-00075).

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*Speaker

Quantifying the rise of trust in history using face-processing machine learning

Lou Safra * [1], Julie Grèzes [2], Nicolas Baumard [3]

[1] Sciences Po, CEVIPOF – Sciences Po – 98 rue de l'Université Paris, France
[2] Institut d'Études Cognitives - Ecole normale supérieure – École normale supérieure - Paris – 29 rue d'Ulm Paris, France
[3] Institut d'Études Cognitives, Ecole normale supérieure – Ecole Normale Supérieure de Paris - ENS Paris – 29 rue d'Ulm Paris, France

Compared to ancient societies, industrialized countries are characterized by high levels of social trust and relatively low levels of inequality. In social sciences, this culture of trust and equality is usually regarded as the result of the institutional and religious revolutions. However, recent advances in behavioural ecology have demonstrated that social preferences, which have long been seen as fixed, actually respond to environmental pressures such as resources scarcity. More specifically, when resources are scarce, individuals are more risk averse in their social relationships, they trust other less and they decrease their their investment in social cooperation. The aim of this project is to put to test the ecological model of cultural differences by using tools from affective sciences and to measure whether the evolution of prosocial preferences parallels changes in standards of living. To do so, we build on recent work showing that prosocial preferences are consistently associated with facial and emotional displays. We first develop an algorithm that provides human-like ratings of photos regarding trustworthiness. We then apply this model to two series of portraits of historical: the National Portrait Gallery (N = 1947 portraits from the United Kingdom) and the Web Gallery of Art (N = 5538 portraits from 14 countries). Both series confirmed the ecological model of trust: an increase in trustworthiness, correlating with the improvement of living standards. Together these results provide further evidence of the role of ecological variables in explaining individual differences in cooperative attitudes.

Keywords: trust, cooperation, resources scarcity, poverty, history, faces

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*Speaker

Hungry people prefer larger bodies and objects: The importance of testing boundary effects.

Tamsin Saxton * [1], Kristofor Mccarty [1], Jasmine Caizley , Dane Mccarrick [2], Thomas V. Pollet [1]

[1] Northumbria University – Northumbria University, Newcastle Upon Tyne, NE1 8ST, United Kingdom
[2] University of Leeds – Woodhouse Lane, Leeds LS2 9JT, United Kingdom

Objective

When people are hungry, they prefer plumper women's bodies compared to when they are satiated. These satiety-dependent preferences are thought to contribute to the noted cultural differences in attitudes towards women's adiposity. Explanations such as the Insurance Hypothesis indicate that during times of greater nutritional stress, fatter bodies might function adaptively to protect against nutritional shortfall, which could compromise childbearing and nursing in particular. Alternatively, the Environmental Security Hypothesis suggests that people should prefer bigger, more mature bodies in stressful contexts such as hunger, because more mature people might represent a better ability to deal with threat. However, hunger also biases attitudes towards greater acquisition, and thus might also bias preferences towards greater size generally.

Methods

In order to determine how well each of those explanations could predict satiety-dependent preferences, we compared attractiveness judgements of differently-sized male bodies, female bodies, and objects, from 186 participants who also reported their current hunger level.

Results

We found that larger sizes of stimuli in general, and women's bodies in particular, especially when judged by women, were preferred more under conditions of hunger.

Conclusions

This pattern can be explained by the Insurance Hypothesis and related explanations, combined with the tendency for hunger to promote acquisition more generally.

Keywords: Adiposity, Attractiveness judgements, Body image, Hunger, Nutritional stress

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*Speaker

Perception of Facial Attractiveness Under Uncertainty

Ayten Yesim Semchenko [*] [1], David M.g. Lewis [2]

[1] Charles University – Czech Republic
[2] Murdoch University – Australia

Objective. The aim of this study is to test whether women and men exhibit a sex-differentiated bias in the perception of facial attractiveness under uncertainty. Specifically, we investigated whether men overestimate the attractiveness of women when available information about those women is incomplete.

Method. 400 heterosexual participants (N(female) = 213, M(age): 26.1; N(male) = 187; M(age): 26.5) rated the attractiveness of 24 opposite sex-faces in blocks. Each block included both blurred and clear versions of the same face. The order of the blocks (e.g., the order of target individuals) and the order of presentation in the block (i.e., blurred/clear image shown first) were randomized.

Results. We created the binary variable, target attractiveness, categorizing the targets into two groups (i.e., attractive and unattractive) according to whether the target's attractiveness (computed as the sum of attractiveness ratings given to the target's blurred and clear images) was above the mean attractiveness for all targets of the same sex. Linear mixed-effect model analysis showed that men rated the blurred images as more attractive than the clear images and this effect was driven exclusively by unattractive targets. Men's ratings of the blurred images were higher when they saw the blurred images first compared to when they saw the blurred images second in the block. Blurriness and order of presentation had no significant effect on women's ratings. Women viewing attractive targets gave lower ratings to the blurred images while women viewing unattractive targets gave higher ratings to the blurred images compared to the clear images.

Conclusions. The error management theory predicts a sex-differentiated bias (i.e., overestimation for men; underestimation for women) under uncertainty. Accordingly, in this study, men overestimated women's attractiveness. Women, however, showed underestimation bias only for attractive men. Women's overestimation bias towards unattractive men might be caused by the possible blemish-concealing effect of blurriness.

Keywords: facial attractiveness, uncertainty, perception, bias, sex differences

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[*]Speaker

An Evolutionary Perspective to Conspicuous Behaviour: Scale Development and Validation

Shayan Shaikh * [1], Corey Fincher *

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[1] University of Warwick [Coventry] – Coventry CV4 7AL, United Kingdom

Objective

The purpose of this research is to develop and validate a scale for conspicuous behaviour.

Methods

Literature review led to a total of 73 items for an exploratory investigation with feedback from eight judges. After elimination of 18 items, 80 postgraduate students identified items that were ambiguous leaving 37 items for empirical testing. 423 surveys were administered to students at University of Warwick.

Results

EFA left 24 items for CFA which assessed reliability, validity and fit indices. Convergent and divergent validity confirmed a scale with three sub-scales of status-seeking, altruism and fitness-indicators.

Conclusions

Scale

I am attracted to an individual who wears branded clothes and accessories.

I feel stylish and classy if I am wearing branded clothes and accessories.

I like luxury goods with logos that associate with my sense of style.

I would like to own expensive luxuries that communicate class and prestige.

I am interested or fascinated by people who come from well to do backgrounds with heritage and lineage.

I would like to volunteer a great number of hours a month to help at an underprivileged children's hospital.

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*Speaker

I would like to volunteer many hours a month to help at a homeless shelter.

I would like to volunteer many hours a month to help build housing for poor families.

I would like to help teach underprivileged youth to read.

I would like to be a responsible citizen and a helpful person by spending an afternoon each weekend picking up trash alone at the park.

Knowing about someone's mental health issues impacts my opinion of that person when forming a long-term sexual partnership.

Knowing about someone's physical health issues impacts my opinion of that person when forming a long-term sexual partnership.
Knowing about someone's mental health issues impacts my opinion of that person when forming a friendship.

Social Learning in a Culturally Diverse Country

Anne Sibilsky * [1], Heidi Colleran [2], Daniel B.m. Haun [1]

[1] Leipzig Research Center for Early Child Development (LFE) – Jahnallee 59 D-04109 Leipzig, Germany
[2] Max Planck Institute for the Science of Human History – Germany

When learning from their peers, children often preferentially copy the majority of their group, sometimes even against their own preference (conformity). This social learning strategy has additional consequences beyond the individual level: Henrich and Boyd (1998) proposed that the way in which people learn from others determine patterns of population level variation. The current study investigated social learning, and its role in shaping societies, in children from 5 different populations in Vanuatu, a country with uniquely prominent differences across communities. With over 100 languages spoken by only 270.000 inhabitants, and an extraordinary diversity in local customs and traditions, Vanuatu is uniquely suited for studying the mechanisms behind population level variation.
We tested 4- to 13-year-olds' social learning via two previously used paradigms of developmental psychology: In task one, we assessed conformity of 77 children with a child-friendly version of the Asch paradigm (see Haun & Tomasello, 2011). In task two, we investigated preferences for social learning and tendencies to follow a majority of demonstrators of 270 children using a validated social learning task (see Haun, Rekers & Tomasello, 2012 and van Leeuwen et al., 2018).

As has been documented in previous studies, developmental trajectories of children's tendency to use social information when acquiring a new skill differ between populations. Also similar to previous findings, children's majority preference varies to a minor extent across populations, however, surprisingly, majority preference is overall low amongst Vanuatu children in comparison to previous samples. Children's conformity (copying the majority against their preference) strongly differs between the 5 populations (mean rates between 13% and 37%). Children's conformity correlates moderately with social information use and preference for majority.
Further analyses will reveal which village characteristics account for these differences.

Keywords: Social Learning, Cultural Diversity, Conformity, Development

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*Speaker

Strong reciprocity in 5- to 6-year-old children

Robert Soper * [1]

[1] University of St Andrews [Scotland] – St Andrews KY16 9AJ, Fife, Scotland, UK, United Kingdom

Human adults show signs of *strong reciprocity*, defined here as accruing a cost to reward or punish in response to prior norm-abiding or norm-violating acts. Only one study has documented the emergence of strong reciprocity in young children. The aim of this research was to investigate if a similar trend could be found in 5- to 6-year-old children based in the United Kingdom. Using an experimental paradigm developed by Robbins and Rochat (2011), 38 children (15 males; 23 females) took part in a three-party sharing game where the participants took turns splitting nine plastic tokens with two identical players, namely a generous puppet and a stingy puppet. This procedure was followed by a costly punishment task in which participants had the option to surrender one token to remove 5 tokens from a puppet of their choosing. Following a mixed-design ANOVA and two association tests, the findings suggest that male children and female children exhibit limited evidence of strong reciprocity in terms of cooperation, with both groups lowering their allocations between rounds and giving similar amounts to both generous and stingy puppets. However, although there were no statistical differences between male and female children in relation to punishing the stingy puppet, overall costly punishment was orientated far more towards the stingy puppet than the generous puppet, in line with strong reciprocity's predictions. Concluding, these findings support some aspects of strong reciprocity emerging in 5- to 6-year-old children and it is argued that those aspects that did not emerge may be suppressed by cultural selection and/or experimental design.

Keywords: strong reciprocity, evolution, norms, generosity, punishment

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*Speaker

When bad guy ain't so bad: Perception of moral and immoral behavior of men as potential short-term or long-term partners.

Aleksandra Szymkow * [1]

[1] SWPS University of Social Sciences and Humanities, Sopot Campus – ul. Polna 16/20 81-701 Sopot Poland, Poland

Objective. Women pursue a dual sexuality strategy – when conception is possible (or in the short-term context), they prefer males with traits associated with fit genes they can pass on to their offspring, while being out of the fertile window (or in the long-term context) they prefer males that provide care (Haselton, 2018; Thornhill & Gangestad, 2008). However, little attention was directed at moral/immoral behaviors of short or long-term partners. How do women perceive the man who gains success due to his immoral behavior or fails because of refraining from immoral act? It was hypothesised that in the long-term context women will value morality more than in the short-term context, because of the necessity to find a reliable partner to suport both her and children. However, immoral behavior leading to success should be valued more in the potential short-term partners as it brings no harm.

Method. 259 Polish women (mean age = 25.32) completed an online questionnaire. They were provided with eight descriptions of different men based on a given experimental design: 2 (behavior: moral vs. immoral) x 2 (result of behavior: success vs. failure) x 2 (potential partner: short-term vs. long-term), all factors within subjects. Participants' task was to evaluate the attractiveness of each man as a potential short-term and long-term partner.

Results. Moral behavior was valued more in the potential long-term partners than short-term partners, independenty of whether it led to success or failure. However, immoral behaviors leading to success were valued more favorably when performed by short-term than long-term partners.

Conclusions. The results are in line with dual sexuality idea. In the long run it is important to have moral man, even if not so successful. However in the short-term context, immoral behavior is not always that bad – it's acceptable if it brings man success.

Keywords: sexual preferences, mating strategies, short, term partners, long, term partners, morality

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*Speaker

Shuar infants' behavior towards plants and other objects

Annie E. Wertz [*] [1], Alejandro S. Erut [2], Andrew Marcus Smith [2], Claudia Elsner [1], H. Clark Barrett [2]

[1] Max Planck Research Group Naturalistic Social Cognition, Max Planck Institute for Human Development, Berlin, Germany – Lentzeallee, 94, Berlin 14195, Germany
[2] University of California, Los Angeles – United States

Objectives. Plants have been an important aspect of human life over evolutionary time, but possess chemical and physical defenses against herbivores that can cause significant harm. Recent research shows that 8- to 18-month-old infants take longer to touch plants compared to other entities and look more frequently toward adults before touching plants (Elsner & Wertz, 2019; Wertz & Wynn, 2014; Wlodarczyk, Elsner, Schmitterer & Wertz, 2018), a behavioral avoidance strategy that would protect infants from plant dangers. However, these infants were from areas in the US and Germany where daily contact with plants is limited. Therefore, the current study tested Shuar infants to examine the behavior of infants growing up with substantial exposure to and experience with plants.
Methods. The Shuar are an indigenous Amazonian society in southeastern Ecuador. Our sample consisted of 52 infants and toddlers from four small rural Shuar villages (7- to 36-month-olds). The stimulus set consisted of four real plants (two wild plants and two domesticated plants), two artificial plants, two novel artifacts (matched to shape and color features of plants), two familiar artifacts (cooking pot, spoon), and two naturally occurring objects (stones). An experimenter placed each stimulus object in front of the participant one at a time in a randomized order for 10 seconds; infants' touch behavior and looking behavior were subsequently coded from videos of the sessions.

Results. The results showed that Shuar infants, like infants from the US and Germany, took longer to touch plants (real and artificial) compared to familiar artifacts and stones. However, unlike US and German infants, Shuar infants were as reluctant to touch novel artifacts as plants, and exhibited similar amounts of social looking across all object types.
Conclusion. These initial results suggest informative similarities and differences between the Shuar and infants from the US and Germany.

Keywords: social learning, infant cognition, cross cultural comparisons

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[*]Speaker

How to sound competent? The role of epistemic reputation in communication.

Sacha Yesilaltay * [1], Hugo Mercier *

[1] Institut Jean Nicod, Département d'études cognitives, ENS, EHESS, PSL University, CNRS, Paris France. – Ecole Normale Supérieure de Paris - ENS Paris – France

Objective: We can use communication to enhance our reputation in biological markets, for example by communicating relevant and the plausible information, and by making it appear that this information has an internal source (e.g. "I found out that out myself!"). We (i) study the determinants of competence attribution based on communicated information, and (ii) highlight how people punish 'cheaters,' i.e. people who attempt to appear competent by providing relevant information, and appearing to have discovered them on their own.

Method: We presented to 1000 online U.S. participants information differing in term of practical relevance (moderately useful *vs* very useful) and source of the beliefs communicated (internal source *vs* external source), uttered by two independent speakers. The participants evaluated who the most competent speaker was and whom they felt more thankful towards, before or after knowing that information uttered by the speakers was true or false.

Results: Without feedback, or when the information was revealed to be true, participants were more thankful toward speakers relying on internal source ($p < .001$, $d = 1.15$) and speakers transmitting information of high practical relevance ($p < .001$, $d = 0.61$). They also believed the former to be more competent ($p < .001$, $d = 1.82$). When the information was revealed to be false, participants were less thankful toward speakers relying on internal sources ($p < .001$, $d = 0.90$) and speakers transmitting information of high practical relevance ($p < .001$, $d = 2.20$), and they believed them to be less competent (source: $p < .001$, $d = 0.78$; practical relevance: $p < .001$, $d = 2.14$).

Conclusion: On the whole, participants were able to appropriately assess speakers as a function of the usefulness, source, and veracity of the information they transmitted, suggesting that speakers can use communication to enhance their reputation, but should mostly stick to reliable information to do so.

Keywords: epistemic reputation, communication, competence, source, relevance

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*Speaker

Are sex differences in preferences for physical attractiveness and good earning capacity in potential mates smaller in countries with greater gender equality?

Lingshan Zhang * , Anthony J Lee [1], Lisa M Debruine [1], Benedict C Jones

[1] University of Glasgow, Institute of Neuroscience and Psychology – United Kingdom

Objectives: Previous work reported that sex differences are smaller in countries with greater gender equality, suggesting sex differences in mate preferences are caused by the different roles society imposes on men and women. We attempted to replicate these associations between the extent of sex differences in preferences for good earning capacity and physical attractiveness in potential mates and country-level measures of gender inequality.

Methods: A total of 5399 heterosexual participants from 36 countries completed the same trait-rating and/or trait-ranking mate-preference tasks used in previous research on this topic. Gender equality for each country was estimated using the United Nations' Gender Inequality Index (GII) and Gender Development Index (GDI). Lower scores on the GII and higher scores on the GDI indicate greater equality. For each participant, the GII and GDI scores used were matched to the year in which they participated.

Results: On average, women showed stronger preferences for good earning capacity than men did for both ratings and rankings. On average, men showed stronger preferences for physical attractiveness than women did for both ratings and rankings. However, there was no evidence for significant interactions between gender equality and participant sex, suggesting that sex differences in mate preferences were not smaller in countries with greater gender equality.

Conclusions: Although we replicate previous results for general sex differences in preferences for good earning capacity and physical attractiveness, we find little evidence that these sex differences covary with gender equality at the country level. Thus, our results provide little support for the social roles account of sex differences in mate preferences.

Keywords: Physical attractiveness, Earning capacity, Gender equality

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*Speaker

Evidence of prestige and dominance-based social hierarchies in communities in Cornwall, UK

Charlotte Brand * [1], Alex Mesoudi [1]

[1] University of Exeter – United Kingdom

Objective:

Prestige and dominance are thought to be two evolutionarily distinct routes to gaining status and influence in human social hierarchies. Prestige is attained by having specialist knowledge or skills that others wish to learn, whereas dominant individuals use threat or fear to gain influence over others. Previous studies with groups of unacquainted students have found prestige and dominance to be two independent avenues of gaining influence within groups. We tested whether this result extends to naturally-occurring, already-established social groups.

Methods:

We ran an experiment with 30 groups of 5 people from Cornwall, UK (n=150). Participants answered general knowledge questions individually and as a team, and subsequently voted for a team representative to answer bonus questions to win money on behalf of the team. Participants then rated all other team-mates anonymously on scales of prestige, dominance, likeability and influence on the task.

Results:

Using ordinal-categorical analyses, we found that prestige and dominance ratings were predicted by influence ratings on the task, replicating previous studies. However, prestige and dominance ratings did not predict who was voted as team representative. Instead, participants voted for team members with the highest individual quiz scores, despite this information being unavailable to them. Interestingly, group members who were initially rated as being high status in the group, such as team captains or group administrators, had higher dominance and prestige ratings than other group members. In contrast, those who were initially rated as someone that team members would like to learn from had higher prestige ratings, but not higher dominance ratings, supporting the claim that prestige reflects social learning opportunities.

Conclusion:

Our results suggest that prestige and dominance hierarchies do become established in naturally forming social groups over time, but that these hierarchies may be more domain-specific, and less flexible, than anticipated.

Keywords: prestige, dominance, influence, hierarchy, leadership, social status

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*Speaker

Mate retention strategies and self-esteem: an experimental approach

Bruna Da Silva Nascimento * [1], Anthony Little [1]

[1] University of Bath – United Kingdom

Humans engage in mate retention tactics to protect romantic relationships against the threat of potential rivals, prevent partner's infidelity and preserve a long-term relationship. Self-esteem and mate value predict the frequency of some mate retention strategies, especially among men. Specifically, high self-esteem positively predicts benefit-provisioning mate retention and negatively predicts cost-inflicting mate retention. However, the studies exploring this association are predominantly correlational and we did not find any experimental studies exploring this relationship, which prevents the establishment of a causal link between self-esteem and mate retention. To fill this gap, this study investigated whether self-esteem manipulation affects intentions to perform mate retention strategies. We exposed 184 people (81.6% female) to either pictures of highly attractive or average attractive same-sex individuals. We expected that exposure to attractive individuals would lead to a decrease in self-esteem and that, in turn, would affect mate retention strategies. Participants' pre and post-exposure scores were measured. No interaction effect of time and condition on overall scores of mate retention strategies were observed. However, in women, an effect of time was observed, revealing that regardless of the condition, they reported a decrease in their intentions to perform MRS. For specific measures, we observed an effect of condition on the post-exposure scores of intrasexual negative inducements in men, such that men exposed to attractive male pictures reported higher intentions to perform these strategies than men in the average attractive condition. We conclude that exposure to attractive opposite-sex images affects some of men's mate retention strategies, but not women's. Taken together, our findings demonstrate that global self-esteem appears to be more important for men's mate retention than women's mate retention strategies, confirming previous correlational findings.

Keywords: mate retention strategies, self, esteem, mate value, sex differences

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*Speaker

Infants' behavioral and social referencing strategies in the food domain

Camille Rioux * [1,2], Annie Wertz [1]

[1] Max Planck Research Group Naturalistic Social Cognition, Max Planck Institute for Human Development, Berlin, Germany – Lentzeallee, 94, Berlin 14195, Germany
[2] Aix Marseille Université, PSYCLE EA3273, 13621 Aix en Provence, France – Aix Marseille Université (Aix-en-Provence) – France

Objectives. Plants have been a significant component of human diets across evolutionary time. Here we explore how infants respond to plant-based foods. Recent evidence suggests that infants exhibit a reluctance to touch plants-an effective way of mitigating plant dangers-(Wertz & Wynn, 2014a; Wlodarczyk, Elsner, Schmitterer, & Wertz, 2018) and seek out social information before touching plants (Elsner & Wertz, 2019). Behavioral avoidance of new foods (i.e., *food neophobia*) has also been documented in young children and is particularly strong for fruits and vegetables (Lafraire, Rioux, Giboreau, & Picard, 2016). Therefore, in the current study we examined whether infants exhibit a reluctance to touch plant foods (e.g., fruits and vegetables) and whether they also differentially seek out social information for these entities.

Methods. To test this, 6- to 15-month-old infants (N=56) were presented with 16 stimulus objects presented one at a time across two experimental sessions separated by a short break. The stimulus objects were leafy plants, whole and cut-up fruits and vegetables, highly-processed foods (e.g., pasta), novel feature-matched artifacts, and naturally-occurring objects (e.g., shells). Infants' latency to touch each stimulus object and the frequency and duration of their social looks before touching the stimuli, were coded.

Results. We found that infants were more reluctant to touch plants compared to all other object types, replicating previous findings (Elsner & Wertz, 2019; Wertz & Wynn, 2014a; Wlodarczyk et al., 2018). Further, infants were more reluctant to touch cut-up fruits and vegetables compared to naturally occurring objects and processed foods. Analysis of the frequency and duration of infants' social looking behavior is ongoing.

Conclusions. Taken together, these preliminary results provide evidence that the plant avoidance strategy infants employ for whole, leafy plants extends to plant foods as well, albeit to a lesser extent, and reveals precursors of food neophobia in infancy.

Keywords: Behavioral avoidance, Social referencing, Food domain, Food neophobia, Infancy

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*Speaker

Two Pathways to Leadership in Human Evolution

Mark Van Vugt * [1]

[1] VU University Amsterdam – Main building VU University Amsterdam De Boelelaan 1105 1081 HV Amsterdam The Netherlands, Netherlands

Leadership is one of the most important themes in the social sciences, permeating all aspects of human social affairs, from the election of authoritarian political leaders to the glass ceiling for women. In the biological sciences there is a growing interest in leadership as an adaptive solution to coordinating problems in groups, from migration patterns in birds to conflict resolution in non-human primates. Converging theories and empirical developments in both the biological and social sciences suggest that leadership and followership share common properties across humans and non-human animals, pointing to deeper phylogenetic origins and evolutionary functions. I draw upon insights from the biological and social sciences to argue that there are two major types, prestige-based versus dominance-based leadership, associated with different (a) evolutionary functions, (b) psychological mechanisms, (c) developmental factors, and (d) neural pathways. This distinction helps to solve various important puzzles. First, there is a longstanding philosophical debate about the significance of leaders as either inspirational role models (e.g., Confucius) or powerful individuals (e.g., Machiavelli). Using game theory, I will suggest that both positions are in fact correct. Second, this bimodal distinction helps to clarify the different evolutionary pathways to leadership, whereby dominance leadership has its roots in adaptations for primate dominance hierarchy negotiation, whereas prestige leadership is derived from adaptive social learning capacities. Third, the distinction between prestige and dominance leadership solves the puzzle about the bright versus dark sides of leadership. Leaders can foster collaboration by being generous themselves – leading by example – or they can enforce cooperation through punishment. Each of these involve important cost-benefit trade-offs for followers (e.g., risk of coordination failure versus exploitation). Finally, this distinction helps to understand why humans have been able to make the transition from small-scale societies to large, hierarchical organizations.

Keywords: leadership, dominance, prestige, neuroscience, game theory

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*Speaker

Les Malheurs de la vertu? Evolutionary research about female hardcore pornography preferences

Maximilian Von Andrian-Werburg [*] [1], Sascha Schwarz [2], Benjamin P. Lange [1], Liv Bierhalter [1], Pauline Zahn [1], Frank Schwab [1]

[1] Julius-Maximilians-Universität Würzburg [Wurtzbourg, Allemagne] – Chair of Media Psychology, Oswald-Kuelpe-Weg 82, 97074 Wuerzburg, Germany
[2] Bergische Universität Wuppertal – Gaußstraße 20, 42119 Wuppertal, Germany

Objective

Fewer women than men consume pornography. However, women who watch, consume more extreme content than men. For example, for those women, hardcore pornography is 75% more popular compared to men (Pornhub Insights, 2018). Standard social science theories would predict the opposite pattern in that men should consume hardcore pornography more frequently than women. Evolutionary psychology on the other side offers no coherent theoretical framework but yields potentially related variables like a low k-factor that might affect these preferences. The aim of our research is to empirically identify these variables and to ultimately research evolved psychological mechanisms that might be responsible for the mentioned patterns.

Methods

At first we assessed male and female uses and gratifications of hardcore pornography ($N1 = 351$, $n1\text{female} = 231$, $n1\text{male} = 120$, Ageav. $= 23.45$ years). Secondly we evaluated findings from study one with a text-based experimental intervention to induce sexual arousal and check for potential mediators in a female sample ($N2 = 315$, Ageav. $= 25.04$ years). Further we currently conduct a third study ($N\text{planned} = 600$) that aims to further evaluate findings from study one and to replicate promising findings from study two. All studies were approved by an ethics committee.

Results

For example, the higher the female sex role of participants were the more arousal they experienced from reading hardcore pornographic (vs. other pornographic) texts ($b = .32$, $p = .02$). The dark triad (psychopathy, narcissism, machiavellianism) or a high sociosexual orientation, however, did not affect sexual arousal.

Conclusions

Current results suggest an underlying submissive personality trait, as part of female sex role, which could be responsible for the affection of some women to hardcore pornography. A clearer picture can be drawn at the conference as study three will be finished.

References

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[*]Speaker

Pornhub Insights (2018). Extreme category insights. Retrieved from https://www.pornhub.com/insights/extrem
categories

Sexual differences in Dark triad effect on mismatch between TIPI and NEO-FFI scores

Pavel Šebesta * [1], Karel Kleisner [2]

[1] Faculty of Humanities, Charles university, Czech republic – U Kříže 8, Prague, 158 00, Czech republic, Czech Republic
[2] Faculty of Science, Charles university, Czech republic – Albertov 6, Prague, 128 43, Czech republic, Czech Republic

Brevity and reasonable reliability of Ten item personality inventory (TIPI), which is based on direct self assessment of Big five traits, lead to a broad application in contemporary behavioral research. However, TIPI scores can substantially differ in comparison to other methods of Big five traits assessment which are based on self assessed behavioral tendencies (eg. NEO-FFI). In our study we hypothesize that intra individual differences in TIPI and NEO-FFI scores will be mediated by Dark triad traits - Machiavellianism, psychoticism, and narcissism.

In our study participated 52 men (age = 24,30; SD = 4,19) and 51 women (age = 23,64; SD = 4,21) from Czech republic. Participants were administred TIPI (10 items), NEO-FFI (60 items), and Short Dark Triad (SD3; 27 items). Subsequently, intra-indvidual differences in TIPI and NEO-FFI scores have been computed as a distance between their z-scores. For statistical analyses we used linear regressions with NEO-FFI scores and SD3 scores as predictors and TIPI-to-NEO-FFI distances as dependent variables.

In both men and women, narcissism predicted positively TIPI-to-NEO-FFI distance in extroversion. In women only, narcissism predicted positively also TIPI-to-NEO-FFI distances in agreeablness and opennes to experience. Moreover, in women psychoticism predicted negatively distance in agreeablness and neuroticism and Machiavellianism negatively distance in extroversion and neuroticism. It can be summarized that intraindividual differences in TIPI and NEO-FFI may derive from differences in Dark triad traits possibly due to differences in self-image managment.

Keywords: TIPI, NEO, FFI, Big five, Dark triad

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*Speaker

Physiological responses and eye movement patterns in response to fear- and disgust-eliciting reptiles

Barbora Žampachová * [1], Šárka Peléšková [1], Kristýna Sedláčková [1],
Markéta Janovcová [1], Jakub Polák [1], Daniel Frynta [1], Eva Landová [1]

[1] National Institute of Mental Health – Topolova 748 250 67 Klecany, Czech Republic

Fast and adequate response to life-threatening stimuli is important for every animal. Primates have evolved the ability to categorize, which allows them to evaluate prioritized stimuli (e.g. animals) first. Some animals, however, evoke specific emotional responses more easily than others, for example snakes are a typical stimulus triggering the "evolved fear module", which helps to focus attention on fear-eliciting stimuli, evaluate its dangerousness and react adequately. Moreover, snakes do not evoke only fear, but also disgust.

Based on previous research, we have chosen pictures of 24 reptiles, eliciting either fear or disgust or not eliciting any emotion (neutral). We have presented these stimuli to participants with contrasting levels of fear of snakes measured by the SNAQ questionnaire ("low fear" vs. "high fear") and disgust sensitivity measured by the DS-R questionnaire ("low disgust" vs. "high disgust"). First, we measured the parameters of the changes in skin resistance (amplitude, length of the reaction) using the VLV3 polygraph. The changes in skin resistance were higher when the respondents were presented with the animal stimuli, compared to the control (tree leaves), but the response to fear- and disgust-eliciting snakes did not differ in low fear participants. However, the high fear participants had higher amplitude of skin resistance change when presented with fear-eliciting stimuli.

In the second part of the experiment, we used the Eyelink 1000 eye-tracker to evaluate the eye movement patterns of the participants watching the same stimuli as in the previous part of the experiment. We found that the high fear participants had significantly less fixations overall than the low fear participants. Moreover, the participants also had less fixations when watching fear-eliciting stimuli compared to disgust-eliciting and neutral stimuli.

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*Speaker

Prestige and content biases simultaneously shape cultural transmission

Samarasinghe Alarna * [1], Richard Berl [2], Sean Roberts [3], Michael Gavin [2], Fiona Jordan [3]

[1] Department of Anthropology and Archaeology, University of Bristol – United Kingdom
[2] Department of Human Dimensions of Natural Resources, Colorado State University – United States
[3] Department of Anthropology and Archaeology, University of Bristol – United Kingdom

Objective: Both context and content biases have both been shown to influence the recall and transmission of information; however, there is little empirical research on the impact of multiple transmission biases across these two broad categories, resulting in studies that have limited utility. Here, we demonstrate how multiple social transmission biases are present in creation stories, and present results from a single generation transmission study investigating the role of social transmission biases in the oral recall of creation stories.

Methods: Building upon previous sociolinguistic research determining the differential prestige of accents, we use accent as a signal of prestige. We presented participants (N=163) in the UK and USA with two recordings of speakers with locally-calibrated differentially prestigious accents telling two creation stories. The two stories contained content spanning social, survival, emotional, moral, counterintuitive, and rational domains. Participants also played a spatio-visual memory game providing a measure of unbiased working memory.

Results: Using propositional analysis, we determine that both context and content biases affect recall of narratives. However, positive emotional, rational and moral content are less likely to be recalled than unbiased information. Of the biases affecting recall, prestige bias is the least significant.

Conclusions: Participants rely on both content and context biases in the recall of information, however, participants rely on prestige information in the absence of direct biased information. This study demonstrates the presence and need to control for multiple social transmission biases in transmission experiments, and provides a method for testing biases across context and content domains concurrently.

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*Speaker

Carbon, Conservation and Cooperation - Incentive Structures and Conservation Institutions on Pemba

Jeffrey Andrews * [1], Monique Borgerhoff Mulder [2]

[1] Max Planck Institute for Evolutionary Anthropology – Deutscher Pl. 6, 04103 Leipzig, Germany
[2] Department of Anthropology, UC Davis – United States

The origins of conservation norms and institutions in small scale societies are often lost to history. Recent models from cultural multilevel selection (CMLS) yield a series of testable predictions as to the ecological and social conditions that promote the evolution of norms and institutions pertaining to group cooperation and a reduction in the rate of intertemporal discounting. Here we present data from communities across Pemba, Tanzania that are part a United Nations environmental programme (REDD+) offering performance-based payments to communities in accordance with how well they preserve their local community forests. Using multilevel Bayesian models and a sampling strategy comparing communities designated for REDD+ and matched controls, we test to two initial predictions: first, to see whether exposure to anticipated group level benefits from REDD+ projects affects individual level environmental valuation and cooperation in common pool resource games; second, to determine how sensitive environmental valuation and cooperation in conservation are to individual level cost/benefit ratios associated with forest dependency and exposure to project benefits. The results provide insight into how individual-level costs and group level benefits affect preferences for cooperation over conservation, which in turn helps us identify the conditions under which otherwise costly institutions may be adopted and spread. The results will help evaluate theoretical models predicting cooperation in multilevel context and at the same time inform the design of conservation initiatives.

Keywords: Institutions, Conservation, Norms, Cooperation, Tanzania

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*Speaker

The contributions of eco-spirituality to pro-environmentalism

Adam Baimel * [1]

[1] University of Oxford [Oxford] – United Kingdom

Objective:Religious systems (beliefs, practices, and values) can be potent motivators of interpersonal coordination and cooperation. However, it remains an open question as to what role religions can play in sustaining the types of coordination needed to respond to present-day cooperative problems such as the increasingly immanent threat of global environmental degradation. More broadly, there is surprisingly little empirical data about how religion can structure individual orientations to the natural world.

Methods: We begin to document the existing variability by testing the relationships between religiosity, spirituality, and pro-environmentalism in a broad sample of religious and non-religious Americans (N = 792) and students at a Canadian university (N = 816). Specifically, we assessed the relative contributions of moral concern for the environment and eco-spiritual beliefs to (1) the extent to which environmental protection is held to be a non-fungible sacred obligation, and (2) behavioral commitments to protecting the environment.

Results: Results indicate that while moral concern for the environment has a small positive relationship with pro-environmental behaviours, it is those who consider environmental protection to be sacred obligation that are more strongly willing to make sacrifices (e.g., changes in their lifestyle, making actual financial donations to environmental organizations, and being willing to 'fight' for the cause) to protect the environment. Moreover, while 'religiosity' is found to be negatively correlated with moral concern and behavioral commitments to the environment – spirituality, and specifically eco-spiritual beliefs are sizeable positive contributors to pro-environmentalism across cultural divides (both religious and political).

Conclusions: This work provides new evidence that (1) fostering moral concern for the environment is only a weak means by which to increase pro-environmental behavioral commimtents and that (2) eco-spirituality plays a special role in the (and could be harnessed to further the) cultural spread of pro-environmental values and behaviours.

Keywords: Religion, sustainability, spirituality, commitment

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*Speaker

Violence and the Afterlife: A Phylogenetic Analysis of the Evolution of Beliefs in Islamic Sects

Kiran Basava [1], May Hanzhi Zhang * [1,2], Ruth Mace [1,2]

[1] Department of Anthropology [University College of London] – Gower Street - London - WC1E 6BT, United Kingdom
[2] Life Sciences, Lanzhou University – 222 TianShui Nan Lu, Lanzhou, Gansu Province, PRC, China

Objective: This project aims to explore the social function of eschatological beliefs in the context of intergroup competition throughout the cultural evolution of Islam. Specifically, it examines the correlated evolution of religious/revolutionary violence and apocalyptic/ reincarnation beliefs on a reconstructed phylogeny of Islamic sects.

Methods: We reconstructed a dated phylogeny (circa. 610CE –˜ 2000CE) of 28 extant and 56 historical Islamic sects based on a large-scale review of historical records and reference entries. Two researchers then independently coded the presence/absence of various forms of violence and eschatological beliefs (i.e. character states) in each Islamic sect. Using 'fossil' commands in *BayesTraitsV3* program, we took account of historical sects that are better represented by internal nodes rather than tips of the phylogeny. We then tested the phylogenetic signal of character states and looked for coevolution between pairs of characters using 'corHMM' package in *R* and *BayesTraitsV3*. Where coevolution is detected, we examined the transition rates of characters to infer the direction of coevolution.

Results: We detected significant phylogenetic signals of apocalyptic belief, reincarnation belief, and revolutionary violence among Islamic sects. There is evidence that apocalyptic belief co-evolved with revolutionary violence and that reincarnation belief co-evolved with religious violence. Non-revolutionary groups with apocalyptic beliefs are likely to subsequently acquire revolutionary violence or lose apocalyptic beliefs. Groups with reincarnation beliefs and religious violence are evolutionarily unstable and are likely to subsequently lose reincarnation belief.

Conclusion: Here we demonstrated how scholarship from humanity disciplines can be integrated with quantitative methods of biology to inform the evolutionary study of religious violence. The two Islamic eschatological beliefs examined - apocalyptic belief and reincarnation belief - exhibit distinct evolutionary trajectories and are associated with different forms of group violence.

Keywords: religion, phylogenetics, cultural evolution, belief, Islam, violence

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*Speaker

Economic Prosperity and the Cultural Evolution of Love

Nicolas Baumard * [1], Elise Huillery [2], Alexandre Hyafil [3], Lou Safra [4]

[1] École normale supérieure – Ecole Normale Supérieure de Paris - ENS Paris – France
[2] Dauphine University – Dauphine University, Université Paris-Dauphine, PSL Research University, Université Paris-Dauphine, PSL Research University – France
[3] University of Barcelona – Spain
[4] Sciences Po Paris – Sciences Po – France

It has long noticed that love and romantic attachment are more important in modern industrialized societies than in ancient and pre-modern societies. In this paper, we test the idea that the growing importance of love could be the result of adaptive plasticity: when the environment is favorable and resources are stable, humans as well as non human animals indeed tend to invest more in pair-bonding. We build a unique database of ancient fictions and studied the importance placed on love in the narratives. We further systematically compared the different versions of the same stories over time. Finally, to properly assess the causal role of prosperity, we used the introduction of the heavy plow in Western Europe as an exogenous shock on individual income. In line with adaptive programming, higher levels of prosperity caused a higher incidence of love stories, suggesting that economic prosperity may be an important driver of psychological and cultural changes.

Keywords: Life History Theory, Romantic love, Literature

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*Speaker

The Evolutionary Logic of False Beliefs

Bret Beheim * [1]

[1] Max Planck Institute of Evolutionary Anthropology – Deutscher platz 6, 04103, Leipzig, Germany

Humans are not the only species to inhabit multiple social structures and ecologies, but we are unique in our dependence on culturally-transmitted knowledge to do so. Much research has focused on the role of learning biases in cultural evolution, being cognitive heuristics to efficiently mine adaptive information out of a noisy social melieu. Evolutionary models of knowledge transmission, a.k.a. teaching, on the other hand, are generally theorized as selecting against bias or distortion, with deceptive teaching only considered in antagonistic conflit-of-interest scenarios. Here I describe a teaching equivalent of biased learning, involving the adaptive *distortion* of information by teachers to learners. Under a surprisingly broad range of conditions, biased teaching can evolve to intentionally transmit inaccurate or false information to learners, and learners can benefit from the acquisition of these false beliefs, provided the system can solve information-bottleneck problems, such avoiding ecological traps, teaching across life stages or niches, and teaching less-effective but more-learnable versions of a mature phenotype. By the mechanism of biased teaching, we can better understand many stable traditions involving deception across human societies, and we argue that biased teaching should be considered as important as the well-established models of biased learning.

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*Speaker

Anxiety, aggression and empathy in students of Russia (Russian and Tatars): cross-cultural study

Valentina Burkova * [1], Marina Butovskaya [2], Daria Dronova [1]

[1] Institute of ethnology and anthropology, RAS – Russia
[2] Institute of ethnology and anthropology, RAS; Russian State University for the Humanities – Russia

The goal of this paper is to reveal the level of anxiety, aggression and empathy in Russian and Tatars students, to study of the degree of sensitivity (empathy, anxiety) of students towards people with disabilities.

Data were collected in two big cities of Russia – Moscow and Kazan (capital of Republic of Tatarstan). Total sample consisted of 371 students (175 males, 196 females), mean age 20 y. Majority from the Moscow sample were Russians (89%), and the Kazan sample were Tatars (73%).

All participants completed demographic data, questionnaires on aggression (Bus-Perry), empathy (Baron-Cohen; Boyko), anxiety (Spielberger). Also we applied the experimental approach, and presented the set of stimulus photos of people with disabilities and registered the reactions of respondents on these stimuli. All respondents filled out the same questionnaires after watching stimuli photos.

Results showed significant cultural differences between Russian and Tatars students in aggression (excluding physical aggression in male): Russian students demonstrated higher level of 3 types of aggression (verbal, anger, hostility). Basic anxiety was higher in Russian, but situational anxiety was higher in Tatars. Gender differences in physical and verbal aggression, personal and reactive anxiety, empathy were registered for both samples. In total males were more physically and verbally aggressive, and less anxious, while females were more empathetic in both samples.

Also, Tatars showed significant increase in the levels of personal and situational anxiety after watching stimulus photos of people with disabilities, whereas Russians did not demonstrate any significant changes. Level of empathy increased after presentation of stimulus photos in Tatars too, but not in Russians. We conclude, that images of people with disabilities provoked anxiety and empathy among Tatar students to much more extant that in Russians.
The study was supported by Russian Science Foundation (project 18-18-00075).

Keywords: Anxiety, aggression, empathy, students, Russian, Tatars, cross, cultural study

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*Speaker

The Dipherpox Controversy: An experimental investigation into the cultural evolution of antivax attitudes using a fictional health controversy

Ángel Jiménez [1], Joseph Stubbersfield * [2], Jamie Tehrani [2]

[1] University of Exeter – Mail Room, The Old LibraryPrince of Wales RoadExeter, Devon UKEX4 4SB, United Kingdom
[2] Department of Anthropology [Durham University] – Dawson Building, South Road, Durham, DH1 3LE, United Kingdom

Although vaccines are an invaluable weapon in combatting diseases, they are often surrounded by controversy. Vaccine controversies usually arise with the claims of some parents or doctors who link vaccines to harmful outcomes and often negatively affect vaccination coverage. This experiment simulated the cultural evolution of a vaccine controversy to understand which content features of vaccination-related information are well transmitted and how this transmission affects vaccine intention. Participants read two conflicting views (pro- and anti-vaccine) about a vaccine for a fictional disease ('dipherpox'). These conflicting views were held by a parent and a doctor, whose views varied across conditions. This information was passed along linear transmission chains, with the product participant recall being passed to the next participant within their chain. Participants also responded whether they would vaccinate or not. The emotive experience-based view held by the parent was better transmitted than the medical-based view held by the doctor, whether this view was pro-vaccine or anti-vaccine. Despite all the participants having neutral or positive attitudes towards vaccines in general, 39.1% of them decided not to vaccinate. The results suggest that vaccination campaigns may be made more effective by drawing on cultural evolution literature on cognitive biases and including emotive personal experiences of the negative consequences of non-vaccination.

Keywords: cultural transmission, antivaccination, cognitive biases

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*Speaker

Evolution and development in global kinship terminologies

Fiona Jordan [*] [1], Sam Passmore [1], Peter Racz [1], Catherine Sheard [2],
Alice Mitchell [1]

[1] Anthropology Archaeology, University of Bristol – United Kingdom
[2] University of St Andrews – United Kingdom

Objectives:

Kinship terminologies are semantic and social systems that delineate categories of family membership. These systems vary cross-culturally, but within a limited space of diversity that suggests constraints. Accounting for this restricted variety requires examining kinship systems as linguistic, cognitive, social, and biological mechanisms. Taking a cultural evolutionary approach, the VariKin project aims to understand patterned variation in kinship as an outcome of phylogenetic, adaptive, developmental, and usage processes. We present results from two subprojects tackling cultural macro– and micro-evolutionary questions. Methods and Conclusions:

First, we consider whether the rate of change in kinship terms over time is related to their frequency of use in language. We compiled 34 language corpora comprising 90 billion words across different genres (written, spoken, web) in 21 Indo-European languages. We show that cross-linguistically, frequency of kin term use is predicted by genealogical distance from ego i.e. we talk more about close relatives. We then use phylogenetic comparative methods to show that in 47 Indo-European languages, terms used most frequently tend to evolve slowly, demonstrating a potential mechanistic constraint on system change. Second, we present results investigating the individual-level processes at work in the developmental trajectories of children's acquisition of kinship language and knowledge. We use elicitation tasks and naturalistic observations from fieldwork in a Datooga-speaking community in Tanzania to show that kinship talk is child-anchored and compare these results to patterns seen in child-directed speech in six other languages.

Keywords: kinship, cultural phylogenetics, development, language acquisition

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[*]Speaker

Does culture change understanding of kneeling display in religious ritual?

Eva Kundtova Klocova * [1]

[1] LEVYNA Laboratory for the Experimental Research of Religion, Masaryk university – Czech Republic

Objective: Some cultures consider kneeling posture the most salient bodily expression connected to religious ritual practice. Closed and lowered postures observed across animal kingdom are generally associated and perceived as expressing submission and subordinance. Some cultural and religious explanations of the use of kneeling in religious rituals however put an emphasis on moral aspect of such signal, seeing it rather as an expression of shame and atonement. Therefore, long exposure to such explicit explanations of the display may have shifted the understanding of the associated affective state from submission to shame and these postures might emphasize conformity with moral norms over power asymmetry (usually between superhuman agents and human participants).

Methods: Using the free-list technique, I compared two distinct cultural and four religious models of understanding of the kneeling posture. The two studied cultures are Czech and Mauritian, providing a significant contrast: the inhabitants of historically Christian, now highly atheistic Czech Republic compared with Mauritians living in considerable ethnic, religious and cultural diversity in one of the most densely populated countries in the world. The Mauritian population affiliates (among others) to Hindu, Christian or Muslim religious traditions.

Results: Kneeling is seen mostly as conveying respect and submission cross-culturally. Although moral aspects are mentioned in several instances, neither cultural origin, nor religious affiliation predict their occurrence. The emphasis on submission is significantly lower for all religious affiliations (compared to atheists).

Conclusions: The results do not support the predicted shift from submission to shame in understanding of kneeling displays in religious rituals. There is however an observable difference in emphasis on submission in explanations by religiously affiliated. This suggests that there might be other explanatory framework differing from the official theological explanations, which stresses other explanations for the use of kneeling, such as efficiency boost of a prayer or a plea.

Keywords: postural display, kneeling, submission, shame, religious display

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*Speaker

Testing the Cultural Evolutionary Dynamics of Pretige-Biased Copying: Agent-Based Modeling and Experimental Approaches

Hillary Lenfesty * [1], Thomas Morgan [1]

[1] Arizona State University – United States

Human psychology includes social learning biases which guide our decisions about who and when we copy. While conformist-biased copying has been widely-studied, both theoretically and empirically, relatively little is known about prestige-biased copying. Nonetheless, fieldwork in small-scale societies has consistently shown that there are certain "prestigious" individuals to whom status is freely conferred, and that these individuals are sought out as models for social learning.

Here, we present results from an agent-based simulation exploring the cultural evolutionary dynamics of prestige-biased transmission. We find that, contingent on the strength of observers' prestige-bias, prestige biased copying produces a range of cultural systems, including "council-like" groups of influential individuals, or single "big men". We also find that, like conformist transmission, prestige can homogenize group behaviors, but unlike conformist transmission, it still allows innovations to spread and so group cultures can change over time.

We will also present novel ideas about the role of prestige-biased social learning in religious contexts, and show some preliminary results of an online experiment which explores prestige psychology among religious adherents regarding leaders and deities.

Keywords: prestige, social learning, agent, based modelling, cultural evolution, religion

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*Speaker

Quantifying reproducibility of social learning research

Riana Minocher * [1], Bret Beheim

[1] Max Planck Institute for Evolutionary Anthropology – Deutscher Pl. 6, 04103 Leipzig, Germany

The emphasis on reproducible and open research practices has increased substantially over the last few years. That researchers are able to provide sufficient material to allow an independent investigator to re-evaluate a study's findings is particularly important in the behavioural sciences, with increasing concerns about issues such as the replication crisis and questionable research practices. However, reproducibility is important not only to deter scientific misconduct, but also to improve research output. Available materials and reproducible workflows encourage more rigorous engagement with research results, leading to collaboration, supplementary analyses and re-analyses of usable data. Here, we surveyed 560 empirical studies relevant to the topic "social learning", to formally estimate the rate of reproducibility within the field of evolutionary anthropology. We aimed to identify factors that may affect reproducibility, such as age of publication and type of data, while maintaining authors' anonymity. By defining thresholds of "prereproducibility" - i) material available online ii) author contactable (details available online) iii) author accessible (reply to request received) iv) material available after request - we quantified the "reasonable researcher's" access to materials. To do this, we recorded for each study whether any materials were available to us online, and then personally contacted authors about supplementary materials. To estimate overall analytical reproducibility for the final sample, we attempted to recreate the central results of a subset of studies for which we received materials.We found that the accessibility of data to a reasonable researcher decays exponentially with increasing number of years since publication, and quantified differences in this data decay rate according to type of data (observational/ experimental) and study species (human/ nonhuman). Importantly, our work contributes towards reducing barriers to data sharing and reproducible research, by creating a database of social learning workflows and data repositories.

Keywords: open science, reproducibility, social learning

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*Speaker

A model of recombination in cumulative cultural evolution

Elena Miu * [1], Thomas Morgan [2]

[1] Arizona State University – 900 Cady Mall, Tempe, AZ 85281, United States
[2] Arizona State University, USA – United States

Objective

Cumulative cultural evolution-the process by which our species builds and improves upon knowledge from previous generations-has allowed our species to achieve the astounding ecological success witnessed today. A variety of factors have been deemed key for maintaining this process, from human cognition to demography. Despite the fact that cumulative culture routinely produces complex, interacting traits, the modelling literature has typically operationalized traits in simple way – typically, as a sequential progression, where learning a more advanced trait merely depends on knowing the previous traits in a linear hierarchy. Here, we implement a more general depiction of a cumulatively evolving cultural trait.

Methods

In this framework, a trait is defined by three parameters: (1) the number of levels through which it can be refined, (2) the number of options available at each level, and (3) the magnitude of dependency between options at different levels. Each option at each level is associated with a particular payoff, but as dependencies increase these payoffs change contingent on what options were chosen at other levels, capturing a level of path dependency often seen in human culture. This framework can collapse down to a variety of commonly used tasks while also being able to scale up to tasks of exceptional difficulty.

Results

We systematically varied these parameters and explored how they interact with two key processes involved in cumulative culture, recombination and individual-level innovation. We found that for easy tasks, when finding an optimal solution on your own is feasible, learning based on individual innovation achieves the highest performance. For difficult tasks, however, the highest performance is achieved through learning based on recombining already existing traits in the population.

Conclusion

This suggests that whether cumulative cultural evolution relies on individual cognition or population-level processes is modulated by the difficulty of the task.

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*Speaker

Does teaching promote faithful transmission and the cumulative cultural evolution? Agent-based simulations with computational models of teaching

Seiya Nakata * [1], Masanori Takezawa [2]

[1] Seiya Nakata – Japan
[2] Masanori Takezawa – Japan

Objective It has been argued that the successful cumulative cultural evolution significantly relies on faithful transmission, and teaching plays a critical role in promoting a faithful transmission of skills, technologies, and knowledge. In this study, using agent-based computer simulations with newly developed computational models of teaching, we investigated whether teaching actually promotes the faithful transmission and attain the successful cumulative cultural evolution of high-performing skills.

Methods We first constructed a computational model of teaching complex skills. First, individual learning of a complex skill (e.g., knotting) is formalized as processes of that a reinforcement learner searches for a minimum path between two nodes in a complex random network. Second, teaching is formalized as repetitions of the exact imitation of a demonstrator's action by a reinforcement learner, which results in gradual accumulation of action values in the reinforcement learning algorithm.

Results We found that teaching promotes the cumulative evolution of better skills measured as the decreasing average number of steps from a start-node to a goal-node across generations. In the current computer simulations, more extended teaching periods facilitated faithful transmission of skills while restraining opportunities of individual learning. In other words, there was a trade-off between faithful transmission and innovation by individuals. Interestingly, we found that more extended teaching periods in each generation accelerated the speed of cumulative cultural evolution even though it significantly constrained an opportunity of innovation.

Conclusions We examined the theory of cumulative cultural evolution concerned with teaching and faithful transmission by constructing the computational model. Our model demonstrated how the micro-level reinforcement learning mechanism could create the macro-level cumulative cultural evolution with the help of teaching.

Keywords: Cultural evolution, Teaching, Computer simulation

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*Speaker

Cultural Transmission of Mating Preferences in Fruit Flies

Sabine Nöbel * [1], Arnaud Pocheville [2], Guillaume Isabel [3], Etienne Danchin [4]

[1] Institute for Advanced Study in Toulouse – Universite de Toulouse 1 Capitole – Manufacture des Tabacs 21, Allée de Brienne 31015 Toulouse Cedex 6, France
[2] Department of Philosophy and Charles Perkins Centre, University of Sidney – Australia
[3] CNRS, Université de Toulouse III Paul Sabatier; UMR 5169; CRCA (Centre des Recherches sur la Cognition Animale) – Université de Toulouse III Paul Sabatier – France
[4] Laboratoire Évolution Diversité Biologique (EDB UMR 5174), CNRS, IRD, UPS – Université de Toulouse Paul Sabatier – France

Many theoretical articles show that cultural transmission can considerably change the evolution of populations. Once considered unique to humans, animal culture hasscant empirical evidence beyond mammals and birds, and we still know little about the processof cultural transmission. We propose a mechanism-driven definition of animal culture and test it in the fruit fly (*Drosophila melanogaster*).The definition requires that the five criteria discussed in the literature are verified. First, the transmitted trait should be socially learned, i.e. learned from conspecifics (criterion 1). We show that following the observation of a *Drosophila*female (called demonstrator female) choosing between two males of contrasted phenotypes for mating, leads an observer female to prefer males of the phenotype chosen previously. Furthermore, sexual preferences must be transmitted from older to younger individuals (criterion 2), memorized over the long-term (criterion 3), be in favor of any male of the same phenotype (criterion 4) and in a conformist manner (criterion 5, i.e. females learn to prefer the male phenotype chosen by the majority of demonstrators, whatever the level of majority). We then used computer simulations to study whether the observed cognitive characteristics can generate a statistical population-preference for a given male phenotype that persist along transmission chains in which the observers of one step become the demonstrators of the next step (i.e. whether social learning can foster the emergence of cultural traditions). We found that traditions readily emerge in population of sizes that exist in nature and that conformity plays a key role in the emergence of such cultural traditions. Thus, Drosophila have all the cognitive abilities that can lead to the emergence of sustainable cultural traditions of preferring one type of male over other types of males, which considerably broadens the taxonomic scope of the cultural process.

Keywords: cultural transmission, fruit fly, social learning, mate copying

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*Speaker

Bursts of rapid change in the adaptiveness of the cultural system may be partly explained by the connectivity dynamic

Jose Segovia Martin [*] [1], Mónica Tamariz [2]

[1] Universitat Autònoma de Barcelona [Barcelona] – UAB Campus 08193 Bellaterra Barcelona, Spain
[2] Heriot-Watt University [Edinburgh] – Edinburgh, Scotland, UK EH14 4AS, United Kingdom

The evolution of cultural systems is shaped by neutral dynamics (Reali, & Griffiths, 2010; Blythe, 2011), cognitive biases (Boyd & Richerson, 1985; Tamariz, Ellison, Barr, & Fay, 2014) and demographic factors such us population size (Shennan, 2001; Kline & Boyd, 2010; Henrich, 2004) and the degree of contact (Powell, Shennan & Thomas, 2009; Muthukrishna, Shulman, Vasilescu & Henrich, 2014). In particular, a number of studies on cultural evolution have developed models that link demography and cultural adaptiveness, using a variety of mathematical approaches (Mesoudi, 2011, Shennan, 2001). While macroscopic models are useful, agent-based models are more realistic to keep track of individual's knowledge (Mesoudi, 2011). In this study, our goal is to analyze how adaptiveness changes globally when we manipulate microscopically the organization of turn taking in pairwise interactive microsocieties (termed connectivity dynamic). We constructed an agent-based model that, for each round and agent, yields the probability distribution of cultural variants for a given history of agent's interactions. We systematically manipulated content bias, coordination bias, memory, innovation and two levels of the connectivity dynamic (early connectivity and late connectivity). Our results suggest that, in some scenarios, bursts of change in the cultural system may be partly explained by the order in which individuals interact over time (Fig. 1). These computational results extend a number of studies that, under a variety of assumptions, have proposed punctuational or rapid bursts of change as a feature of cultural and language evolution (Atkinson, Meade, Venditti, Greenhill & Pagel, 2008; Fitch, 2008; Janda & Joseph, 2003). Furthermore, we suggest that research in the field would benefit from experimental designs that control the probability of occurrence of each possible connectivity dynamic.

Keywords: Cultural evolution, agent based models, punctuated equilibrium, contact, population size, cognitive biases, connectivity, adaptiveness

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[*]Speaker

Cultural evolution of Irish traditional music in the digital age

Sally Street * [1]

[1] Department of Anthropology [Durham University] – Dawson Building, South Road, Durham, DH1 3LE, United Kingdom

Understanding how and why cultural selection pressures vary across diverse domains is essential for a general theory of cultural evolution. However, the field has historically focused on language and technology over the arts, particularly music. This project investigates how far traditional music conforms to broad cultural evolutionary predictions, using an online dataset of > 15,000 Irish traditional tunes. This case study is ideal for investigating how broad cognitive factors shape cultural variation because tunes are typically performed from memory.

Based on cultural evolutionary studies of technology, we should expect that popular tunes are more likely to diversify into new variants due to greater opportunity for innovation. Alternatively, we may expect that as for language, popular tunes are less likely to diversify due to greater standardisation. Additionally, if music evolves like language we should expect that shorter tunes are more popular due to memory limitations. However, perhaps uniquely for music, longer tunes may be more popular due to aesthetic preferences for complexity.

I find that popular tunes have a greater number of versions, suggesting that frequently played tunes are more likely to diversify. Therefore, large cultural populations promote innovation in music as they do for technology. Tunes of intermediate length (16 bars) are more popular than both shorter and longer tunes. These findings suggest that memory constraints limit the popularity of complex tunes as they do for words, but unlike language, aesthetic preferences for complexity limit the popularity of simpler tunes. The preference for intermediate length tunes appears stable over the website's lifetime (2001-present), suggesting that traditional music may be immune to some extent from increasing pressures on attention and memory in the digital age.

Together, these findings show that cultural evolutionary processes operate distinctly in the domain of music, highlighting the value of considering diverse cultural 'ecosystems' in cultural evolutionary research.

Keywords: Cultural evolution, traditional music, online datasets, digital age

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*Speaker

Social learning amplifies sub-optimal data gathering biases

Justin Sulik * [1], Ryan Mckay [2], Charles Efferson

[1] Royal Holloway [University of London] – Egham, Surrey, TW20 0EX, United Kingdom
[2] Royal Holloway University of London – United Kingdom

Objective

We sought to test whether individual data gathering biases would be amplified by a social transmission process, and whether this would increase the rate of false beliefs in artificial societies.

Methods

Participants (N=2000, grouped into 100 diffusion chains of 20 generations each) randomly sampled coloured beads from urns, where different urns had different ratios of bead colours. Participants drew beads from an urn until they were confident they knew the urn's majority colour. In a social condition, participants were shown the number of beads drawn by each previous generation in their chain; in an asocial control, they were just shown the number of previous generations.

Results

Although the number of beads drawn by others should logically be irrelevant for each person's decision, participants in the social condition were significantly more likely to draw a suboptimal number of beads, and were thus more likely to form costly false beliefs.

Conclusions

We found that social learning can be responsible, not only for the spread of false beliefs, but also for the spread of sub-optimal learning strategies. We argue that this may help explain the cultural spread of phenomena (such as conspiracy ideation), which are characterised as much by dysfunctional learning strategies as they are by untrue beliefs.

Keywords: decision making, rationality, bias, diffusion chain, cultural evolution, social learning

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*Speaker

Control and Widespread Use of Fire as the Foundation of Cultural Revolution and Modern Human Behaviours

Thomas Tajo * 1

1 Visioneers (www.visioneers.org) – United States

According to the Human Revolution hypothesis about 80 to 40 thousand years ago there was a sudden explosion of human culture. In which the symbolic culture and modern human behaviour was born. However, there is no adequate scientific explanation for the reason for this sudden explosion of human culture.

The explosion of human culture around 80 to 40 thousand years ago in the Late Stone Age took place around the same time as when human beings regularly learn to control and widely began to use fire.

Thus, my paper hypothesise that the regular control and widespread use of fire is connected to, and is what gave birth to the HumanRevolution: the sudden unexplained explosion of human culture about 80 to 40 thousand years ago. Which gave birth to the symbolic culture and modern human behaviours.

Keywords: Widespread use of fire, cultural revolution, symbolic culture, modern human behaviours

*Speaker

Between- and Within-Population Variation in Beliefs About Children's Competency and Conformity

Nicole Wen * [1], Jennifer Clegg [2], Stephanie Estrera [3], Cristine Legare [3]

[1] University of Michigan [Ann Arbor] – 500 Church Street Ann Arbor, MI 48109-1090, United States
[2] Texas State University – United States
[3] University of Texas at Austin [Austin] – United States

Objective:

Childrearing beliefs and practices are highly variable across cultures (Keller & Kärtner, 2013; Little et al., 2016). Between- and within-population comparisons provide critical insight into the extent and cause of cultural variation (Legare & Nielsen, 2015). Our objective was to compare adults' judgments of children's conformity behavior in relation to beliefs about intelligence in two populations (U.S. and Vanuatu) that differ in child socialization goals. Although U.S. adults favor self-confidence and independence in thinking over obedience and conformity (Paguio et al.1987), child socialization in Vanuatu is based on fostering collective and cooperative values emphasizing social conformity (Peck & Gregory, 2005).

Methods:

Study 1 (*n*=384) compared judgments of children's conformity behavior and beliefs about intelligence in the U.S. and Vanuatu (Clegg et al., 2017; Wen et al., 2018). Using a novel methodology based upon multivocal ethnography (Tobin et al., 1989), we assessed beliefs about children's traits from their own and a comparison population. Study 2 (*n*=239) examined within-population variation in the U.S. using the same paradigm.

Results:

Study 1 revealed differences between the U.S. and Vanuatu in the value of conformity for conceptions of children's intelligence, but only when evaluating their own population. In the U.S., creativity is viewed as a sign of intelligence, whereas Ni-Vanuatu endorsement of high conformity is consistent with ethnographic assessments of what constitutes intelligence in conformist-based societies. Study 2 revealed adults evaluated low conformity behavior as evidence of intelligence when they rated independence as more important and interdependence as less important for child socialization goals.

Conclusions:

These studies demonstrate that beliefs about the relationship between intelligence, conformity, and creativity vary between- and within-populations and are mediated by differences in expectations for in-group members. They highlight the importance for conducting both between- and within-population comparisons in examining continuity and variability in beliefs about intelligence.

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*Speaker

The evolutionary dynamics of packaged cultural traits

Justin Yeh * , Anne Kandler [1]

[1] Max Planck Institute for Evolutionary Anthropology – Germany

Many cultural traits are not transmitted independently, but together as a package. This can occur through institutions, media that store information, and cognitive mechanisms such as overimitation. Evolutionary biology suggests that physical linkage of genes on the same chromosome allows neutral or maladaptive genes to spread by hitchhiking on adaptive genes. For this reason, it may be difficult to infer whether a gene is adaptive from population survey data. Whether the same dynamics occur in cultural evolution is unclear. People seldom learn *two equal halves* of *all* traits from their two parents. Furthermore, learned behaviours are not arranged side-by-side on a chromosome. Instead, any two traits can potentially be linked, forming a network of traits. We build an agent-based simulation that allows formation and breakage of such links to explore their effects. The simulation includes multiple traits, each with multiple variants. Some traits are under selection while others neutral. During transmission, one randomly selected trait, along with all other traits that are directly or indirectly connected to it, are learned together in a package. We compare the evolution of neutral traits and adaptive traits in a system that has links to those in a system that does not allow any links.

Keywords: recombination, linkage

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*Speaker

Investigating cultural adaptations to sexual conflict in the ethnographic record: A phylogenetic comparative study of male and female genital mutilations

Gabriel Šaffa * [1], Jan Zrzavý [1], Pavel Duda [1]

[1] University of South Bohemia, Department of Zoology – Branišovská 31, 370 05 České Budějovice, Czech Republic

Objective

Male and female genital mutilations (MGM and FGM) can be extremely costly in terms of health, survival and reproduction. As such, they call for a satisfactory evolutionary explanation. Previous studies have suggested that both MGM and FGM are adaptations to male sexual conflict, namely concerns about paternity certainty. Links between genital mutilations and polygyny – as a proxy for the intensity of sexual conflict – have been established. Specifically, it was demonstrated that the incidence of genital mutilations increases with the frequency of polygyny and co-wife residential distance. Here, we investigate evolution of these cultural practices and re-examine the existing hypotheses using phylogenetic comparative methods.

Methods

Data for MGM, FGM, and marriage system and other traits were collated from the SCCS, eHRAF, and recently published studies. Phylogenetic comparative analyses, including measuring phylogenetic signal and reconstructing ancestral states, were carried out in Mesquite and R. A Bayesian analysis of correlated evolution of binary traits was performed in BayesTraits. A time-calibrated supertree of populations in the SCCS, based on genetic and linguistic data, was used as a phylogenetic control.

Results and Conclusions

Reconstruction of ancestral states revealed multiple independent origins of MGM in the Africa alone; in the common ancestors of Niger-Congo speaking groups, as well as Nilo-Saharan and Afro-Asiatic speaking groups. Additionally, it is ancestral for Remote Oceanic group of Austronesian speakers. FGM is restricted to Africa and it is less phylogenetically clustered. MGM is significantly correlated with both frequency of polygyny (LR=12; $p< 0.01$) and distance between co-wives (LR=18, $p< 0.001$). FGM is not correlated with polygyny (LR=0.9, $p< 0.9$), but when co-wives occupy separate dwellings (v863), the association becomes highly significant (LR=30, $p< 0.000$). Correlation between MGM and FGM is also highly significant (LR=62, $p< 0.000$). Thus, our preliminary results support the hypothesis that both MGM and FGM have evolved in societies characterized by intense sexual conflict.

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*Speaker

Cerebral Hemispheres: A Study of the Brain Dominance Differences between Gifted and Non-Gifted Students

Abdulrahman Al-Rasheed * [1], Fahad Al-Harbi *

[1] King Saud University – Department of Psychology, King Saud University. Riyadh, Saudi Arabia, Saudi Arabia

The current study aimed to investigate the differences between gifted and non-gifted students in the pattern of the Brain Dominica. A hundred and twenty-eight students participated in this study, all were withdrawn from the population of the primary schools in Riyadh the Kingdom of Saudi Arabia. Their age ranged between 9 to 10 years old with an average age of 9.49 and a standard deviation of 0.51. Sixty gifted student have achieved the criteria of the study: IQs 130 and above in the mental abilities test, as well as an average of 130 and more in the creativity thinking test Figure B, In addition to receiving 90% or more of Grade Point Average during the last two years of their study. The participants have also been nominated by their teachers as gifted students according to their characteristics that indicate their potential for talent. In contrast, a corresponding sample of 68 non-gifted students were chosen to be equal in age and grade. Torrance's style of learning and thinking test has been applied to the two sample after it has been standardized on the them. An independent sample t-test was then used to investigate the differences between the means of the result. The results of the study revealed significant differences between the average performance of gifted and non-gifted students in the left pattern, where the non-gifted sample had a higher use rate of the left hemisphere. While the results of the study did not reveal significant differences between the two samples in relation to the right pattern. However, the result of the integrated pattern revealed significant differences between the two samples in favor of the gifted student sample.

Keywords: Cerebral Hemispheric, Brain Dominica, Gifted students and Non, Gifted students

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*Speaker

What is the link between early gonadal hormone exposure and sex differences in behaviour?

Gillian Brown * [1]

[1] University of St Andrews, UK – School of Psychology Neuroscience, South Street, St Andrews, KY16 9JP, United Kingdom

Objective Evolutionary accounts of sex differences in behaviour commonly assume that the human brain contains evolved psychological mechanisms that differ between males and females. One of the mechanisms by which sex differences in brain function might emerge is via differential exposure to gonadal hormones, such as testosterone, during early life. Research on non-human animals has shown that exposure to gonadal hormones during early, sensitive periods of development has long-term effects on the brain and behaviour. In human beings, prenatal testosterone exposure has suggested to correlate with childhood play behaviour and personality traits, such as empathising. However, critics have argued that the hypothesis that prenatal gonadal hormone exposure is responsible for 'hard-wiring' sex differences in the brain and behaviour relies on an overly deterministic view of human behaviour and risks perpetuating harmful gender stereotypes.

Methods and results Here, I evaluate both sides of this argument and examine whether the 'hard-wiring' metaphor is valid when describing the actions of gonadal hormones during early life. A review the neuroendocrine literature indicates that gonadal hormones: i) are responsible for co-ordinating bi-directional interactions between developmental processes and external environments, ii) confer flexibility onto developmental processes, which can lead to phenotypic variation both within and between sexes, iii) exert many of their effects via epigenetic processes, including inherited epigenetic effects that could lead to cross-generational transmission of behaviour, and iv) are central to processes of phenotypic accommodation, thereby potentially contributing to plasticity-first evolution. These data suggest that gonadal hormones do not act to 'hard-wire' the brain, but do potentially play a key role in directing developmental processes across the lifespan.

Conclusions This review of the actions of gonadal hormones during early life suggests that an alternative account of sex differences in behavioural development is required, which combines 'biological' mechanisms (e.g., genes and hormones) with socialisation processes.

Keywords: sex, gender, hormones, evolutionary psychology, development

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*Speaker

Facial similarity predicts sibling judgements but not romantic partner judgements

Rachel Cassar [*] [1], Iris Holzleitner [1], Lisa Debruine [1]

[1] University of Glasgow – United Kingdom

OBJECTIVE

Studies often test the theory of similarity in mate choice by measuring the accuracy with which people match couples' faces. A pilot study investigating the role of similarity cues in judging pairs of faces as siblings and couples found that, whilst perceived similarity was effective at predicting sibling judgements, it did not predict couple judgements. The proposed study (https://osf.io/rqvxp/) will incorporate foil pairs of faces to further examine how judgements will vary for faces belonging to couples compared with foil pairs.

METHODS

Similarity ratings for the pairs of faces will first be collected by asking participants to rate them for similarity on a scale of 1-10.

In the next phase of the study, using an independent measures design, a separate group of 100 subjects will be recruited to perform one of two tasks: (i) sibling judgements or (ii) couple judgements. Subjects will be presented with images of faces of 143 couples and 143 foil pairs (matched on sex, age and ethnicity) and, depending on which task they were allocated to, will be asked to judge whether the faces look like (i) siblings or not; or (ii) a couple or not.

RESULTS

A general linear mixed effects model will be used to analyse whether similarity predicts the likelihood that people judge pairs of faces as siblings and couples, and whether this relationship is maintained when the images belong to a couple or a random pair.

CONCLUSION

The study will provide a more informed understanding of how people match romantic partners by facial appearance and specifically whether facial resemblance is a key component. The study will be relevant in testing the assumption in previous studies that people use perceived similarity to accurately match faces of couples, and that the rate of accuracy demonstrates homogamy.

Keywords: homogamy, similarity, mate choice, face judgement

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[*]Speaker

Fertility transition and urbanisation cause political polarisation

Tamas David-Barrett [* 1,2], Janos Kertesz [3], Carlos Rodriguez-Sickert [1],
Jorge Fabrega [1]

[1] Universidad del Desarrollo – Chile
[2] University of Oxford [Oxford] – Wellington Square, Oxford OX1 2JD, United Kingdom
[3] Central European University – Hungary

We report here, in the form of a mathematical model and first empirical evidence, a new hypothesised link between demographic processes, such as fertility transition, urbanisation, and the population's propensity towards the individual's ideological fundamentalism or political radicalisation. We show that on the level of the society the consequence is political polarisation. For this, first we demonstrate a functional relationship between demographic processes and the structure of ego-level social network: falling effective fertility decreases the social network's clustering coefficient (Sci. Rep. 2019).

Second we show that individual strategies of friendship formation can increase the clustering coefficient in low fertility societies. We show that one particular friendship strategy, homophily, results in a u-shaped pattern of clustering coefficient through falling effective fertility (submitted).
The decline of societal trust has been associated with falling clustering coefficient. Thus, third, we demonstrate that a possible coping strategy is increased focus on a reduced number of traits during homophilic friendship choice. We interpret this as an increased drive towards ideological fundamentalism or political radicalisation. This effect is strongest at the mid point of the demographic transition.

Keywords: demographic transition, social networks, trust, political polarisation, homophily

[*]Speaker

Associations of sensor-derived physical behavior with metabolic health: a compositional analysis

Isaac Debache * [1]

[1] CNRS - Institut Pluridisciplinaire Hubert Curien – CNRS : UMR7178 – 23, rue Becquerel, Strasbourg, France

BACKGROUND

Existing literature about the effects of physical activity and sedentary behaviors on health has rarely used devices recording the exact body postures and movements although they might be of metabolic relevance. Moreover, only few studies treated the time budget of behaviors as compositional data. Finally, little was done to properly characterize the distribution of lengths of behavior bouts in relation with health.

METHODS

As part of the French RECORD study, data of two combined VitaMove accelerometers worn at the trunk and upper leg for a week by 154 male and female adults (age= 50.55±9.57 years, BMI=25.77±3.89 kg/m^2) were analyzed. Using both iso-temporal substitution and compositional analysis, we examined the associations between five physical behaviors (lying, sitting, standing, low physical activity, moderate-to-vigorous activity) and seven health outcomes (fasting serum glucose, low- and high-density lipoprotein, and triglycerides levels, body mass index, and waist circumference).

RESULTS

After adjustment for confounding variables, total standing time was positively associated with better lipid profile. Rather than total sitting time, lying during the day was associated with adiposity. For a given postural time budget, fragmented sedentary time was associated with lower BMI, and, surprisingly, with higher fasting glucose concentration. Subjects that fragmented the time devoted to standing postures had higher HDL levels and lower BMI. No significant association was observed between patterns of fragmentation of moderate-to-vigorous physical activity and heath.

CONCLUSIONS

The posture during inactive time is of clinical importance. Posture changes all along the day are associated with beneficial health outcomes, but the relevance of length of bouts of moderate-to-vigorous activities could not be proven.

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*Speaker

lipids, glucose, HDL, compositional analysis, iso, temporal substitution

Children delay gratification to cooperate: A joint marshmallow test with German and Kenyan children

Sebastian Grueneisen * [1], Rebecca Koomen [2], Esther Herrmann [2]

[1] University of Michigan – United States
[2] Max Planck Institute for Evolutionary Anthropology – Germany

Objective

Cooperation frequently requires individuals to delay gratification, that is, to invest effort to achieve long-term goals while disregarding short-term temptations. The cognitive demands this entails have long been recognized as a major constraint for the emergence of cooperation in the animal kingdom (Stevens & Hauser, 2005). In humans, social interdependence is thought to be a critical evolutionary and proximate source of cooperative motivations (Robert, 2005; Tomasello et al., 2012). However, capacities for delaying gratification and their ontogenetic origins – one of the most widely studied topics in developmental psychology – have never been examined in the context of cooperative decision-making. Here we address this issue from a cross-cultural perspective.

Methods

We presented children from two cultures (Germany and Kenya, N=206) with a cooperative version of the famous "marshmallow test". In a baseline Solo condition, two children were placed in separate rooms and received one cookie each. If they refrained from eating their cookie until an experimenter returned they received a second cookie. The Interdependence condition was identical except that children's outcomes were interdependently linked: Children only received a second cookie if both of them refrained from eating but not if either of them ate their cookie before the experimenter returned.

Results

Children were more likely to delay gratification in the Interdependence than in the Solo condition (p=0.008) despite the additional risks this entailed. Kenyan children delayed gratification more than German children (p=0.035) but there was no interaction between condition and culture.

Conclusions

Children are more proficient at delaying gratification for cooperation than for individualistic goals. Convergent results from two distinct cultures indicate that this does not reflect Western cultural norms or socialization goals. These findings provide strong support for the notion that social interdependence plays an important role in shaping human cooperative psychology.

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*Speaker

The Incidence of Sexual Violence on US College Campuses

Julia Hoefer Martí * [1], Paul Seabright [2]

[1] Toulouse School of Economics – Toulouse School of Economics – Manufacture de Tabacs, 21 allées de Brienne 31000 Toulouse, France

[2] Institute for Advanced Study in Toulouse (IAST) – IAST – Toulouse School of Economics, Manufacture des Tabacs, 21 allée de Brienne, 31015 Toulouse Cedex 6, France, France

Why is alcohol use so often implicated in incidents of rape and sexual assault? To what extent is alcohol a cause, and to what extent is it simply a symptom of other underlying causes of sexual violence? We build a game theoretic model where agents face costs and benefits of both consensual and non-consensual sexual encounters. They may choose to use alcohol as a "social lubricant" to diminish their own and others' perceived psychological costs of consensual encounters. This may increase the frequency and - in some circumstances - the enjoyment of consensual encounters, but it has the potential side-effect of increasing the frequency of, and the harm from, non-consensual encounters. By making the resort to alcohol more attractive, stronger norms against consensual sex may even increase the incidence of non-consensual sex. We test this theory on data from US college campuses and find that colleges with a religious affiliation have higher frequency of both rape and sexual assault, and a higher likelihood of alcohol being implicated in such incidents. Restrictions on campus availability of alcohol substantially reduce the frequency of such incidents.

Keywords: crime, sexual violence, alcohol

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*Speaker

Mimic indicators of task complexity: individual approach

Elena Leonova * [1], Vali Engalychev [1], Alexey Khavylo [1], Oleg Mirzeabasov [2], Vadim Danshin [2]

[1] Tsiolkovsky Kaluga State University – 26, Stepan Razin, Kaluga, Russia
[2] National Research Nuclear University (MEPHI) – Russia

Objective

Accurate determination of mental states' non-verbal indicators is important problem of behavioral psychology. Averaged models applying to individual non-verbal activity analysis often lead to incorrect conclusions. The objective of current study is to determine individual mimic indicators of task complexity.

Method

Mimic activity of 12 respondents during answering 50 simple and 50 difficult tasks (questions) was studied. Facial reactions were fixed by video camera. Original software was used for digitizing and analyzing of facial muscles' micro-movements. The language R v.3.5.0 was used for data analysis. Multidimensional statistical methods (factor analysis, cluster analysis, spectral analysis) were applied. The results of 1200 video fragments' analysis are presented.

Results

Objective and subjective levels of tasks' complexity were fixed. Both general and individual patterns of face micro-motions of certain muscle groups are identified. It has been shown that (1) mimic muscles motions are closely interrelated and it is possible to reduce multidimensional data to four main factors (second order channels), but the composition of these factors is individual for each person; (2) before answering each question, the moment of change in the amplitude of movements of facial muscles is fixed, and this is not always associated with articulation; (3) this period of mimic activity before answer indicate the task's difficulty or emotional significance for the person.

Conclusions

It is confirmed that the system of machine vision can fix periods of cognitive stress during interview. Subjective cognitive complexity of each task can be identified by developed system of machine vision and subsequent analysis. The complexity of each task for each person can be identified by individual specific of mimic muscular activity. Using of second-order mimic factors as predictors allows to construct a prognostic model for assessing the subjective cognitive complexity of tasks.

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*Speaker

Pathogen disgust is higher in the luteal phase of menstrual cycle

Karolina Milkowska * [1], Andrzej Galbarczyk [1], Katharine M. Lee [2], Kathryn Clancy [2], Grazyna Jasienska [1]

[1] Department of Environmental Health, Faculty of Health Sciences, Jagiellonian University Medical College – Cracow, Poland
[2] Department of Anthropology, University of Illinois at Urbana Champaign – United States

Objectives:
According to the Compensatory Prophylaxis Hypothesis (CPH), during periods of increased susceptibility to infections, caused by high concentrations of progesterone (e.g. during luteal phase of menstrual cycle), women should feel more disgusted and increase behaviours that are related to avoidance of infections. However, the results of previous studies are inconclusive. Our aim was to investigate the differences in disgust sensitivity during phases of menstrual cycle in regularly cycling, young healthy women.

Methods:

The participants of our pilot study were 41 women aged 18-45 (mean=60.64; SD=10.71). The level of disgust sensitivity was measured twice during one menstrual cycle: (1) two days after end of menses and (2) at fifth day after ovulation or at 18th day of cycle if ovulation was not detected. Women were asked to conduct LH tests from day 10 to 20 of their cycles (counting from the first day of menstrual bleeding) or until a test indicated a positive result. The participants answered questions about Pathogen Disgust Domain from Three Disgust Domain Scale. The dependent samples t-test was used to assess the differences in the disgust sensitivity between the phases of menstrual cycle.

Results:

In luteal phase women scored higher in Pathogen Disgust Scale (mean=32.98) than in follicular phase (mean=29.37) (t=-4.34; df=40.0; p< 0.001).

Conclusion:
Our results support the CPH showing that women feel more disgusted during in luteal phase than in follicular phase. Moreover, in response to insignificant results of previous studies our research points the need of using precise markers allowing for identification of menstrual cycle phases, such as ovulatory tests.

Keywords: luteal phase, behavioural prophylaxis, immunomodulation, evolutionary psychology, aversion

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*Speaker

Exploring socioecological foundations for the evolution of language: observation of communication in a natural setting using webcam videos

Masahito Morita * [1]

[1] Evolutionary Anthropology Lab, Department of Biological Sciences, The University of Tokyo – 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

Objective

The evolution of language contains several socioecological foundations, such as sociality, life history, cognitive learning ability, and cultural evolution. These aspects of language can be seen in everyday life of modern people.I exploratorily observe verbal and nonverbal behaviours of dyads sitting outside in a natural setting and aim to study communication and interaction between two individuals.

Methods

I conducted behavioural observation using videos from a webcam set up in New York's Times Square by EarthCam, Inc. (https://www.earthcam.com/usa/newyork/timessquare/?cam=tsstreet, last accessed on 30 Nov, 2018). This unique method enables researchers to observe people who seem to be unaware of the presence of observer. The observation was done from 26 Aug to 23 Sep, 2018, for 26 days, more than 107 hours in total. I collected data of estimated sex and age, utterance, gesture, body contact, posture, and staying time from 518 dyads.

Results

I found that all of the subjects uttered something while they were seated. They occasionally used gesture and did body contact. At least either one of the two persons / both of them used gesture in 41.5% / 17.0% of whole pairs, respectively. We found potential sex differences in opposite-sex couples. Females were slightly more likely to use gesture, do body contact, and turn their body towards the male partner. Also, more than half of the dyads stayed there for shorter than seven minutes.

Conclusions

I have described communication and interaction within a dyad. It can be suggested that not only vocal but also body language take a significant role for sociality. Socioecological relationships should be different depending on the combination of own and the partner's sex and age, which may generate sex differences in nonverbal behaviours. These findings will have some implications to the evolutionary bases of language, in terms of sociality and life history.

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*Speaker

Does red enhance human performance in contests? A meta-analysis

Thomas V. Pollet * [1], Leonard S. Peperkoorn [2], Robert A. Barton [3], Russell A. Hill [3]

[1] Northumbria University – United Kingdom
[2] VU Amsterdam – Netherlands
[3] Durham University – United Kingdom

Objective.
The colour red has been hypothesised to increase perceptions of male dominance. Hill & Barton (2005) analysed greco-roman wrestling, free-style wrestling, boxing, and taekwondo matches from the Athens Olympics and found consistent support for this hypothesis. Contestants wearing red were significantly more likely to win bouts than those in blue. Interestingly, this effect was most pronounced when contests were evenly matched. Here, we examined if these findings are upheld in a larger sample Olympic games from 1996 to 2016 and boxing world-championships (2005-2015).

Method.

We coded all available matches for colour and outcome (N=5,291 bouts). We also identified 'close' matches based on tertiles and quartiles. Data were analysed via random effects meta-analyses on the proportion of wins in R.

Results.

When considering *all* matches, there is a small, but not statistically significant, effect of color on the probability of winning (proportion won by red: 0.5106, 95% CI: [0.4959 - 0.5253]). When we restrict the analyses to the closest matches based on quartiles, the results are similar (proportion won by red: 0.5245, 95%CI: [0.4957 - 0.5531]). The analyses on tertiles, suggested a small but significant effect (proportion won by red: 0.5318, 95%CI: [0.5069 - 0.5566]). However, closer inspection revealed that this effect was strongly influenced by a single result (Boxing, Athens 2004). Excluding this result, leads to comparable results as those based on quartiles (proportion won by red: 0.5243, 95%CI: [0.4988 - 0.5498])

Conclusions.
We conclude that currently there is limited evidence that red has a measurable impact on the outcomes of contests at the Olympics and Boxing World Championships. We discuss the strengths and limitations of our meta-analyses and outline potential future directions and tests for the effect of wearing red on contest performance. More broadly, we also discuss the suggested strength of colour effects on human behaviour.

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*Speaker

Language input among Tsimane' forager-horticulturalists

Camila Scaff [*] [1], Alejandrina Cristia [1], Jonathan Stieglitz [2], Marisa Casillas [4,3]

[1] Laboratoire de Sciences Cognitives et Psycholinguistique - ENS, EHESS, CNRS; Département d'Etudes Cognitives, Ecole Normale Supérieure, PSL Research University – Ecole Normale Supérieure de Paris - ENS Paris, Ecole des Hautes Etudes en Sciences Sociales (EHESS), CNRS : UMR8554 – 29 rue d'Ulm 75005 Paris, France
[2] Institute for Advanced study in Toulouse (IAST) – Université Toulouse I [UT1] Capitole – 21 allee de Brienne 31015 Toulouse Cedex 6, France, France
[4] Radboud University Nijmegen – Netherlands
[3] Max Planck Institute for Psycholinguistics (MPI) – Netherlands

In Western societies, child-directed speech (CDS) often features simpler vocabulary and shorter sentences than speech among adults, and it tends to center on the topic of the child's attention (Soderstrom, 2007). Greater amounts of CDS have been linked to faster linguistic development, leading to the conclusion that CDS is crucial, and that CDS quantity and quality determines linguistic development (Hart & Risley, 1995; Hirsh-Pasek et al., 2015; Shneidman et al., 2013). Contrasting with this view, anthropologists have long pointed out that, in many parts of the world, children acquire language with relatively little CDS from adults (e.g., Gaskins, 2006; Lancy, 2014), leading to the conclusion that CDS is not, in fact, necessary (e.g., Ochs & Schieffelin, 2001; Shneidman, 2010). However, these anthropological conclusions are not widely accepted by language acquisition theorists, as observations tend to be anecdotal or based on small samples.
Here, we report on an ecologically-valid analysis of speech experiences by children (aged 6-68 months; n=25) in a forager-horticulturalist population, the Tsimane' of lowland Bolivia. To check whether it is indeed the case that children in pre-industrial societies experience little CDS (see Cristia, Dupoux, Gurven & Stieglitz, 2017), we compare levels of CDS among Tsimane' against American (Anglo and Hispanic) (Gilkerson et al., 2017; Weisleder & Fernald, 2013). Day-long audio-recordings were captured in one Tsimane village with a child-worn device, and samples were annotated by a trained phonetician.

We find that Tsimane' children experience less CDS and more non-CDS (e.g. overheard speech directed at someone else) than comparison groups, with no significant age effects. These results provide systematic empirical data that complements and supports previous (mostly anecdotal) anthropological reports. Therefore, questions regarding the universality of language acquisition processes, and child-centered learning more generally, are valid, and should be studied further via comparisons across populations (cf., Konner, 2017).

[*]Speaker

Guilt proneness, perceived social support, general trust and cooperative strategies as predictors of offenders' readiness to change

Viorel Savu * [1]

[1] Babeş-Bolyai University – Strada Universităţii 7-9, Cluj-Napoca 400084, Romania

Using a gene- culture co-evolution perspective, Ward and Durrand (2011) advocate the integration of evolutionary, cultural and learning mechanisms in explaining criminal behaviour and in guiding effective rehabilitation programs. Among the moral emotions, guilt is considered a recalibration program (Tooby & Cosmides, 2008), having a positive effect on the cooperative behaviour (Ketelaar & An, 2003). Proneness to guilt is positively associated with prosocial behaviour and negatively associated with antisocial and criminal behaviour (Cohen, Panter & Turan, 2012).

The purpose of our study is to test a moderated mediation model of the mechanisms connecting guilt proneness and readiness to change in a sample of inmates. Its plausible that the use of cooperative strategies mediate the relationship between guilt proneness and offenders' readiness to change. Also, the perception of some external resources, as social support and some personal predispositions, as general trust could moderate this effect.

The participants will be about 100 inmates recruited from a Romanian prison. A paper-pencil version of the following instruments will be administered in a group setting: TOSCA-3 (guilt proneness), URICA (readiness to change), GTS (trust), MSPSS (perceived social support) and CCSS (cooperative strategies).

The proposed moderated mediation model will be tested using the PROCESS macro in SPSS, based on regression analysis.

The results will be interpreted in the light of a gene-culture coevolution perspective, discussing the interplay between some partially inherited traits and the environmental conditions in explaining offending and the readiness to rehabilitation.

Keywords: gene, culture, co, evolution, criminal behaviour, guilt, social support, rehabilitation

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*Speaker

Sexual selection and sound symbolism in French first names: data from 1900 to 2009

Alexandre Suire * [1], Alba Bossoms Mesa , Michel Raymond [2], Melissa Barkat-Defradas [3]

[1] Institut des Sciences de lÉvolution [Montpellier] (ISEM) – Université de Montpellier, Centre National de la Recherche Scientifique : UMR5554 – Place E. Bataillon CC 064 34095 Montpellier Cedex 05, France

[2] Institut des Sciences de l'Evolution de Montpellier (ISEM) – CNRS, UMR 5554 Institut des Sciences de l'Evolution (Université de Montpellier) – Place Eugène Bataillon 34095 Montpellier, France

[3] Institut des Sciences de l'Evolution, Université Montpellier – Université Montpellier II - Sciences et Techniques du Languedoc – France

Objective

Given that first names can have a lifelong impact on the beholder, parents should choose a name based on the impressions they want their offspring to evoke to other people. This name-to-mental-image association can be mediated through sound symbolism: a natural link between the sounds and meaning of a word. From an evolutionary perspective, parents should pick names which sounds convey advantageous traits in human sexual selection: largeness and dominance for males through lower-frequency sounds within contest competition, and smallness and attractiveness for females through higher-frequency sounds within mate choice.

Methods

From an extensive database of popular French first names from 1900 to 2009, generalized linear models were used to study possible sex-biased sound symbolic patterns in the perceptually prominent syllable, which is the last one in the French language. Linear models were then used to study temporal changes of these sound-symbolic patterns.

Results

Male names are more likely to include lower-frequency vowels (e.g. /o/ or /ã/) and female names higher-frequency vowels (e.g. /i/ or /e/). However, unexpected patterns in consonants were observed in masculine names: higher-frequency sounds (e.g. /s/) in the last syllable and lower-frequency sounds (e.g. /b/) in the first syllable. Temporal analyses revealed that lower and higher frequency vowels within the stressed syllable followed a quadratic evolution, highlighting a masculinization in females' first names that increased since the 1960's.

Conclusions

These findings contradict the prevailing idea that proper names are the linguistic signs most subjected to arbitrariness (i.e., no natural link between the form and meaning). Moreover, they complement those observed in English, American and Australian first names, the only difference being that sound symbolic patterns are found on their first (prominent) syllable. This suggests that a universal cognitive association mechanism, possibly shaped by sexual selection, plays a significant role in naming practices.

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*Speaker

The emergence of identity-based belief polarization across Europe

Ben Tappin [1], Ryan Mckay [*] [1]

[1] Royal Holloway University of London – United Kingdom

On issues related to health, science, and public policy, peoples' beliefs often diverge along political, religious, and other group lines. As society becomes better educated and more knowledgeable, it is reasonable and intuitive to assume the public will converge on answers to questions such as the causes of climate change, the benefits of vaccines, and the economic impact of immigration. Indeed, the information-deficit model of science communication is based on this assumption. In the last decade, however, dozens of studies suggest that education tends to further polarize – rather than unify – the beliefs of people who identify with opposing political and religious groups. The most educated appear to be furthest apart in their beliefs. As most previous investigations of this phenomenon have been conducted in the US, this effect may be a product of cultural or structural idiosyncrasies endogenous to US society. In the proposed poster, we will report an investigation of the cultural bounds of this phenomenon using data from the 2016/17 European Social Survey. We find substantial heterogeneity in the relationship between education and (political) identity-based polarization: Some countries and issues replicate the pattern observed in the US, while others do not.

Keywords: beliefs, education, political polarisation

[*]Speaker

How to Collect Large Personal Networks Without Fear (of Fatigue)

Gert Stulp * [1]

[1] University of Groningen – Netherlands

Work in social learning and cultural evolution relies heavily on the idea that social interactions are important for changing minds and behaviours, and that network structure can facilitate or impede this. Information on personal networks is therefore of great interest to many researchers. Unfortunately, such data are rarely collected because asking respondents to identify and answer questions on a large number of individuals places a high level of demand on participants. Using GENSI-a recently developed lightweight, freely available graphical tool to collect personal networks-we collected large personal network data from a representative sample of Dutch women between 18 and 40 (N = 1440). Respondents had to list 25 individuals, with whom they had communicated within the last year, and answer several questions about these them. Here, we show how GENSI works, and report on how respondents perceived the survey. Our results show that collecting large personal networks is feasible, does not over-burden respondents, and increases enjoyment of participating, generating unique data. GENSI also seems to be a suitable tool for anthropological field research involving networks. We conclude with a discussion on the importance of such data for evolutionary theorising in relation to social learning and cultural evolution.

Keywords: networks, social influence, methodology, cultural evolution, field work

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*Speaker

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