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Social & kin interactions

A causal framework to study the drivers of animal social network structure

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One of the major goals of behavioural ecology is to explain how ecological and evolutionary processes affect the structure of animal societies. Theoretical models provide predictions about how features of individuals (*e.g.*, social status) or dyads (*e.g.*, genetic relatedness), can affect their social behaviour, and thus, the structure of their social network. Several inferential challenges remain, however, for empiricists who wish to study the effects of these factors in their study system. Typically, networks of social interactions or relationships are not observed directly, but *approximated* from behavioural samples or self-reports. Social network data are also highly dependent: edges correlate with one another, due to the structuring features of the network. Ignoring these aspects of the data-generating process can lead to *inefficient* and *confounded* statistical models. Thus, it is critical to explicitly model them when designing an estimator. In this talk, I will introduce a novel, relatively simple framework to infer the causal effect of phenotypic variables on social network structure. The framework explicitly defines the links between the data, the target interaction network, and the structuring features of the interaction network. It combines causal models (Directed Acyclic Graphs and Structural Causal Models), with an extension of the Social Relations Model, a generative statistical model. I will illustrate the mechanics of the framework with results from simulation studies. I will show that our models can recover the causal effect of individual- and dyad-level features on social behaviour, and that these effects can be deconfounded using statistical adjustment. I will then illustrate how the framework can be deployed in a realistic empirical example: a study of the effect of genetic relatedness on grooming, in a population of wild Assamese macaques.

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*Speaker

The love hormone in context: Oxytocin responses to social interactions in a small-scale human society

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Oxytocin (OT), known as the 'love hormone,' crucially impacts human social behaviour, yet its precise mechanisms remain elusive. Recent research suggests OT's dual role in modulating both prosocial and antisocial behaviour, necessitating empirical testing for a deeper understanding. Our study investigates oxytocin's influence on social behaviour in Bolivia's Tsimane society, aiming to unravel its complexities. Focused on natural OT variations, we explore its connection to cooperative and competitive behaviour in small-scale societies. We hypothesise increased OT levels during 1) competitive scenarios and 2) reduced partner familiarity, anticipating insights into partner evaluations and risks in less familiar relationships.

Overall, 434 urine samples were collected in March/April 2023, and OT levels were assessed using radioimmunoassays. More precisely, 67 samples (18 women, 49 men) were obtained immediately before and after inter-group competitions such as football matches. Using Bayesian models controlling for age, sex and individual identification, we demonstrated a significant increase in oxytocin levels in males in competitive contexts, lending support to our hypothesis concerning the mediation of in-group cooperation and inter-group competition.

In addition, 91 samples (49 women, 42 men) were classified by level of familiarity in the contexts of (a) being alone, spending time with (b) close relatives, (c) extended family members, friends or neighbours, (d) people from another cluster or (e) in community-level social contexts. Each sample was assigned to one of this specific context using behavioural observations and personal interviews. Although analyses are ongoing, our preliminary prediction suggests that oxytocin levels increase as partner familiarity decreases, reflecting the need for updated assessments and the higher risks in less familiar cooperative relationships.

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*Speaker

Resource & decision making

Socio-ecological drivers of human foraging in Finnish ice-fishing

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Foraging is a key driver of human evolution. Successful foragers need to integrate prior ecological knowledge, resource return rates and social information to locate resource patches. While individual human foraging has been investigated both in laboratory experiments and observational studies, study systems investigating collective foragers in natural socio-ecological environments are largely lacking. Here, we study large groups of experienced ice-fishers competing for resources. In the Nordic countries, ice-fishing evolved from subsistence foraging to a competitive sport deeply rooted in culture and tradition. In 2022 and 2023, we organized 10 ice-fishing competitions on different lakes in Northern Karelia, Finland, with 39 to 51 participants per competition, resulting in _~500 foraging trips, and _~20.000 individual spot choices. During the three-hour competitions, all participants were equipped with smartwatches recording high resolution GPS data), and head-worn cameras to identify behavioral states (i.e., angling and relocating) and resource return rates (i.e., fish catches). Combining this data with measures of lake topology, we find that patch discoveries (i.e., angling spots with at least one fish catch) are spatially autocorrelated, and tend to occur more often in regions with high social density and close to steep slopes in the depth profile. Turning to foragers' decision making, we use Bayesian computational models to disentangle the effects of resource return rates, social context, and ecology on individual spot choices. Our results indicate that, matching the spatial autocorrelation of resources, ice-fishers adapt their search to resource return rates (i.e., area-restricted search if return rates are high and long-range displacements if return rates are low) and gradually update their beliefs about environmental returns across time and space. Controlling for ecological features and resource return rates, we find that participants consistently use social information to select foraging locations. These results shed light on the cognitive and social processes facilitating flexible human adaptation.

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[*]Speaker

Exploring The Relationship Between Cues of Institutional Support and Present-Oriented Decisions in Contexts of Resource Scarcity

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Previous research has investigated the relationship between resource scarcity and present-oriented decision-making. Some of this work highlights social support's role in buffering the relationship between financial adversity and 'myopic' decision-making, however less is understood about how structural forms of support impact the adaptiveness and prevalence of present-oriented behaviour. Building on recent scholarship that extends anthropologist Alan Fiske (1992)'s basic relational models to the resource distribution principles governing societies, we hypothesise that the underpinning relational principles signalled by a given policy regime's insurance scheme will affect present-oriented behaviour in predictable ways. We experimentally investigate how varying the level and type of solidarity signalled by a given insurance scheme affects present-oriented decision-making, first simulating optimal choice using an agent-based-model, then testing that model using a multi-player game.

We report on our development of a model that simulates four conditions, each varying the governing principles to correspond with a market-pricing, equality-matching, or communal-sharing relational model, compared to an asocial control (personal insurance). These schemes are conceptualised as varying institutional solidarity (communal-sharing highest, market-pricing lowest). Agents have some probability of experiencing resource-depleting shocks, a penalty for falling below a points 'threshold', and shocked agents receive insurance payouts according to the condition's distribution rules. In each round, agents choose between fewer points sooner or more points later.

Preliminary simulations demonstrate the importance of the kind of insurance scheme in which one is embedded, suggesting that as solidarity increases both the proportion of optimal present-oriented (sooner-smaller vs. larger-later) choice and the resulting inequality within the world (Gini coefficient) decrease. This talk will present results from the full model in addition to a behavioural experiment testing if similar patterns emerge using a multiplayer game. Taken together, this research contributes to our understanding how structural forms of solidarity influence decision-making in the socioecological contexts of poverty.

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*Speaker

Attractiveness & Mate choice

A meta-analysis of the association between facial attractiveness and reproductive success

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It is oftentimes argued that humans have evolved attractiveness preferences for facial traits that signal that an individual is in good biological condition, since mating with such an individual might increase one's reproductive success. Proposed 'attractive' facial traits include cues to health, symmetry, 'averageness', and sexual dimorphism (i.e., masculinity in men and femininity in women, although the role that sexual dimorphism plays in attractiveness judgments – particularly for men - is debated). If it is true that facial attractiveness does signal biological condition (such as better health or greater fertility), we would expect more attractive individuals to produce more children, at least in natural fertility contexts. While this hypothesised association is extremely prevalent in evolutionary discourse and it is key to demonstrate that attractiveness preferences are adaptive, the association is rarely tested empirically. Here, we meta-analysed the associations between facial attractiveness and reproductive outcomes in men and women across both published and unpublished datasets. We included seven samples in both men (nine observations in total; total $N = 1,983$) and in women (fourteen observations; total $N = 1,634$). In contrast to expectations, we observed no significant relationship between facial attractiveness and reproductive outcomes in either men ($r = .046$) or women ($r = .080$). However, when restricting the analysis to natural fertility populations, the association in women was stronger ($r = .156$) albeit still nonsignificant ($p = .106$). Thus, while our analysis is limited in that samples were few, it does suggest that men's facial attractiveness is not associated with better reproductive outcomes and is not under present selection. However, future research should investigate whether facial attractiveness may be under selection in non-contracepting women.

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*Speaker

Reading Between the Moves: Dynamic cues and Social Perception

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Evolutionary and social psychological theories suggest that social perception plays a key role in making decisions on mate choices, relationships, friendships, etc. Previous studies have explored social perception using static cues like facial symmetry, skin colour, and body shape from static stimuli such as photographs. However, real-life judgements are made on moving bodies and less is known about the dynamic cues that may have an influence on our perceptions. This study chose two contrasting forms of movements-walking and dancing-to study the perception of three basic factors: attractiveness, competence and warmth. While walking is a simple and common form of movement, dancing is a complex form of movement which also plays a role in wooing and courtship. To separate dynamic from static cues, motion-capture technology was used. Normal videos and motion-captured videos of walking and dancing were collected from 100 individuals along with their photographs which were rated for attractiveness, competence and warmth by 102 raters. The raters for the motion-captured videos were randomly assigned to two conditions-condition 1: correct sex of the participant was given and condition 2: incorrect sex of the participant was given. Along with these ratings, sexual dimorphism ratings were collected based on the motion-captures walking and dancing videos. Multiple regression analysis showed both static and dynamic cues were significant predictors of said social factors. The study also found sex and sexual dimorphism had a significant effect on the perception of attractiveness, competence and warmth. This study also explored the differences in social perception between the two forms of movements chosen. These findings suggest that movements play a significant role in social perception and sex and sexual dimorphism in movements has a strong influence on the way we perceive each other.

[*]Speaker

Risk-taking: a desirable signal of ability, or an undesirable cue of desperation?

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Different evolutionary theories make opposite predictions about who will take more risks. Will risks be taken by individuals in good condition, because they're better able to succeed (e.g., costly signaling theory), or by desperate individuals in poor condition, because they have no safer means of meeting their needs (e.g., risk-sensitive foraging)? These theories also make opposing predictions about whether risks will be viewed as good or bad. Here I present four related game-theoretical models on risk-taking as a costly signal of quality, where one's quality affects one's 1) probability of success; 2) buffer against failure; c) benefits from success; or d) resources above a desperation threshold. The models show that when quality has a big impact on these traits, then risk-taking can be an honest signal of quality that observers benefit from attending to. However, if some individuals are currently below a desperation threshold, then there will always be some risk-taking by these desperate individuals (partial separating equilibrium) – especially when risk-taking purely signals one's resources. For observers, this becomes an error management problem: they will view risk-takers positively if desperate individuals are rare or not impactful, such that most risk-takers are high-quality. By contrast, when desperate individuals are common, have great need, or when the costs of failure are very high, then risk-takers will be predominantly low-quality, such that risk-taking is a cue of low quality that observers will view negatively. Thus, these models predict not only who will take the most risks, but also when audiences will view risk-taking positively vs. negatively. As such, it can explain why attitudes towards risk – and risk-takers – differ across individuals, circumstances, and cultures.

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*Speaker

Visualizing facial beauty: A noise-based reverse correlation study

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Numerous evolutionary hypotheses attempt to explain why some faces are found more attractive than others. For example, it has been suggested that feminine facial features are found attractive in women because they are cues of high reproductive potential. This study aims to assess whether a data-driven approach yields results comparable to conventional theory-driven investigations of facial attractiveness. To do so, we use a noise-based reverse correlation method, a data-driven technique that generates visual proxies of mental representations, based on judgements of randomly varying stimuli. We yield visualisations of people's mental representations of an attractive female face, and an attractive male face (N=150). Subsequently, we explore how these mental representations (or "classification images") of attractive faces are perceived across dimensions such as age, femininity/masculinity, weight, and happiness (N=465). Our findings reveal that mental representations of attractive women are rated as younger, thinner, more feminine, and happier compared to less attractive faces. For men, attractive faces are rated as younger, thinner and happier, though not necessarily more masculine than their less attractive counterparts. Results are discussed in link with current evolutionary explanations for mate preferences and facial attractiveness. Furthermore, the methods and results presented herein hold relevance for the field of first impressions, underscoring the multidimensional nature of attractiveness and its interconnectedness with broader social perceptions and stereotypes.

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*Speaker

Intersecting Desires: Cross-Cultural Perspectives on Masculine Trait Preferences Among Chinese and British Women in Short and Long-Term Relationships

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Background: There is well replicated data showing that women in the West show differing levels of masculinity preference in short-term versus long-term relationships. However, understanding the cross-cultural similarities and disparities in relationship preferences is crucial. Past research predominantly focused on Western populations, and the relatively few cross-cultural studies focused on facial or body attractiveness while often overlooking other dimorphic attributes, such as voice. We therefore conducted a cross-cultural investigation between women in China and the UK, exploring the differences and similarities in masculine trait preferences for short-term and long-term relationships.

Methods: 157 (96 British & 61 Chinese) heterosexual female participants aged 18 – 25 years were shown or played pairs of stimuli differing in: facial masculinity; body muscularity; and vocal pitch. For each pair within each trait, they indicated their preference separately for both Short-term relationships and Long-term relationships with forced-choice and 1 – 5 Likert scale questions indicating the strength of their preference.

Results: 2-way ANOVAs (relationship length x country) showed that both Chinese and British females favored more masculine traits (face, body, voice) for short-term relationships than for long-term commitments. British females exhibited significantly higher preferences for masculine bodies and voices (but not faces) than their Chinese counterparts. There were no interactions between country and relationship length, suggesting that the short/long term effect was the same across samples.

Implication: This study reveals cross-cultural variations in preferences for physical masculine traits, particularly concerning face, body and voice. It underscores the need for a broader cross-cultural exploration of masculine trait preferences, advocating for the inclusion of additional physical traits like body and voice in future research tasks, beyond the sole focus on facial attributes.

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*Speaker

The effect of names' sound structure on perceived attractiveness and competency

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Human voice varies, particularly between sexes, and humans use some of its acoustic characteristics as a fitness indicator. Previous work found an association in French between male and female first names and certain low or high frequency phonemes, respectively, on the stressed syllable. In our study, we presented names of varied sound structure paired with similarly attractive faces to raters of the opposite sex to determine whether name sound structure predicts romantic desirability and perceived professional competency. We found that phonetically masculine male first names are considered both more romantically desirable and more professionally competent. Phonetically feminine female first names, as well as female names that end in a final 'a' are considered more romantically desirable, but less professionally competent. We also found a correlation between a female name's perceived femininity and its attractiveness, but not a male name's masculinity and its attractiveness. Our research suggests that the sound structure of a first name influences social perception, particularly in the context of mate choice.

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*Speaker

Cultural Evolution

Collective incentives reduce over-exploitation of social information in unconstrained human groups

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Collective dynamics emerge from countless individual decisions. Yet, we poorly understand the cognitive processes governing dynamically-interacting individuals in human collectives under realistic conditions. Collective foraging provides an ideal testbed to study social decision-making and collective adaptation in a controlled, yet ecologically-relevant, context. We present a naturalistic immersive-reality experiment where groups of participants searched for rewards in different environments, studying how individuals balance individual and social learning and how this shapes individual and collective outcomes. Capturing high-resolution visual-spatial data, behavioral analyses revealed individual-level gains-but group-level losses-of high social information use and spatial proximity in environments with concentrated (vs. distributed) resources. Incentivizing participants at the group (vs. individual) level facilitated adaptation to concentrated environments, buffering excessive scrounging. To infer discrete choices from unconstrained interactions and uncover the underlying decision mechanisms, we developed an unsupervised Social Hidden Markov Decision model. Computational results showed that participants were more sensitive to social information in concentrated environments frequently switching to a 'social relocation' state where they approach successful group members. Group-level incentives reduced participants' overall responsiveness to social information and promoted higher selectivity over time. Finally, mapping group-level spatio-temporal dynamics through time-lagged regressions revealed a collective exploration-exploitation trade-off across different timescales. Our study unravels the processes linking individual-level strategies to emerging collective dynamics, and provides new tools to investigate decision-making in freely-interacting collectives.

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*Speaker

Ecological Impacts on Religious Veiling: A Study of Community Size and Conservative Clothing

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Religious veiling, a practice shaped by religious beliefs, societal norms, and legal frameworks, entails women wearing garments or fabric to cover parts of their bodies, such as the head, face, or the entire body. The mate guarding theory of conservative clothing posits that veiling reduces women's physical allure and sexual attractiveness, thereby diminishing men's attraction towards them and deterring potential rivals for a woman's partner. This theory argues that the importance of veiling is influenced by ecological factors in a way that it is of higher importance to control women's sexuality in harsher environments to secure paternal investment. A prediction of this theory is that the importance of veiling should be influenced by community size, where individuals' reputations, specifically men's, might have different weightings, and their perceived sense of controlling a partner's activity may differ. Using preexisting data from seven countries encompassing over 9000 individuals, the current study explored the association of town size and importance of veiling for women. Results showed a U-shaped relationship where in small towns and large cities, individuals, specifically men, give more importance to the veiling of women. This finding has multiple implications in terms of the effect of community size not only on male policing behaviors of women and sexual restrictions, but it also might point to a wider relationship regarding the association of community size and moral values.

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[*]Speaker

Social learning in networks: empirical and gene-culture coevolutionary insights

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Evolution of social learning is a key driver of our species' success. The utility of social learning relies on availability of social information, in turn driven by the structure of the social environment and strategies related to information seeking. How people use social information from networks, and how social learning strategies co-evolve with social structures remains an open question. These interactions should be crucial to understanding any form of social transmission and cultural evolutionary dynamics.

We present results from three complimentary studies to understanding social learning in networks. First, we empirically investigated people's social learning in networks using a lab experiment. Participants had to purchase social ties to access information from networks. Then, we compared empirical results to optimal strategies established via the Monte Carlo method. Finally, we use a gene-culture coevolutionary simulation to investigate the evolution of social learning strategies in networks, using a design that parallels the experiment. In our gene-culture coevolutionary simulation, an agent's choice represents a fitness-relevant cultural trait. Each possible decision an agent can take, starting from which social ties to form, is an inheritable trait represented by a probability. Our simulation method enables us to understand, with high precision, the exact learning strategies that evolve with regards to different group structures.

In our experimental task it is optimal to follow success cues over frequency cues. We find that participants make sub-optimal choices by following frequency cues and copying the most connected individuals in networks. We also find that people use social information differently from different network structures, indicating social learning and social networks interact. We expect to find similar interactions in our evolutionary simulation, and compare the results to our empirical findings.

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[*]Speaker

How are norms maintained and how do they change? A theoretical model and a field study

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Social norms are unwritten behavioral codes that guide our behaviors and interactions. Understanding how norms operate and how they evolve is critical for understanding human evolutionary psychology, social organization, and cultural change. My research uses mathematical modeling, fieldwork, and online surveys to address two questions. First, what factors determine the content and dynamics of a social norm? Second, how do people make decisions in a normative context? In this talk, I will present a mathematical model on norm evolutionary dynamics and a field project documenting the individual norm decision-making and group-level norm changes in a small-scale subsistence society. The model finds that whether a norm can be maintained by the pressure "to do what others do" depends on whether the behavioral options vary continuously or discretely and whether they are categorized in evaluation or filtered by cognitive biases. The field project finds that contrary to what the rational choice theory predicts, Derung people (Yunnan, China) do not calculate the ecological and social payoffs of different normative behavioral options, even though they have the information to do so. Instead, they decide what to do based on "what we have always been doing". This decision-making algorithm maintains a widely disliked individually costly division norm without social monitoring and policing.

[*]Speaker

Anti-tobacco advertising effectiveness: the interaction between personality traits and cognitive mechanisms

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Keywords: behaviour change incitation, personality traits, smoking cessation

Background:

With 12 million smokers in France, tobacco is the heaviest health burden in France. If preventive communication is used to promote and encourage smoking cessation (SC), it is not evenly effective across socio-economic groups, widening health gaps and exacerbating existing inequities. Tailoring strategies has been proven to rise the efficiency of preventive communication, but has not been done using personality traits, whereas it predicts smoking behaviour. To improve the effectiveness of preventive communication, we propose to tailor preventive messages in a very fine-tuned way, using personality traits, which are stable individualized differences in the reactivity of cognitive mechanism designed to respond to particular classes of situation, to induce SC incitation. We present the design and first elements of results of a study that aims at identifying **which cognitive mechanisms influence SC intention, and how does this differ depending on smokers' personality profiles?**

Method:

Each of 3500 smokers completed a personality test, was randomly exposed to three anti-smoking advertisements (from a pool of 31 advertisements) and rated the intention to quit smoking elicited by each advertisements. Prior to this experiment, all ads had already been coded according to the cognitive mechanisms they activate (out of a list of 73 cognitive mechanisms previously constructed by evolutionary psychologists) and the arguments used to encourage SC (out of 20 arguments). We will analyse the data to identify the cognitive mechanisms that produce SC incitement for each personality trait.

Results:

This study identifies which types of personalities respond most strongly, in terms of SC incitation, to the various cognitive mechanisms, helping prevention and health promotion professionals to improve the efficiency of preventive communication.

Authors: Justine Avenel, Daniel Nettle, Coralie Chevallier

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*Speaker

Jeans and language: kin networks and reproductive success are associated with the adoption of outgroup norms

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Traditional norms of human societies in rural China may have changed due to Han expansion, rapid development of the tourism economy and globalization since the 1990s; people from different ethnic groups might adopt cultural traits from outside their group or lose their own culture at different rates. Human behavioural ecology can help to explain adoption of outgroup cultural values. We compared the adoption of four cultural values, specifically speaking outgroup languages/mother tongue and wearing jeans, in two co-residing ethnic groups, the Mosuo and Han. Both groups are learning outgroup traits, including each other's languages through contact in economic activities, education and kin networks, but only the Mosuo are starting to lose their own language. Males are more likely to adopt outgroup values than females in both groups. Females of the two groups are no different in speaking Mandarin and wearing jeans, whereas males do differ, with Mosuo males being keener to adopt them than Han males. The reason might be that Mosuo men experience more reproductive competition over mates, as Mosuo men have larger reproductive skew than others. Moreover, Mosuo men but not others gain fitness benefits from the adoption of Mandarin (they start reproducing earlier than non-speakers).

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[*]Speaker

Childcare

Maternal grandmothers maintain investment in grandchildren who have experienced early adversity.

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The early environment an individual experiences has established life-long consequences for their growth, development, and health. Moreover, there is growing evidence that crucial individual decisions such as when to start a family can be modified by early life experiences. Significantly, childhood is when grandparents are likely to have the biggest influence on grandchild development. That being the case, it may be important for grandparents to take into account the experiences of early adversity their grandchildren have had and modify how much they invest in their grandchildren accordingly. Theoretical perspectives from evolutionary ecology and sociology will be presented to help understand these complex intergenerational social arrangements that have consequences for the health of both the grandchildren and grandparents. To investigate whether grandchildren's adverse early life experiences modify the investment made by grandparents, data from a nationally representative sample of English and Welsh adolescents (11–16 years of age) was explored. The results showed that grandparental investment in grandchildren who had experienced adverse early life events had a consistent gradient across grandparent types. The association between number of early life events and amount of grandparental investment was the weakest for maternal grandmothers. That is to say, adverse early life experiences did not change investment by maternal grandmothers and they continued to invest. Among paternal grandfathers, at the opposite end of the grandparenting spectrum however, there was a strong association between more adverse early events and reduced investment in grandchildren. The associations for maternal grandfathers and paternal grandmothers fell in between these two extremes. These findings highlight grandparental investment, particularly by maternal grandmothers, as a potential buffer against grandchildren's experiences of early life adversity and its life-course sequelae.

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*Speaker

Methodological innovations for studying infant feeding: exploring evolutionary pathways of social support

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Evolutionary framed studies have long explored who supports women with children. Typically, support is framed as broadly positive resulting in improved maternal and child outcomes. Yet, the evidence is mixed, and the consequences of support seem dependent on support type, supporter, maternal need and goals. To better understand these relationships, we must explore the *mechanisms* by which support functions, particularly postnatally when mothers require lots of help, particularly with infant feeding. Infant feeding studies in WEIRD contexts, including our own, are typically cross-sectional or retrospective and frequently oversample white, highly educated and wealthy women who have the time, energy and commitment to engage with surveys. This biases our knowledge about social support. We know much less about the rest of the population who have varying support networks and less privileged access to professional support. Here, we present methodological innovations to overcome these issues, allowing us to better understand social support for infant feeding through an evolutionary lens.

Engaging with Third sector partners, we have developed a new approach to exploring the relationship between social support and infant feeding, prospectively and longitudinally, in a diverse range of women. We used a participant involvement framework to develop a mobile app which allows women to document their daily experiences in unprecedented depth. By involving a diverse range of participants in the development of the app from the start we ensure user engagement. This is done through an agile process of piloting and testing the app, holding in-depth interviews as well as focus groups to discuss how women engage with the app, what they would like from the app and what would encourage further engagement.

Our talk will discuss the methodological aspects of the developing and piloting innovative approaches to prospectively documenting infant feeding journeys in a large-scale and quantitative fashion.

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*Speaker

Compatibility between childcare and subsistence tasks during collaborative foraging of BaYaka mothers in Congo Basin

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Across cultures, mothers face trade-offs between childcare and labour. In hunter-gatherer societies, mothers make daily decisions on whether to take infants on foraging trips or leave them with alloparents in the settlement. Carrying infants during foraging can drain maternal energy and constrain mobility, and childcare duty during foraging may lower mothers' work efficiency. These costs can be mitigated with the help of other individuals. Yet, it remains unclear how infant presence in foraging groups affects mothers' mobility and foraging outcomes. Here, we examine how taking infants along on foraging trips affects BaYaka mothers' travel duration, distance, exploration range, net energy expenditure, and net food returns. Using detailed GPS, heart rate, and food returns data from 359 foraging trips of 23 BaYaka mothers, we found that infant presence increases foraging duration but not travel distance, range, energy expenditure, or food returns. This suggests that, when with infants, mothers go on longer foraging trips, probably because they need to prolong foraging activities to ensure sufficient food returns while taking care of infants, but also because there is no time limit to return to the village as they can breastfeed infants intermittently during foraging activities. Nevertheless, mothers travel longer distances and explore larger areas when in groups, particularly with more adults and females. This highlights that group foraging enables BaYaka mothers to travel greater distances and ranges, regardless of infant presence. As a follow-up study, we conducted focal-follows of 20 foraging trips of 16 BaYaka mothers, recorded foraging and childcare behaviours,

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*Speaker

energy expenditure, and food returns of mothers and other group members. Our data will provide insights into individual and group-level strategies of hunter-gatherer mothers to balance childcare and foraging work.

Global prevalence and determinants of colostrum disposal practices

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Cultural evolutionary processes have been argued to generate adaptation to subtle features of the local epidemiological environment. Examples include the avoidance of toxic fish during pregnancy in Fiji (which reduces ciguatera fish poisoning) and the processing of cassava (to remove toxins). In light of this research, practices like colostrum disposal, unsanitary umbilical cord care, and prelacteal feeds are puzzling, since all markedly increase infant mortality rates. Here, we aim to synthesise the public health literature on colostrum disposal / delayed breastfeeding (which double infant mortality in the first month) using a systematic review of the prevalence and determinants of these practices. (Colostrum is the milk produced immediately after birth.)

Our provisional results derived from 163 papers with samples from 40 countries indicate widespread colostrum disposal, with disposal rates ranging from 1.2% to 92% (median: 18.6%). Breastfeeding initiation delays of a day or more were also common (0% to 73%, median: 7.8%). In qualitative and quantitative studies of the determinants, we find that the most commonly noted reasons for colostrum disposal are, in order of frequency: (a) the perception that colostrum is spoiled, discoloured or unclean; (b) its capacity to cause cramps and digestive discomfort in the infant; (c) its capacity to otherwise cause ill health; (d) advice from elders; and (e) that mothers or infants were unable to feed.

Colostrum disposal appears attractive because it subjectively solves important problems (i.e., preventing infant discomfort and illness) and is grounded in a theory with intuitive and explanatory value (colostrum is spoiled milk). These results suggest the importance of directional content biases even when the fitness costs of the behaviour are substantial.

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*Speaker

Kin selection and sexual conflict drive the duration of breastfeeding

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Whilst breastfeeding is highly beneficial to infants, mothers frequently do not breastfeed for as long as health guidelines recommend. Here, we concentrate on explanations for this discrepancy arising from humans reproducing cooperatively, with multiple individuals often involved in offspring care. We know from other cooperatively breeding species that other kin in the group influence reproductive investment and outcomes. Here we test whether predictions from inclusive fitness theory can help explain the duration of breastfeeding. We exploit the fact that different residence patterns generate different patterns of relatedness within households, and hence different patterns of cooperation and conflict. In our in-depth study of the feeding histories of 595 children born post-2010, we analyzed 5 unique populations with 4 distinct post-marital residence patterns: Patrilocal, Matrilocal, Duolocal, and Neolocal. Our findings reveal that relatedness to the family of the infant, the mother and the father are associated with breastfeeding duration, but in different ways. Both parent-offspring conflict and sexual conflict are shaping patterns of breastfeeding in ways predicted by inclusive fitness theories of parental investment. Contrary to much existing literature, which places mothers at the centre of feeding practices, our research highlights the importance of considering the child's perspective and relatedness to their group in understanding breastfeeding behaviours and alloparenting.

[*]Speaker

Maternal religiosity and maternal support is positively associated among religious allomothers and negatively associated among non-religious allomothers

Radim Chvaja [*] [1]

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A positive relationship between religion and cooperation is supported by a rich body of experimental and observational research. However, a noticeable gap exists in terms of how the higher levels of cooperation in religious communities might influence maternal support and therefore affect reproductive fitness. This gap is intriguing, given the significance of maternal support in the survival and child investment. This study investigates into the association of religiosity and allomaternal investment and support provided to 368 mothers of 580 focal children younger than 17 years from the greater Pittsburgh area, USA. The findings reveal that mother's religiosity is positively associated with maternal support (direct childcare, child provisioning, housework help, and emotional support) received from religious allomothers but negatively associated with support from non-religious allomothers. We also found that direct childcare provided by religious allomothers mediates the positive link between maternal religiosity and intention to have another child in two years. By contextualizing our results within theories of religious cooperation, as well as theories of cooperative breeding, this study contributes to a nuanced understanding of the intricate interplay between religion, maternal support, and their reproductive implications.

[*]Speaker

Competition & conflicts

Bargaining between the sexes: Outside options and leisure time in hunter-gatherer households

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Despite the great talk about reducing inequalities, theoretical models and historical data repeatedly show that inequalities emerge, evolve and stabilize spontaneously in human societies. In our study, we explore the effect of outside options on engendering and stabilizing such inequalities in the case of gendered division of household labour (GDHL). I present data from large-scale surveys, documenting inequalities in GDHL in industrialized societies across the world. We hypothesize that how men and women divide labour within the household is dependent on what relative options for payoffs they have outside of it, which can create an imbalance in the bargaining power. Both psychological and cultural evolutionary dynamics are at play: individuals who have higher payoff options outside the current cooperative venture - their 'outside options' - can implicitly or explicitly threaten to exit the cooperative venture if they do not benefit; and gender norms that provide payoffs in view of these outside options, would become culturally stable. A consequence is that inequalities in household division of labour can become culturally accepted across populations. I present results from a game theoretic analysis of these social dynamics, using the Nash Demand Game and demonstrating unequal division of labour as the Nash equilibrium. We test these results empirically with ethnographic & experimental data, from the Mbendjele BaYaka hunter-gatherers of Congo and the Agta foragers of Philippines. Contrary to predictions of the Nash demand game, both populations demonstrate remarkable equality in the time invested by men and women in household labour and show no significant effect of outside options - here, social capital - on producing inequalities. I discuss the potential role of cultural norms of egalitarianism, prevalent in these hunter-gatherers, in shaping outside options in ways we did not foresee, and which could allow us to explain our observed patterns of GDHL in hunter-gatherers

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*Speaker

Skewed sex ratios and violence against women in Pakistan

Olympia Campbell * [1], Maheen Pracha , Ruth Mace

[1] University College, London – United Kingdom

Concerns have been raised that an excess of men leads to higher levels of societal violence, including violence against women, although more recent evidence has challenged this view. One area that remains untested is honour killings, a type of femicide that is perpetrated by both intimate-partners and family members. Honour killings remain understudied largely because of a lack of good quality data. Governments and police do not collect comprehensive data on the topic and the severity of the violence and sensitivity of the subject has meant that interview or panel data is unable to be gathered. Here we use a novel dataset of media reports of honour killings and cases of sexual violence from Pakistan for the years 2015-2022 to test whether the district-level sex ratio is associated with these two types of violence against women. To address the bias in media reporting we implement a simple case-control study using an identically collected dataset of media reports of suicides to act as our control group. We find that, in line with marriage market predictions, reports of honour killings are lower in male-biased areas. By contrast we find no clear relationship between the sex ratio and cases of sexual violence.

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*Speaker

How the Environment Impacts Behaviour: Measuring Female-Female Competition

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In theory, intrasexual competition (ISC) in female mammals is influenced by environmental factors such as adult sex ratio, and the number of available resources. No robust study has yet to investigate the environmental effects on the type and amount of ISC displayed in humans, and how this may spatially change depending on geographical context. With this in mind, we have developed an adaptation of the behavioural economic: All-Play Auction game experiment, which will be used in combination with self-report measures of attitudes to competitive and ISC behaviour, to assess the environmental effects of adult sex ratio and low socio-economic background/ environment (a proxy for low resource availability) on female-competition by comparisons made between the competitive behaviour of adult men and women. The study will collect behavioural data from the UK using the online platform Prolific as well as targeted recruitment from the Kent, UK region; a county that encompasses both rural and urban areas with large wealth disparities and different adult sex ratios.

The projects objectives will aim to answer the following questions:

a) Are women more competitive in more resource scarce environments?
b) Do environments with a skewed sex ratio result in women being more competitive?

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*Speaker

Decision-making expertise, intelligence, and alliances are associated with conflict resolution skills among recently settled Ethiopian hunter-gatherers

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Group living increases the likelihood of inter-individual conflicts, necessitating efficient conflict resolution mechanisms. While institutions and social structures play a vital role in facilitating conflict resolution, societies which emphasize egalitarianism often prioritize individual autonomy and lack institutionalized socio-political structures. Existing scholarship highlights the critical role of leaders in facilitating conflict resolution, particularly in the maintenance of group cohesion under egalitarianism. We draw on peer-rated data encompassing 12 psycho-social traits linked to leadership. These data stem from a sample of 60 individuals residing in a Chabu community, a relatively egalitarian population of forest-dwelling Ethiopian forager-horticulturalists. We employ network-based methods and Bayesian multi-level modeling to identify trait clustering, trait-based linkages, and the key predictors of conflict mediation capabilities. Our results reveal an overlap in similarity networks between women and men, with individuals in central positions exhibiting similar trait profiles. Notably, we observe that conflict resolution skills clusters with decision-making capacities and social alliances, while attributes such as being respected and liked constitute another distinct cluster. Conversely, traits like aggressiveness, being feared, and farming productivity align within a third separate cluster. After accounting for inter-rater variation, our analysis identifies notable predictors of conflict resolution skills. Positive predictors of conflict resolution include sound decision-making, social alliances, and intelligence, while aggressiveness emerges as a negative predictor. These findings suggest that, when it comes to effective conflict resolution, it is neither better to be feared nor loved. Instead, in egalitarian social contexts, individuals endowed with high levels of neural and social capital emerge as the most capable providers of effective conflict resolution services. Our results shed light on leadership phenotypes associated with conflict resolution under egalitarianism. Furthermore, they have implications for the evolution of group living among humans by highlighting the pivotal role of neural and social capital in promoting effective conflict mediation within egalitarian societies.

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*Speaker

The evolution of male-female dominance relations in primate societies

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In all but a few mammalian species, males were long believed to dominate females socially. However, recent studies indicate more interspecific variation, opening new possibilities for exploring the extent and drivers of sex biases in dominance relations. Here, we use comparative data from 226 populations of 117 primate species to quantify male-female dominance relationships across primates, to map them onto the primate phylogeny, as well as to identify key evolutionary pressures shaping their variation. We find that male-female conflicts represent nearly half of all within-group conflicts, underscoring the biological importance of understanding their causes and consequences. Strict male dominance is only found in $< 20\%$ of study populations. Our analyses indicate that female dominance emerges over evolutionary times as females face more reproductive competition and gain more reproductive control. Male dominance emerges when the mating system leads to selection on males for stronger fighting abilities through larger bodies or weapons, in turn enhancing their potential for sexual and social coercion. These results shed new light on the evolutionary origins of power asymmetries between the sexes in non-human primates, with potential implications to understand gender asymmetries in human societies.

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*Speaker

Unravelling forced marriages in Kyrgyzstan: insights from behavioural ecology and sexual conflict

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It is estimated that up to one-third of marriages in Kyrgyzstan resulted from abduction, commonly known as kidnap marriage. While numerous studies in global health, human rights, and social science have examined the consequences of kidnap marriage, there is limited research focused on understanding its origins and persistence. This study investigates kidnap marriage in Kyrgyzstan using the frameworks of behavioural ecology and sexual conflict theory. By analysing fieldwork data collected from 469 participants in two Kyrgyzstan villages in 2023, we uncover evidence of sexual conflict within forced marriages: men involved in bride capture are typically older at the time of marriage and shorter in stature compared to those who do not engage in such practices. Additionally, they exhibit a greater tendency to abduct younger women, implying a connection between a perceived lower value in the marriage market and an increased likelihood of abduction. Furthermore, our study explores the fitness implications of kidnap marriage: despite often leading to a higher number of children, such marriages are associated with lower birth body weight and a reduced survival rate for the offspring. This study offers insights into the behavioural ecology and evolutionary foundations of forced marriages, contributing to a better comprehension of the implications of sexual conflict theory in human marriage.

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*Speaker

18 Apr 2024

Cooperation

Exploring empathy and prosocial behaviour: cultural perspectives from Indonesian societies

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From the early stages of life, empathy (an understanding of other's emotions and thoughts) plays a paramount role in forming and maintaining successful social bonds. Empathy facilitates the expression of prosocial behaviours, including helping, donating, and volunteering. The expression of empathy, however, varies across cultures. We aimed to understand what factors might generate differences in the expression of empathy from childhood to adulthood by conducting 3 different studies across the diverse cultures and backgrounds of Indonesians. Study 1 surveyed 2864 adults and measured self-reported empathy and prosocial behaviour. Ethnicity, region of residence, religious belief, and perceived socioeconomic status influenced self-reported empathy and prosocial behaviour across Indonesians.

In Study 2, we conducted behavioural experiments to quantify rates of spontaneous stranger-oriented prosociality in adults, using the pen drop experiment across 22 cities. In contrast to the self-report data, our experimental data showed that religion and the size of the city were the only factors that predicted helping behaviour.

In Study 3, we adopted the broken toy experiment to elicit compassionate behaviour in children. The responses of 200 children aged 2-5 years to adults who feigned distress when they 'broke' a toy were recorded, but we found no cultural factors that influenced children's behaviour. Children tended to help the experimenter without being asked but withheld assistance when explicitly requested. We discuss our findings from the perspective of Indonesian culture.

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*Speaker

A theoretical investigation of the evolutionary dynamics of institutional rules

Cedric Perret * [1], Arthur Weyna , Laurent Lehmann

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Institutional rules, or institutions, are devised rules which constrain and modify individual behaviours. They play a crucial role whether it is to foster cooperation, manage common goods, or regulate economy. Institutions are also of rising interest in biological and cultural evolution, as they can explain cooperation in large-scale societies of unrelated individuals. Despite their importance, how institutions change and adapt with time have been proven hard to describe. In particular, institutions do not evolve *per se*. Instead, changes in institutions result from (i) changes in individual opinions, which are then (ii) aggregated during collective (or not) decisions. So far, a model that describes when selection on individuals and their opinions translates into improvements of institutions has been lacking. To fill this gap, we build upon previous evolutionary models where individuals design institutions, which then affect their success. In our model, individuals can differ in how much they influence the group decisions. Analysing this model, we obtain a simple formula that describes how group size and political organisation-specifically, how influence is distributed-affects the rate of evolution of institutions. Our results show that democratic groups can quickly reach a critical group size where selection no longer works. On the other side, institutions in authoritarian groups adapt much faster but, in these groups, odd cultural preferences can arise, be maintained and even be positively selected. Our model has implications for how political organisation could shape the evolution of institutions, but also more generally, how selection acts in evolutionary models where only one or few individuals decide for the group.

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*Speaker

Inter-group cooperation networks in a Congo Basin village

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[4] Marian Ngouabe University – Congo - Brazzaville

Humans are a unique species that exhibit an extraordinary capacity for cooperation. This capacity transcends social boundaries, with stable inter-ethnic cooperation occurring across political, economic, and social domains. In this presentation I focus on the mechanisms that predict shotgun hunting cooperation between Yambe farmers and BaYaka hunter-gatherers in a small subsistence-based village in northern Republic of the Congo. These two ethnic groups are linked by institutions such as fictive kinship, which support the exchange of services and products between individuals and across generations. I interviewed 48 BaYaka hunters and 18 Yambe hunt sponsors, and analyzed these data with Bayesian multilevel regression models to investigate what attributes predict Yambe and BaYaka dyadic cooperation. Specifically, I focus on hunter and gun-owner family size, age, reputation, status, and wealth. I discuss findings in light of evolutionary models of hunting, inter-group cooperation, and partner choice dynamics.

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*Speaker

Psychological Adaptations for Fitness Interdependence Underlie Cooperation Across Human Ecologies

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[2] Vrije Universiteit, Amsterdam – Netherlands

Humans evolved to solve myriad adaptive problems with kin and non-kin across various fitness-relevant cooperative domains, such as childcare, risk-pooling, social learning, warfare, among others. In this talk, I will present the theoretical model of fitness interdependence (FI) that captures the variation in the types of interdependences humans experienced across situations, relationships, and ecologies in the ancestral past and continue to experience today. According to this model, FI characterizes social relationships and situations along four dimensions: 1) corresponding-versus-conflicting interests 2) mutual-dependence-versus-independence, 3) asymmetrical-versus-symmetrical dependence (i.e., power), and 4) coordination. Because humans evolved to be highly mutually dependent on conspecifics to solve many adaptive problems, even compared to our closest living primate relatives, there is immense variability in the types of interdependences humans experience in daily life and across the life course. We contend that to reduce the costs of cooperation humans must be endowed with an evolved psychology to infer variation in the dimensions of FI across social interactions to make strategic decisions, including whether to collaborate, negotiate, compromise, take charge, acquiesce, defect, and reveal or withhold information. We propose that it is this evolved psychology, consisting of internal regulatory variables to track variation across the four dimensions of FI, that enables humans to maintain cooperation across diverse ecologies. I will conclude by discussing the theoretical implications of FI theory with a focus on how the model challenges gene-culture co-evolutionary models of cooperation and norm transmission.

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*Speaker

Sharing networks and economic transitions among Amazigh agropastoralists

Sarah Alami * [1], Edmond Seabright [1], Salma Essbih [1], Mohamed Ibnboubakr [1], Kawtar Oukhouya [1]

[1] Mohammed VI Polytechnic University – Morocco

In the absence of formal institutions, reciprocal exchange and informal sharing networks have been primary mechanisms for buffering against risk throughout human history, and are thought to have profoundly shaped our psychological and cultural evolution. Today, many small-scale populations face changes in their economies and ecologies, shifting traditional lifestyles towards an increased reliance on wage labor and markets. These changes carry significant implications for the structure of community networks, potentially leading to the erosion of traditional support systems in favor of alternative risk-buffering strategies, including reliance on bank savings, formal loans, and the development of weaker but more extensive ties outside one's community. Consequently, this could lead to the marginalization of individuals and families with less access to these non-traditional ties, putting them at greater risk of unexpected economic shocks or natural disasters.

Here, we explore this question in an Amazigh-speaking community in the Moroccan High Atlas. Traditionally pastoral with some reliance on subsistence horticulture, community members have increasingly relied on wage labor in recent decades, as drought has decreased agricultural yields and the viability of keeping livestock. We present data on economic activities, material wealth, networks of sharing and social support both within the community and with external ties, and monetary loans from both financial institutions and peers. Finally, we present data from Dictator games played with community members showing willingness to contribute anonymously to the public good in the form of a village level construction project.

We find that although non-traditional market activities contribute substantially to relatively high wealth and income inequality in the community, and that those who engage in them tend to have larger extra-community social networks, within-community ties and willingness to contribute to the public good are not associated with these activities, suggesting that cultural norms surrounding sharing and common values overcome short-term economic shifts.

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*Speaker

Owing Others: Debt, Welfare Tradeoffs, and the Social Emotions

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People systematically under- and over-use credit. Existing research examines the impact of structural features and individual cognitive biases in borrowing decisions, but the role of social cognition, and in particular social emotions such as guilt, gratitude and indebtedness, has been neglected. Here, we use a Welfare Tradeoff Ratio framework to suggest that: (i) social emotions emerge in the context of borrowing in response to information about costs and benefits, (ii) varying welfare tradeoffs in debt scenarios can elicit the emotional responses predicted by the social emotions framework, and (iii) emotions potentially influence borrowing decisions. In three online studies with participants on the Prolific platform, we examined the role of social emotions in borrowing. Study 1 ($N = 213$) – and its replication ($N = 269$) – show that social emotions emerge consistently in borrowing scenarios and respond to welfare tradeoffs. Study 2 ($N = 190$) suggests that the emotion of indebtedness can arise either from increases in guilt (low WTR) or in gratitude (high WTR). Study 3 ($N = 100$) shows that people are willing to impose extra costs on themselves when making borrowing choices, presumably to increase the WTR and decrease negative emotions. Taken together, the studies suggest that using the social emotions framework helps make sense of emotional responses to debt, and could illuminate borrowing and repayment decisions.

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*Speaker

Gender

Breaking the Norm: assessing social and fitness ramifications of supporting women's empowerment with a vignette experiment

Joseph Kilgallen * [1], Alexander Ishungisa [2], Charlotte Brand [3], Elisha Mabula Juma [2], Israel Nicholaus [2], Frank Israel Katunzi [2], Anuarite Alphoncina John [2], Pius Sunday Charles [2], Monica Alex Kisamo [2], Estelle Brulhart [1], Daniel Pungu [2], Yusufu John Kumogola [2], Mark Urassa [2], David W. Lawson [1]

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Objective: Gender egalitarian men play a crucial role in advancing women's empowerment globally, yet there's limited anthropological scholarship examining the ramifications for men challenging inequitable gender norms. This research aims to address this gap by employing cultural evolution and human behavioral ecology frameworks to explore the social and fitness ramifications experienced by men when they violate patriarchal norms.

Methods: All data was sourced from a single urbanizing Tanzanian community, selected because it combines patriarchal values, with recent and dramatic shifts in gender roles accompanying market integration, providing an ideal case study to examine emergent diversity in men's gender ideology. Young men, women, and elders (n= 1010) took part in a novel vignette experiment to quantitatively assess community perceptions of a hypothetical married man who breaks local gender norms. Participants each heard three vignettes corresponding to domains of social, economic, and reproductive/sexual autonomy in which the degree of norm violation within each vignette was randomly allocated into 3 possible conditions, (1) conforms to the status quo (e.g. has complete authority over household economic decisions), (2) privately breaks norms (e.g. shares household authority with his wife), or (3) publicly breaks norms and tells other men to do the same (e.g. shares authority with wife and suggests peers should do the same at a community meeting).

Results: Preliminary results confirm generational and gender differences in the perceived consequences of breaking patriarchal norms. Most participants associate norm violation with fitness costs, but perceived social consequences such as community respect and leadership ability differ across groups.

Conclusion: Interpreting our results alongside interviews with community members, we demonstrate (i) the consequences of breaking patriarchal norms are in flux during socioecological transition (urbanization); (II) reproductively costly behaviors, such as men's support for women's empowerment, may be incentivized by novel social benefits among young men.

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*Speaker

Reevaluation of biological evidence for gender (in)equality

Gemma Puixeu * [1]

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Seminal contributions in the field of biology like darwinian theory of evolution or the discovery of sexual hormones have contributed to the legitimation of gender inequality for many decades. However, what if this systematic accumulation of evidence supporting gender inequality is a consequence of scientific research being subject to social and political biases rather than there being a real biological dimension justifying male supremacy?

The reevaluation of the biological evidence with a gender perspective by a growing number of darwinian feminists indicates that both physiological and psychological features as well as evolutionary purposes of females and males in humans and other species do not correspond to the extreme binarism and power inequality suggested by traditional studies.

While biological evidence strongly indicates that there are differences between sexes, it does not justify gender binarism nor gender inequality. To illustrate this point, I (1) exemplify how sociopolitical stigmas conditioned(s) the traditional evidence underlying our understanding of gender in fields like neuroscience, physiology and evolutionary biology, (2) draw an alternative picture based on more recent studies that dismisses the traditional claims and (3) stress the need to incorporate gender perspective in scientific research, to generate bias-free evidence that allows for a more objective interpretation of the world and contributes to the struggle against inequality.

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*Speaker

Learning & Cognition

Modelling the role of childhood play as a driver of innovation in cultural evolution

Elena Miu * [1], Felix Riede [1]

[1] Aarhus University – Denmark

The field of cultural evolution has been tremendously productive in understanding the evolution of human adaptation, but the role of children learning has been underexplored. Evidence from psychology suggests that, broadly speaking, children are more exploratory and innovative than adults (Gopnik, 2020). This dynamic can have profound implications for population-level cultural adaptation, and particularly in circumstances where the environment changes quickly and populations need to adapt their cultural repertoires to survive (Riede et al., 2018). Here we investigate *in silico* how a life history of innovation and social learning contributes to cultural adaptation and what the implications are for the evolution of childhood per se. We present an agent-based model to answer (1) under what conditions childhood is adaptive and (2) whether childhood can provide a buffer against environmental change, in the context of cumulative cultural evolution and collective problem solving. Using a multi-armed bandit task that allows for incremental improvement in behaviours, we implemented a two-stage strategy for exploring this space – children explore broadly, and are more likely to learn new behaviours, while adults exploit behaviours already known, by incrementally improving them, thus specialising. We found that populations that follow this two-stage strategy achieve higher payoffs, both individually and collectively, than populations using the two exploration strategies randomly. Our models point at a childhood 'Goldilocks Zone' – neither too long, nor too short – allowing individuals enough time to explore the available options before specialising and improving. We implement a variety of environmental change regimes and demographic shifts (complete change, extreme events, changes that only affect complex behaviours) and find that childhood had differential benefits depending on regime characteristics. Finally, we plan to parameterise our model to fit known data on the life histories across hominin species to interrogate their robustness against environmental change.

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*Speaker

The content specificity of knowledge sharing networks in hunter-gatherers across generations

Salali Gul Deniz * [1]

[1] University College, London – United Kingdom

This study explores the propagation of cultural information within social networks of hunter-gatherers in the Congo rainforest, by examining a rich dataset of food taboos and plant usage among 219 children and adults. We examine the distribution of cultural traits, investigating whether information on medicinal and other types of plant uses, as well as social norms about food consumption, are disseminated equally within these networks, and how such sharing differs between children and adults. We hypothesize that medicinal plant knowledge circulates primarily within biological and affinal kin, while non-medicinal plant uses and norms on food restrictions permeate the broader community. We also test the hypothesis that children initially learn more widely accessible, 'open knowledge' before acquiring specialized medicinal knowledge. We use a unique dataset on the consumption of 60 food items and the uses of 33 plants, alongside demographic variables and relational ties. By exploring the role of population structure, considering families within multi-family groups, and the information content, the study aims to understand how these factors influence the evolution of cumulative culture. The findings aim to shed light on the complexities of cultural transmission and the factors that facilitate or constrain the flow of information within and between generations.

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*Speaker

Algorithms in the Amazon: Evidence of a general-purpose learning mechanism

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[3] The University of Western Australia – Australia
[4] University of Wisconsin-Madison – United States

Human's remarkable cognitive flexibility allows us to adapt to a wide variety of environments and to acquire any number of specialized skills, from whittling to Wordle. What are the cognitive mechanisms that support such fast, flexible learning? Inspired by theories in artificial intelligence, here we show evidence for one such mechanism – program induction – a general-purpose process by which learners infer the computational rules that underlie the data they observe. Children from two cultures – one industrialized and one indigenous – viewed short sequences of actions (Experiment 1) or arrays of objects (Experiment 2) and were asked to generalize these novel patterns to new stimuli, alphabets, and lengths, without instruction or feedback. Despite receiving only small amounts of data (e.g. a 4-item pattern) in an unfamiliar task, participants across ages, cultures, and conditions constructed response patterns consistent with the abstract structure of the sample patterns. Computational modeling showed that response patterns likely reflected discovery of latent computations, rather than simple heuristics or statistical associations. Accuracy and algorithmic regularity were high even among children with no formal schooling or counting abilities. The results suggest that children across cultures are equipped with a general-purpose learning mechanism that allows them to infer the algorithmic structure of their natural and cultural environment, whatever it might be, from even small amounts of data. The remarkable speed and flexibility of human learning may reflect a universal capacity to reverse-engineer algorithms from observation.

*Speaker

Does hunger improve memory for food-related information?

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Food acquisition is an adaptive problem resolved via both physiological and psychological processes. Hunger could be a coordinating mechanism of these processes. When hunger increases, shifting cognitive resources away from other adaptive problems and towards increasing the chances of acquiring food (e.g., through improved memory for food information) may be beneficial to survival. However, there is limited research exploring the impacts of hunger on food-related memory. Across three experiments, we will investigate whether increased hunger levels improve memory for food images and prices – but not non-food images and prices – in yes/no image recognition tasks and price recall tasks, respectively. E1 was an online, observational study ($N = 91$) using self-reported hunger as a continuous measure. E2 was an in-person, between-subjects study ($N = 101$) where participants were randomly allocated to a hungry or sated condition, which manipulated hunger and satiety through fasting and eating instructions. E3 was an in-person, within-subjects study ($N = $ TBC); participants completed two sessions, hungry and sated, and the manipulation of hunger and satiety included the provision of standardised meals alongside fasting and eating instructions. This talk will explore results based on our predictions that there will be a positive relationship between hunger and participants': ability to discriminate between food images they have and have not seen before, bias for responding positively to food images, ability to recall food prices and their accuracy in doing so.

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*Speaker

Exploring Explanations of Atheism

Connair J. S. Russell [*][1], Adam Baimel [2], Stephen Bullivant [3], Lois Lee [4],
Everton Maraldi [5], Karoline Marie Donskov Dige , Miguel Farias [6],
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Explanations of belief and non-belief are myriad across the social-sciences and other disciplines, with cultural evolutionary and evolutionary psychological explanations being among the most prominent. In the first wave of a multi-wave, multi-national project on this topic we have investigated how over 25 different factors may (or may not) influence atheism. Across 5 surveys examining Socialisation, Motivational, Cognitive Bias, Cognitive Styles, and Morals and Values accounts of non-belief, we have tested these possible explanations in the UK (n = 2500) and Brazil (n = 2500), with Cognitive Biases also being tested in Denmark (n = 500). We will present our initial exploratory findings of what explanations pass muster and which do not, along with possible causal explanations derived from these, and how we will test them in later waves including further countries (e.g. China, Japan, and the United States). We will also present cross-cultural confirmatory results testing and building upon some of the most prominent explanations of atheism, including that Cognitive Ability predicts atheism, and that Cognitive Biases and Credibility Enhancing Displays (CREDs) can explain belief.

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[*]Speaker

Inequalities

Drivers and outcomes of the transition from nomadic pastoralism in rural Morocco

Edmond Seabright * [1], Sarah Alami [1], Kawtar Oukhaya [1]

[1] Université Mohammed VI Polytechnique – Morocco

Human evolutionary history has been shaped by a long and diverse history of lifestyle transitions, between different forms of residence – nomadic, transhumant, or sedentary – and subsistence strategies – foraging, pastoralism, small-scale horticulture, and agriculture. Once framed as an inevitable and one-directional trajectory towards civilizational progress, these transitions are now known to have occurred numerous times, in different directions and over different timeframes, to be historically and ecologically contingent, and to be associated with a variety of outcomes, many detrimental to people's health and wellbeing. Today, lifestyle and subsistence transitions continue to occur around the world and are likely to intensify in many rural populations as demographic, ecological, and socio-economic shifts associated with globalization and climate change affect the costs and benefits of maintaining traditional ways of living.

Here we present a case study of one such ongoing transition in rural parts of Morocco's High Atlas Mountains. In this region, nomadic and semi-nomadic Amazigh pastoralists have been settling into communities to engage in subsistence horticulture supplemented with wage labor. Although this process has been ongoing for several decades, recent government initiatives to improve literacy and school attendance, combined with economic development in Morocco and worsening conditions of drought affecting grazing land have further pushed some families to settle.

Using a mixed methods approach we examine the drivers and outcomes of nomadic families settling. We use structured and semi structured interviews to explore the proximate reasons why families choose to settle, and its perceived impacts on physical and mental health, social and economic wellbeing, and future prospects. We also examine differences in social integration and support, material wealth, and income between recently settled and long-established families, and argue that lifestyle transitions are often undertaken for long-term goals rather than immediate benefits.

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*Speaker

How the amount or variability of material wealth influence age at first reproduction among Pimbwe women from Tanzania.

Pablo Jose Varas Enriquez * [1,2], Riana Minocher [1,3], Dieter Lukas [1], Heidi Colleran [1,2], Monique Borgerhoff Mulder [1,4]

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Wealth has variable effects on the fitness of women, particularly on the crucial life-history trait of age at first reproduction (AFR). Both theoretical and empirical work on the variability of AFR suggest that the reproductive onset of women is accelerated or delayed by material wealth. It remains unclear if the processes underlying the various effects of material wealth are related to the absolute levels of wealth, or to its variability during development. Theoretical claims predict a delay in AFR when the absolute levels of wealth exert a more pronounced influence than its variability. Such delay is attributed to the allocation of resources towards self-development (i.e. (extra) somatic versus reproductive investment trade-off). An earlier AFR is predicted when the variability of wealth has a greater impact than the absolute levels, due to a response to an unpredictable future (i.e. adaptive developmental plasticity). Empirical work, however, has focused on the influence of either absolute or variability of material wealth on AFR. Here we study how both aspects of wealth influence AFR to explore the mechanisms that either delay or accelerate AFR between women. For this, we analyse longitudinal data from Tanzanian Pimbwe women (n=1117) to see how the amount of material wealth in the household (i.e. absolute levels) and changes therein (i.e. variability) throughout pre-reproductive years may shape AFR, using multivariate Bayesian logistic regression models to account for time-varying effects of wealth, age, and residence. Results will show the extent to which the absolute levels versus the variability in material wealth can account for individual differences in AFR. Disentangling the influence of absolute and variable wealth through the pre-reproductive period on the reproductive onset of women can shed light on the mechanisms behind reproductive decisions, potentially bringing resolution to the mixed evidence linking wealth and the reproductive strategies of women.

*Speaker

Beliefs, Behaviors, and Beyond: A Mixed-Methods Exploration of Mortality Risk and Health Disparities

Mona Joly * [1,2], Daniel Nettle , Jan Paul Heisig

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Within affluent societies, significant health and mortality disparities are often linked to behavioral differences. One factor could be that disadvantaged individuals potentially perceive a larger portion of their mortality risk as beyond their control. This mixed-methods study examines the impact of such perceptions, specifically focusing on perceived uncontrollable mortality risk (PUMR), and its influence on health behaviors in the context of socioeconomic disparities. The first phase of the project involved a pre-registered survey of 1,000 socioeconomically balanced, age-homogeneous UK residents. This survey explored the associations between the experience of familial death, PUMR, and health behaviors. Results indicated a significant correlation between familial death and increased PUMR, which was, in turn, associated with reduced healthy behaviors. Crucially, PUMR was found to mediate the relationship between subjective socioeconomic status (SES) and reported health effort, suggesting that higher perceived uncontrollable mortality risk does deter engagement in positive health behaviors.

To further investigate these findings, the second phase included semi-structured interviews with 25 French residents from various socioeconomic backgrounds. This qualitative inquiry aimed to unravel how individuals develop beliefs about their life expectancy and control over mortality risk, and whether these beliefs consciously affect their health behaviors. The interviews helped in forming new hypotheses about the development of mortality risk beliefs and the decision-making processes concerning health effort.

Overall, this research provides valuable insights for devising targeted interventions to reduce socioeconomic disparities in health outcomes. It highlights the importance of understanding the psychological dimensions underpinning health behavior disparities in affluent societies.

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*Speaker

Rethinking Health Disparities: A Life-History Approach to Chronic Kidney Disease and the Fallacy of the 'Race Coefficient'.

Riya Gosrani * [1], Paula Sheppard [2]

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

This conceptual piece challenges the prevailing use of the 'race coefficient' in the diagnosis and treatment of diseases, with a specific focus on chronic kidney disease (CKD). We argue that this approach perpetuates racial inequalities in health by oversimplifying complex interactions between genetic, environmental, and social factors. Whilst genomic analyses confirm that race is not inherently genetic, the use of race as a proxy for biological differences continues to underpin medical practices. Furthermore, the race coefficient itself perpetuates racial discrimination because incorrect diagnoses lead to poorer health outcomes for Black patients. We conceptualise this using the 'statistical looping effect'. This describes how statistics gain power via their ability to repeatedly marginalise Black patients, justified through the medical practices which are intrinsically racist. Our critique here calls for a paradigm shift toward a life-history approach, emphasising the significance of early childhood environments, particularly systemic racism, in shaping long-term health outcomes. Using CKD as a case study, we unveil the limitations of the current race-centric model and propose that disparities in disease prevalence and progression are better explained by the lasting impact of racism on an individual's early development. Life-history theory provides a robust framework with which to reconsider racial disparities in health, however evolutionary approaches remain under-utilised in biomedicine, and is rarely taught in medical schools. We aim to spur a call to action within the medical community and our proposal encourages researchers and practitioners to adopt a more nuanced understanding of health disparities, and address the real causes of inequality rather than continuing to use flawed devices such as the 'race coefficient' in diagnosing and treating disease.

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*Speaker

The social gradient in the exposure and vulnerability to daily hassles

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Humans have evolved to be highly adaptive to their environments due to evolutionary forces. Consequently, the observed differences in behavior and attitudes among individuals with distinct socioeconomic backgrounds might reflect adaptations to their respective environments. This study examines daily hassles as one factor that might vary with an individual's socioeconomic status (SES).

Daily hassles are routine challenges of day-to-day living or unexpected small occurrences that have cumulative effects on attitudes and behavior, and therefore on health and educational outcomes. Exposure and vulnerability are two distinct dimensions of daily hassles. Exposure delineates how frequently people encounter hassles and their severity, while vulnerability gauges the impact of exposure on an individual. We predict that low-SES individuals face higher exposure and vulnerability to daily hassles.

For one week, participants are asked each night to give descriptions of events that happened to them within the last 24 hours. We then ask independent raters to evaluate these event descriptions on several dimensions, providing us with a more objective measure of what happened to people in their everyday lives. This allows us to make inferences about differences in daily hassles people are exposed to, as well as their vulnerability to these hassles. Additionally, we investigate how these differences in daily hassles may be linked to the social gradient in attitudinal measures such as trust, risk, and time preferences, as well as locus of control.

The findings from this study contribute to our understanding of how the social gradient in different behaviors and attitudes might reflect adaptive processes to differences in people's everyday environments. The implications extend to policy and intervention strategies aimed at mitigating the impact of socioeconomic disparities on educational outcomes, health, and well-being.

We will collect data in January 2024.

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*Speaker

Mental health

Access to childcare support from across maternal social networks during the COVID-19 pandemic and its association with postnatal depressive symptoms: evidence from the UK

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[2] Department of Anthropology [University College of London] – United Kingdom

Humans are thought to have evolved as cooperative childrearers, inherently reliant on allo-care from their social networks to successfully raise children. The help of others is particularly important in the postnatal period, which is widely acknowledged within public health to be a vulnerable time for infants – with enhanced vulnerability spanning sociocultural contexts. Consequently, the absence of support postnatally is expected to be both psychologically and physically stressful for mothers. Indeed, low social support is a known correlate of postnatal depression; however, due to vaguely defined support measures, lack of longitudinal data, and narrow nuclear family-biased assumptions regarding allocarers, the causal paths underlying this association remain unclear. Here we harness detailed, longitudinal social support data to test the prediction that the number of hours of help with childcare a mother receives during the postnatal period will negatively correlate with depressive symptoms. We use data collected as part of a six-wave, longitudinal, ego-centric social network study tracking over 500 postnatal UK mothers across the first two years of the COVID-19 pandemic (from May 2020 to April 2022), when their ability to access childcare from their social network was temporally variable due to social distancing restrictions. Both aggregate hours of childcare help from across a mothers network and depressive symptom severity fluctuated inversely with degree of restriction; the average hours of help reached a low of 2.3 hours a day in February 2021 during the second national lockdown, when postnatal depression prevalence also peaked with 54% of mothers hitting the Edinburgh Postnatal Depression Scale diagnostic cut-off. As predicted, at the individual level hours of childcare help negatively correlated with depressive symptom severity. These results support the contention that access to childcare is a key component of maternal wellbeing and policies to facilitate it would beneficial to both mothers and their infants.

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*Speaker

Navigating the Emotional Landscape: The Influence of Emotional Contagion and Mate Choice on Couples' Depression

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Romantic partners often share similarities, especially in dealing with depression. Do these similarities stem from selecting similar partners or from the influence of each other's emotions? Despite considerable research on this topic, there is still a need for longitudinal studies to better understand these patterns. We utilized two participant groups for our investigation. In Study 1, 2797 individuals representative to the Czech population were contacted three times. Participants rated themselves, their ideal partners, and their actual partners for depressiveness. Study 2 involved 524 German couples who maintained daily mood journals for a 34-day period. In Study 1, a consistent trend emerged: participants rated their ideal partners as the least depressed, while actual partners appeared more depressed than ideals. Additionally, participants reported feeling more depressed than both their ideal and actual partners. This pattern persisted in both new and stable relationships. Notably, individuals in stable relationships adjusted their partner ideals over time, moving them closer to the reality of their actual partners. Individuals experiencing a breakup exhibited the most significant difference between the depression levels of their ideal and actual partners. In Study 2, employing random intercept cross-lagged panel models, we observed evidence supporting emotional contagion. Men notably influenced their female partners' mood negatively in 12% of days and positively in 12% of days. Women, on the other hand, influenced their male partners' mood negatively in 12% of days and positively in 21% of days. Our findings suggest that emotional contagion may play a more substantial role than assortative mating in explaining why couples share similarities in terms of depression. This effect is particularly pronounced in the realm of positive emotional contagion, especially among men. A noticeable pattern of positivity bias emerges in ideal partner preferences and emotional maintenance, highlighting a potential adaptive strategy for relationship stability and well-being.

*Speaker

Postpartum Depression and Interbirth Intervals in Finnish Mothers

Jan Antfolk * [1], Felix Von Renteln [1], Juulia Paavonen [2], Annika Gunst [1]

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[2] University of Helsinki – Finland

Beause the relationship between the mother and her offspring is vital to human reproduction, the prevalence of postpartum depression symptoms is an evolutionary conundrum. It has been proposed that such symptoms might stem from an evolutionary mother-offspring conflict over maternal resources. Here we tested the hypothesis that maternal postpartum depression is associated with increased interbirth intervals. We measured depression symptoms in 645 Finnsih mothers during pregnancy, and at three and eight months after delivery. We found that postpartum depression measured at eight months after delivery was associated with longer interbirth intervals. Interestingly, this association was not mediated by sleep disturbance, suggesting that the conflict is mediated through some other mechanism. Depression symptoms measured during the pregnancy and at three months after delivery were not associated with interbirth intervals. We argue that considering mother–offspring conflict in studies of postpartum depression is important to better understand the behavioral mechanisms that drive and sustain maternal psychological unhealth and allow to develop targeted interventions to enhance the well-being of both individuals.

*Speaker

The cognitive foundations of speech repression: Threat detection, ingroup mobilization, and signaling.

Antoine Marie * [1]

[1] Aarhus University – Denmark

Political and religious movements often bind around shared mobilizing narratives. In their most devoted activists, this triggers moral motivations to affirm and protect the narrative from being argumentatively challenged (i.e., orthodox mindsets), with free expression and nuance as the primary casualties. The ideological narratives are often threat-based, denouncing an evil or villains encroaching on a sacred value, such as national grandeur, the faith, or class, racial, or gender equality. Their protection triggers speech repressive reactions ranging from expressions of outrage or public shaming on social media to the "deplatforming" and "canceling" of controversial speakers to censorship and imprisonment of dissidents. Orthodox mindsets are puzzling because of the rigidity and righteousness with which they try to protect mobilizing narratives. Here, we propose that they may derive from three main evolved cognitive foundations. First, highly sensitive dispositions to detect threat, from human outgroups in particular. Second, motivations to try to keep ingroup members mobilized around cherished causes and against rival groups, by using moral talk emphasizing collective benefits. Third, attempts to signal personal devotion to moralized causes to accrue prestige within the ingroup. In line with arguments about self-deception and persuasion, strategies of ingroup mobilization and signaling need not be conscious. They may be more likely to meet their evolved functions when displayed by activists sincerely committed to the ideological movement's tenets, who view the moral cause they are fighting for as identity-defining.

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*Speaker

Predatory Coalitional Conflict and Modern Terrorism

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Predatory coalitional conflict, the most lethal form of collective aggression focused on eliminating the enemy, exerted significant selective pressure during human evolution, shaping psychological adaptations for identifying and responding to such threats. It is hypothesized that a mental template exists in the human mind, which evolved not to detect modern-day terrorism *per se* but to identify and respond to situations of predatory coalitional conflict. It examines the potential cues and psychological mechanisms that constitute the precautionary system activated by such threats. In the modern world, while terrorists cannot typically eliminate or significantly weaken their targets, they are able to manipulate audiences by matching specific cues of the mental template sensitive to perceived threats. Thus, a crucial implication of this model is that matching the input cues of the coalitional predation template may be what causes the well-documented hyperbolic responses to the relatively minimal threats that terrorism poses. The implications of this perspective for understanding public reactions to terrorism are explored. The model presented here may account for a range of phenomena, including the inclination towards attributing mental illness to particular violent incidents and the uncanny surface similarities between terrorism and war crimes. As the mental template did not evolve to respond specifically to acts of modern-day terrorism, it suggests that terrorism may not constitute a proper ontological category. Consequently, arriving at an unambiguous and widely accepted definition of terrorism may not be possible.

*Speaker

19 Apr 2024

Learning & Cognition

Learning opportunities captured by women's and children's social networks among BaYaka foragers

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The multi-stage learning model posits that children learn from their parents in infancy and expand their knowledge by learning from peers, or from other more skilled adults, as they reach adulthood. While extant research has focused mostly on direct teaching, children are known to learn through variable types of social interactions. Thus, cultural learning can be seen more as a product of children's accumulated and lived experiences in their social environment. Hence, investigating with whom children spend time and socialise in their daily lives can provide insight into how culture is shared face-to-face from a child's eye view. In particular, hunter-gatherer children learn subsistence skills and social norms while joining mothers' foraging trips from an early age as well as while playing with peers in- and outside of camp. Thus, children's daily social networks–including during women's subsistence trips–may be a nexus for social learning opportunities. To investigate whether social networks scaffold cultural learning processes, we first present data on women's subsistence networks from a BaYaka hunter-gatherer community (Nindividuals = 60) in the Republic of the Congo, which were collected via focal-follow sampling across 230 days. Using a stochastic block model for repeat observation data with uneven sampling, we find that, during women's subsistence trips, children co-forage with their peers at high rates, specifically with non-kin peers in middle childhood and adolescence. Our results further suggest that individuals in middle childhood bridge the interactions of those in early childhood and adolescence and, therefore, play a central role in cultural learning. To confirm the role of middle childhood from a perspective of children's networks, we further analyse focal-follow data on children's daily in-forest and in-camp networks, collected across 78 days in the same community. Our study provides insight into the scope for age-structured cultural transmission in a foraging population.

*Speaker

Learning, Memory and the Inheritance of Behavior

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[1] Max Planck Institute for Evolutionary Anthropology – Germany

Social learning is crucial to cultural adaptation. When facing new environmental challenges, individuals learn about adaptive behaviour by contact with other individuals. However, in the absence of memory, previous models of social learning have predicted its decreasing efficiency with increasing environmental variability when social information becomes out of date quickly. In our agent-based model, we introduced simplified cognitive processes which allowed for the retention of cultural traits: Individuals store the information about previously produced traits to retrieve it at a later stage, or they forget about it. Our first analysis revealed that memory endows the individual with the ability to decide when to learn and when to rely on previously acquired knowledge. When the environment changes over generations, individuals better build their cultural repertoires in response to the rare fluctuations through learning than remembering the past. Frequent changes favour memorizing over continual learning. The introduction of simplified cognitive abilities eventually allowed for the evolution of social learning across a broader range of environmental conditions.

In a follow-up study, we focus on another detail of the model that represents an extension of the concept of memory, namely the vertical transmission of behavioral traits. We contrast two opposing assumptions: 1) Reproducing individuals transmit their entire cultural repertoire of behavioral traits to their offspring, and 2) Offspring does not inherit behavioral traits from their parents. With this framework, we aim to understand whether individuals benefit from the inheritance of behavioral adaptations and how this 'transgenerational' memory interacts with individual's memory and learning strategies.

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*Speaker

Gender

Effects of manipulating perceptions of gender equality on mate preferences

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When asked about what they look for in a potential partner, women tend to prioritise resource acquisition characteristics, while men indicate that they prefer partners who are physically attractive. However, previous research has suggested that this 'traditional' pattern of mate preferences relates to whether individuals view their environment as supporting traditional gender roles with men as breadwinners and women dependent on their partner's resources. In this online study, we employed a priming paradigm to experimentally manipulate participants' perceptions of gender equality to examine whether priming would influence their reported mate preferences. Participants (189 men, 191 women) were presented with one of two primes, which presented the same information about the current state of gender equality (e.g., percentage of women in UK parliament) either in a positive light ('equality condition') or a negative light ('inequality condition'). Participants then completed the *Ideal Mate Preferences Scale*, where they independently rated the importance of five characteristics in a potential romantic partner ('physical attractiveness', 'health', 'good financial prospects', 'intelligence' and 'kindness') and the *Liberal Feminist Attitudes Scale*. We predicted that gender differences in mate preferences would be smaller in the 'equality' condition than in the 'inequality' condition. The results showed that, on average, men rated physical characteristics such as attractiveness and health as more important than women did, while the opposite was true for resource provision characteristics. Gender differences in mate preference scores did not vary across the priming conditions. However, men who scored higher on feminism placed less emphasis on physical traits, and women who scored high on feminism placed greater emphasis on kindness, compared to same-gender participants who scored low on this measure, suggesting some amount of flexibility in individuals' priorities in mate selection. These findings suggest that observed gender differences in mate preferences are sensitive to local gender norms and socialization effects.

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*Speaker

The effect of mating-related and threatening situational contexts on makeup use in women - the study of actual behavior

Małgorzata Biesiadecka * [1], Aleksandra Szymkow [1], Katarzyna Gałasińska [1]

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Human interest in improving physical appearance is deeply rooted in evolution (Davis & Arnocky, 2020). The important context for understanding appearance-enhancing behavior is the one related to mating, as women can strategically shape their image to gain benefits both in inter- and intrasexual selection (Davis & Arnocky, 2020; Valentova et al., 2021). However, to date, the vast majority of makeup research has been limited to examining everyday makeup use (Batres et al., 2018; Mafra et al., 2020), with very few exceptions (Kellie et al., 2021), while the amount of makeup and the form it takes can vary depending on the situation. If makeup is used as a strategic tool, then we should observe its applications varying according to specific contexts.

Our preliminary study (Biesiadecka, Szymkow & Baryla, 2023) show that women declared applying makeup more diligently preparing for a party where they expected to meet an attractive man, compared to a situation of just going to a party, while they declared using less makeup when they would expect to meet a threatening man during this party. The motivation to make a good impression mediated the obtained results.

The ongoing experiment that we want to present was designed to test whether the amount, prominence, and diligence of makeup application are higher in a mating context compared to no-mating contexts, and lower in a threatening context, with measuring actual behavior. Actual behavior is measured (actual amount, diligence and expressiveness of makeup assessed by expert judges in photographs taken before and after makeup application, as well as the actual amount of time spent on makeup application). Additionally, as various contexts can influence women's motivation to make a good impression differently, the mediating function of such motivation is tested. The project was pre-registered (https://osf.io/gb4wt).
Preliminary results will be presented.

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*Speaker

Evaluating the eco-evolutionary correlates of sexual coercion in nonhuman primates

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Sexual coercion is a wide-spread, heterogeneous phenomenon in both humans and nonhuman animals. Evolutionary, model-based and qualitative approaches have proposed several demographic, socio-ecologic, life history and reproductive factors that facilitate or imped sexual coercion. We extend and test these hypotheses using a comparative data set of extant, nonhuman primates while controlling for phylogeny. First, if sexual coercion is an expression of sexual conflict, we expect that sexual coercion is associated with male-biased operational sex ratio, sexual dimorphism and male reproductive skew. Second, we distinguish *access sexual coercion* that increases a male's mating access to females from *exclusivity sexual coercion* that may reflect attempts to control mates and to reduce their promiscuity. Access and exclusivity sexual coercion likely emerge in different contexts. On the one hand, we expect access sexual coercion where males cannot exclude other males from mating access, i.e., in mating systems with high sperm competition and dispersed social organization where females are spatially isolated and lack social allies. On the other hand, we predict exclusivity sexual coercion in contest-based mating systems where male monopolization potential is high, rivals may be in proximity and females do not form coalitions. We conducted a systematic literature search on intersexual aggression that qualifies as either access or exclusivity sexual coercion, in 376 extant primate species. We obtained documentation in 102 species, 66 with reports of sexual coercion and 36 where coercion seems absent. We will evaluate these predicted pathways between the evolution of mating and social systems and sexual coercion using Bayesian phylogenetically controlled analyses to draw the eco-evolutionary framework of sexual coercion quantitatively. Having established such a framework in nonhuman primates will allow us to better understand why coercion is such a common point of conflict between the sexes.

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*Speaker

Cultural Evolution

Kinship Presence Influences Religious Beliefs in Mauritius

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Studying the processes of religious belief transmission can shed light on the cultural evolution of institutions and the future of religious societies. We present data on how changing religious socialisation in Mauritius predicts intergenerational changes in religious beliefs and practices. Specifically, we examine how changes in parental credibility enhancing displays (CREDs) and movement away from multi-generational households predicts religious decline in younger generations. Mauritius has a religious and diverse population undergoing recent demographic shifts (e.g., fertility decline and changes in SES). This population can help understand how kinship structures interact with socialisation practices to influence individuals' beliefs and behaviour.
We present two studies. First, we analyse survey data from 1151 Mauritians (Hindu, Muslim, Christian, Tamil). We examine how parental CREDs are associated with individual religious beliefs and practices and explore how the presence of different family members influence 1) individual religious belief and practice and 2) perceptions of parental CREDs. We find that parental CREDs and extended households predict higher religious belief and practice.

Second, we thematically analyse data from 15 semi-structured interviews with Hindu, Muslim, and Christian Mauritians with the aim to better understand how religious socialisation is changing. We asked how individuals are taught aspects of their religion (e.g., praying, fasting), how decisions about religious practices and celebrations are made (especially when either financially or otherwise costly), and how the distribution of these roles may be gendered. We discuss the roles of traditionalism and gendered roles in the interpretation of both the interview and survey data.
These findings contribute to our knowledge of religious socialisation within families and the effects of demographic changes on cultural transmission processes. Variations in religious practice and belief associated with the presence of different family members can indicate how some aspects of religion may be upheld by normative expectations underlying close interpersonal relationships.

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*Speaker

Evolution of cognitively appealing practices

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The greatest accomplishments of our species are the result of a process known as cumulative culture. Computers, spaceships, and scientific theories weren't invented by single, isolated individuals. Instead, they emerged from a cultural evolutionary process in which innovations were gradually added to existing cultural traits across many generations. The solutions that surround us today embody the efforts of successive generations of innovators. Disregarding this accumulated knowledge to rely solely on our intuitions can have detrimental consequences. Theoretical models suggest that when adopting cultural traits, individuals should be discerning in choosing what, when, and from whom to learn. In our study, we investigate the influence of age and temporal stability on the value attributed to established solutions. To do this, we developed an online experiment based on a digital simulation of the wheel task (Derex et al., 2019). In this experiment, we measure the effect of various information structures on participants' exploration and understanding. We aim to assess how these structures influence the value that individuals attribute to established solutions.

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*Speaker

To what extent is technical reasoning beneficial for cumulative cultural evolution?

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Human ability to accumulate and transmit cultural information is a main driver of our species' astonishing technological progress: gradual refinement of tools, techniques, and artifacts has enabled the development of increasingly complex material and immaterial innovations. However, the potential benefits of certain mechanisms contributing to cumulative cultural evolution (CCE) are still widely debated: while some studies show that optimized technologies can result from an accumulation of small improvements over time without requiring causal understanding, others argue that technical reasoning, a form of causal reasoning directed toward the physical world, necessarily accompanies the improvement and transmission of technology. Here, we seek to determine the extent to which technical reasoning is beneficial for CCE. To do so, we ran a transmission chain experiment in which participants were asked to solve one of two versions of a computer-based task. In the Concrete Task treatment (CT), participants faced a simulated version of an actual physical task, which allowed them to rely on technical reasoning to improve their solution. In the Abstract Task treatment (AT), participants faced a task with the exact same solution-score mapping, but the appearance of the task was manipulated to prevent participants from relying on technical reasoning to improve their solution. This design allows us to investigate two pivotal questions about the role of technical reasoning for CCE: (1) To what extent does technical reasoning guide individuals' exploration of the design space?, (2) To what extent does technical reasoning lead to a higher pace of CCE?

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*Speaker

The Cultural Evolution of a Multidimensional Artefact

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The traditional Galton-Pearson (GP) model of cultural transmission assumes offspring variability is independent of parental variability, thereby keeping population variability constant across generations. In this study, we challenge this model. We propose an alternative: the Parental Variability-Dependent Inheritance model, positing that the variability in offspring is influenced by parental variability.

To empirically test this model, we introduced a novel experimental approach involving participants recruited from science fairs across the Czech Republic. These individuals engaged with a user-friendly graphical interface in the Rhinoceros 3D design software to create an "offspring" artefact, inspired by two provided artefacts. The task required no specific technical expertise.

Participants were tasked with designing their artefact to fulfill one of two objectives: an aesthetic (create an ornament) or a mechanical (create an artefact that rolls downhill fast) task. The artefacts were manufactured using a 3D printer and then presented to subsequent participants in the study. This experimental setup allowed us to directly examine the effects of parental variability on the design choices and outcomes of the offspring artefacts, providing insights into the dynamics of cultural trait transmission.

Our preliminary results suggest that while the variance of "parental" artefacts influences the variance of "offspring" in the aesthetic task, while in the engineering task, people just pick one of the presented artefacts and try to improve on its design.

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*Speaker

Worldwide Divergence of Values

Danila Medvedev * [1], Joshua C. Jackson [1]

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Has modernization brought a global consensus on what people consider important, desirable, and just? We use survey data from 1981–2022 (n = 406,185) to test whether social values have become more similar (converged) or dissimilar (diverged) across 76 countries. We find evidence of global value divergence. Of the 40 values we have examined, 29 have diverged over time, with a significantly positive median correlation of 0.43 between timepoint and value variation, t = 3.79, p < 0.001, 95% CIs (0.15, 0.50). Values that emphasize tolerance and openness have diverged most sharply. Countries with high (versus low) value homogeneity or per-capita wealth tend to have values that are more dissimilar from the global average. Affluent Western countries have developed values that are especially distinct. Our final analysis shows that countries with similar levels of wealth have held similar values over the last 40 years. However, in the 21st century, geographic proximity has emerged as an increasingly strong correlate of value similarity between countries, indicating that values have diverged across most countries and converged across countries in the same geographic region. Thus, value divergence appears to be strongest for values related to tolerance and openness and may be explained by the rising difference between wealthy Western countries and the rest of the world. Regional value convergence has accompanied worldwide divergence, with geographically proximal countries adopting more similar values over time. The worldwide divergence of values may be exacerbating the WEIRD problem in behavioral science and be co-evolving with the growing anti-Western sentiment in parts of Asia, and Africa, and Eastern Europe.

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*Speaker

Unveiling Reproductive Goals in Abortion Attitudes

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Abortion is often among the most contentious and consequential issues in modern politics. What drives pro-life stances? Pro-life individuals frequently claim that sanctity-of-life concerns drive their opposition to abortion. Per such a "Face-Value Account," the more strongly people oppose abortion for such reasons (e.g., "abortion is murder"), the more they should support policies preventing abortions. A "Strategic Account" suggests that underlying reproductive goals drive policy positions and predicts a different pattern of policy support-that abortion opponents prioritize abortion-preventing policies discouraging casual sex. In two (one pre-registered) US experiments (N=1427), participants evaluated fictive bills described as preventing the same number of abortions via different means (e.g., punishing abortion-seekers, comprehensive sex education). Though both accounts received some support, results more so challenged Face-Value predictions and more so supported Strategic ones. Findings imply that abortion attitudes may be strongly influenced by nonconscious factors not typically voiced in the abortion debate.

*Speaker

Life history & reproductive strategies

The Evolutionary Puzzle of Human Twinship

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Natural selection should favor litter sizes that optimize trade-offs between brood-size and offspring viability. Across the primate order, modal litter size is one, suggesting a deep history of selection favoring minimal litters. Humans, however—despite having the longest juvenile period and slowest life-history of all primates—still produce twin-births at appreciable rates, even though such births are costly. This presents an evolutionary puzzle. Why is twinning still expressed in humans despite its cost? More puzzling still, is the discordance between the principal explanations for human twinning and extant empirical data. Such explanations propose that twinning is regulated by phenotypic plasticity in polyovulation, permitting production of larger sib-sets if-and-when resources are abundant. However, comparative data suggest that twinning rates are actually highest in poorer countries and lowest in developed economies. We propose that a historical dynamic of gene-culture coevolution might explain this geographic patterning. Our explanation distinguishes *geminophilous* and *geminophobic* cultural contexts, as those celebrating twins (e.g., through material support) and those hostile to twins (e.g., through sanction of twin-infanticide). *Geminophilous* institutions, in particular, may buffer the fitness cost associated with twinning, potentially reducing selection pressures against polyovulation.

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*Speaker

The grandmother hypothesis: a life-history model of menopause

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[2] Department of Anthropology [University College of London] – United Kingdom

Menopause is a unique stage in the later life of women, marked by a permanent end to reproduction due to irreversible physiological changes. This phenomenon is extremely rare, occurring only in humans, Asian elephants, some whales, and recently observed in Ngogo chimpanzees. Various theories have been proposed to explain menopause, but none are universally accepted. A foundational theory is the "grandmother hypothesis," which suggests that older females stop reproducing to help care for their grandchildren. Despite the popularity of this theory, a mathematical life-history model has not been developed to show how menopause can evolve via grandmother effects. I will present a model that integrates kin selection theory with a life-history model based on optimal control theory to clarify under what assumptions about the physiology and life-history have to be made for grandmother effect to work to select for the evolution of menopause. Additionally, the study discusses how this model relates to other human life-history theories, including the embodied capital theory, the recent stringent germline screening hypothesis etc, thereby highlighting the interconnectedness of different explanations for human life history traits.

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*Speaker

Evolutionary Lens on Rising Solo: Unveiling Personality Dynamics Amidst the Surge of Singlehood in Switzerland

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There has been a noticeable global surge in singlehood. Eurostat reports a significant 30.7% increase in single-person households without children in the EU from 2009 to 2022. In Switzerland, between 1971 and 2022, the number of singles aged 25 to 35 doubled for men and tripled for women, according to the Federal Statistical Office (2023).

While numerous studies have examined relationships and their associated characteristics, minimal attention has been given to the escalating phenomenon of singlehood, particularly voluntary singlehood-where individuals consciously prefer to remain single rather than being in a relationship. Remarkably, there is a dearth of research analyzing the landscape of singlehood in Switzerland.

To address this gap, we are launching a comprehensive nationwide study focusing on Singlehood in Switzerland. The primary objective is to comprehend the realm of voluntary and involuntary singlehood in Switzerland, with a specific emphasis on female voluntary singlehood, from an evolutionary standpoint. Our aim is to investigate the impact of personality, mate value, mate effort, and intelligence on singlehood. This exploration will be grounded in evolutionary psychology theories, including mate choice theory, mismatch theory, and life-history theory.

We expect our research to reveal detailed insights into the evolving landscape of singlehood in Switzerland, particularly in understanding the motivations behind voluntary singlehood. By leveraging evolutionary psychology theories, we anticipate unraveling the decision-making processes shaping singlehood. Our focus on personality traits, mate value, mate effort, and intelligence aims to illuminate the complex interplay between individual characteristics and the choice of embracing singlehood in Swiss society. This study seeks to significantly contribute to the discourse on singlehood, offering a deeper understanding within an evolutionary psychological framework.

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*Speaker

Fertility resilience during crises: Different responses to the Covid-19 pandemic and the war in Ukraine

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Reproductive behaviour can react in different ways under stress and uncertainty. Fertility depression, earlier reproduction, or postponed reproductio waiting for better times have all been documented. Recent research indicates that demographic groups with higher resources exhibit more fertility resilience – or less variation in fertility during crises – while lower socioeconomic groups are more vulnerable. We analyse how different types of crises and uncertainties (general crises worries and specifically climate change, the Covid-19 pandemic, and Russia's war in Ukraine) affect the fertility ideals and intentions. Our data is from two representative surveys of 18-45 year old Finns conducted in 2022: the Generations and Gender Survey Finland (N=3620) and the Family Barometer Survey (N= 2009). Worrying about different crises was associated with lower fertility ideals and intentions. The pandemic lowered both intentions and ideals, while reactions to Russia's war in Ukraine had opposite effects, decreasing fertility ideals among young women but increasing them among young men. Our results suggest that different types of societal shocks have different implications for fertility resilience.

*Speaker

Measuring the efficiency of purging by non-random mating in human populations: what does it tell us on the origin of the incest prohibition?

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In most human societies, sexual relationships within the nuclear family are forbidden. The origin of this incest prohibition remains mysterious. For some scholars, it has a biological origin and is in the phylogenetic continuity of incest avoidance mechanisms observed in nature. For other scholars, this ban has a purely cultural origin and is the consequence of the emergence of the exogamy rule, by which human beings transcended their animal nature. While the biological origin school assumes that inbreeding is deleterious for offspring's health because of the exposition of recessive deleterious alleles, the cultural origin school hypothesizes that such practice can be adaptive by purging recessive deleterious variants from the population. However, no consensus has ever been reached on this issue, due to the difficulty of assessing purging efficiency from epidemiological data. The recent availability of whole genome data at high coverage allows revisiting this issue by directly measuring purging efficiency in populations with contrasted rates of inbreeding. Here, we compare the distribution of deleterious variants in two pairs of Asian populations exhibiting different social organizations and rates of inbreeding but similar effective size. The results show that the populations with higher rate of inbred matings have not purged their deleterious variants more efficiently. This suggests that the purging process has little efficiency in human populations, knocking down one argument commonly used against the biological hypothesis for the origin of incest prohibition in humans.

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*Speaker

Pasteurisation or reduction of birth rate? Changes in infant mortality at the turn of the 19th and 20th century

Pavlína Hillerová * [1], Petr Tureček [1], Alice Velková [1]

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The nineteenth century represents an epoch in human history during which large-scale social and scientific transformations took place. This period also includes the so-called demographic transition, most often characterised by a reduction in fertility and infant mortality.

Using historical data of the so-called elites, i.e. politicians and high-ranking officials, influential personalities of the Czech lands in the 19th and early 20th century, we can observe to what extent modifications of reproductive behaviour were beneficial in terms of biological fitness. Using Bayesian statistical modelling, we are able to reveal to what extent the reduction in fertility rates affected child survival at the level of individual families.

Our analysis parameterizes the effect of fertility reduction and other factors affecting reproductive strategies. Are we able to find a beneficial strategy to ensure the survival of offspring, or was it just a side effect of, for example, improved sanitation and access to health care (at least for these social classes)?

Our results show that both contributed partially. Children born in later epochs have conclusively lower mortality even if sibship size is taken into account. In both periods, however, decreased family fertility is associated with the decreased infant mortality.

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*Speaker

The Inheritance of Wealth and Allocation Strategy in Human Fertility Decline

Yi-Ta Lu * [1], Heidi Colleran [2]

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Human fertility decline remains perplexing, marked by the alteration or reversal of the positive link between individual wealth and reproductive success within transitioning or post-transitional societies. Many studies assume parents reduce the number of children for other benefits, e.g., wealth inheritance, which leads to more descendants in the long run. However, supporting evidence for this long-term fitness has yet to be established, and we fail to replicate a classic model from these studies. We propose an alternative model where parents allocate their wealth between inheritance and reproduction based on a reproductive strategy — the proportion of wealth invested in reproduction. We show that when this reproductive strategy is transmitted from parents to offspring together with inherited wealth, low fertility emerges among the rich in society. Under this circumstance, when agents' ability to earn income is additionally associated with their inherited wealth, or "quality", a distinct feature of market economies, low fertility becomes the norm in the society. These results coincide with several empirical findings and highlight the importance of both cultural and economic factors in explaining human fertility transitions.

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*Speaker

Health

Bats & rats: Frightening, disgusting or nothing? Human and chimpanzee responses to visuals of natural disease reservoirs

Cécile Sarabian * [1], Ikuma Adachi [2], Sanjana Kadam [2], Anne Laudisoit [3], Keiichi Kimura [4], Takashi Hirata [4], Nobuyuki Kawai [4]

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This study explored the cognitive responses of humans and chimpanzees to bats and rats, known carriers of zoonotic diseases. We conducted three cognitive experiments using images of these animals and other control animal images. We measured various factors, including accuracy, response time, gaze patterns, and subjective ratings. Preliminary findings indicate that in humans, the presence of bats and rats led to quicker responses to matching correct images, while chimpanzees did not exhibit the same effect. Participants rated bats and rats as uglier and more disgusting than other animals – which were conversely perceived as more cute. These findings suggest that humans may have evolved specific cognitive responses to these potential disease vectors, possibly driven by their zoonotic disease-carrying reputation. Further analysis will focus on eye-tracking data to determine if cognitive effects align with changes in gaze patterns and whether particular physical features of bats and rats influence attention. This research sheds light on the intersection of cognition, perception, and disease reservoirs in the natural environment, offering insights into how primates, including humans, interact with potential disease vectors based on sensory cues and cognitive responses.

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*Speaker

The behavioral defense against disease: Humans can identify early cues of sickness

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Although social life brings clear benefits, sociality facilitates the transmission of infectious pathogens. Many social species identify sick conspecifics through their body odors and subsequently avoid physical contact with them. Humans are likewise able to identify sick individuals based on overt cues of sickness, such as vomiting, coughing, sneezing or rashes, and the perception of these cues can also induce emotional disgust and subsequent avoidance. However, these sickness cues are expressed when people are already in an advanced disease stage and have likely been contagious for some time. Identifying sickness in its early stages could prove more effective in reducing the risk of contamination. This talk presents a series of studies indicating that sickness can be identified through cues from different sensory modalities only a couple of hours after an experimentally induced systemic inflammation, offering a potential behavioral avoidance mechanism to limit the spread of contagious diseases.

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*Speaker

When and Why People Conceal Infectious Disease

Wilson Merrell * [1,2], Soyeon Choi , Josh Ackerman

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[2] University of Michigan [Ann Arbor] – United States

From the common cold to COVID-19, pathogenic infections have been a common fact of life across our evolutionary history. Today, these infections can hamper holiday gatherings, impair workplace function, and impact political landscapes. Given the substantial social and economic impact of spreading infectious disease, we might expect that people are motivated to let others know when they are sick so that precautionary measures that minimize the risk of transmission can be taken. However, literature on pathogen avoidance psychology tells us that people sick with infectious illnesses are treated negatively in social life-eliciting disgust from others in interpersonal contexts and facing exclusion from social events. Are people generally forthcoming with their infectious illnesses or do they conceal their illnesses to achieve social goals? Pulling from evolutionary models of pathogen avoidance (e.g., the behavioral immune system) and theories of more general information withholding (e.g., secret-keeping), we examined the prevalence and predictors of infection concealment. Across 10 U.S. samples, disease concealment is a prevalent behavioral strategy-about 75% of participants told us they had covered up an illness from others at least once. We also tested whether disease-specific characteristics like illness harm influenced concealment decisions. We find that healthy people imagining harmful (versus mild) infections said they would conceal less frequently, whereas currently sick people reported frequent concealment regardless of illness harm. That is, sick people were relatively unmindful about the interpersonal harm their concealment could cause, suggesting a state-specific bias underlying concealment decisions. This positions disease concealment as a form of information withholding that has the potential to cause physical harm to those around you, though our work suggests that sick people may be relatively unattuned to this fact. Our work also suggests that messages focusing on concealment's potential harm to others may be unlikely to meaningfully reduce concealment behaviors.

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*Speaker

Birth seasonality peak corresponds with detrimental health and mortality outcomes in modern Mexico

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[1] Max Planck Institute for Evolutionary Anthropology, Leipzig – Germany
[2] University of Utah – United States

Human populations cross-culturally are characterized by birth seasonality in which birth rates peak at specific, predictable, and relatively stable times of the year. Similarly, a large literature has identified strong seasonal patterns in neonatal health outcomes. However, we know much less about how these two seasonal processes interact, especially outside of wealthy nations at higher latitudes. Are neonates born in seasonal peaks healthier and less likely to die young compared to those born outside these periods, suggesting an adaptive origin to birth seasonality patterns? Or do "peak" neonates face neutral or even detrimental effects at birth and during infancy, suggesting that birth seasonality is simply a byproduct of human phylogeny or energetic constraints? Here we investigate the effects of birth seasonality on newborn birth weights and infant mortality risk for over 27 million recorded births and 13 million deaths in Mexico from 2004-2021. We find that newborns born during the peak birthing season (AUG-OCT) experience the *lowest* average birth weights across Mexico. Furthermore, being born in this peak window was associated with a significantly higher mortality risk across the first five years of life when compared to births during "trough" months (state-specific HRs between 1.4-2.0, $p < 0.001$). Taken together, these results suggest that (1) birth seasonality in Mexico does not match optimal timing for the maximization of child health and survival, and (2) human birth timing more generally likely reflect essential life-history trade-offs governed by energetic or environmental constraints.

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*Speaker

Allomothering and child growth: mixed associations in a cross-cultural sample

Laure Spake * [1], Anushé Hassan [2], Rebecca Sear [2], Mary Shenk [3], Rich Sosis [4], John Shaver [5], The Evolutionary Demography Of Religion Team

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Objective. Allomothering, or care provided to children by individuals who are not their mother, is a key part of human reproductive systems. The relationship between allomothering and both women's fertility and children's survival is well studied. However, it is less clear if children experience additional health benefits from increased allomaternal investment that extend beyond survivorship. We examine the relationship between allomothering and child anthropometric outcomes in a large sample of children living in four different cultural contexts.

Methods. Information was collected about 3108 children aged 16 years and younger from four countries through questionnaire-based interviews with their mothers (Bangladesh n = 861, The Gambia, n = 751; India, n = 737; Malawi, n = 759). For each child, mothers reported who helped them with a number of different caregiving and provisioning tasks, and how often each helper provided this support. Children's height and weight were measured by the interviewers, and height-for-age (HAZ) and weight-for-age (WAZ) z-scores were calculated. Anthropometric z-scores were modelled with Bayesian mixed effect regression.

Results. The average number of allomothers providing care to children varied from 1.5 (India) to 4.9 (Bangladesh). Physical care and provisioning forms of allomothering showed primarily null associations with both height and weight for age. When there were associations between the two, allomothering was inversely associated with anthropometric status, particularly for weight. However, in The Gambia, allomothering was positively associated with anthropometric status.

Discussion. Our results contribute to existing mixed empirical findings on the relationship between allomothering and children's health outcomes. These results highlight the complex and dynamic nature of allomaternal support networks, and suggest that the benefits of allomothering to children vary across socioecologies.

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*Speaker

Methods

Darwinians Online: Reflecting on Evolutionary Human Sciences through Analysis of Laypeople's Evolutionary Hypotheses

Louis Bachaud * [1,2]

[1] Université de Lille – Université de Lille, Sciences Humaines et Sociales – Lille, France
[2] University of Kent [Canterbury] – United Kingdom

Objective

Evolutionary hypothesizing in itself does not require much scientific knowledge or training. In fact, laypeople who are familiar with human evolutionary sciences routinely devise their own hypotheses. Starting from anecdotes, observations, or ideology, they envision the evolutionary history and fitness benefits of certain human traits and behavior. This paper is the first to study a set of lay evolutionary hypotheses or "just-so-stories" found in Internet content (n=100). What do these hypotheses reveal about popular understanding and reception of evolutionary science? Should they be welcomed as a sign of popular acceptance of evolutionary approaches to human behavior? Or are they discrediting the established hypotheses of evolutionary scientists?

Methods

This study is based on discourse analysis from the online men's groups of the "manosphere," which are particularly fond of evolutionary psychology (For details on the dataset, see Bachaud & Johns, 2023). All the hypotheses or "just-so-stories" generated by users were retrieved, classified, and analyzed.

Results

This presentation focuses on the content of these hypotheses (i.e., the traits thought to have evolved), and on their underlying-and often implicit-evolutionary processes (e.g., sexual selection, group selection). This allows to assess the level of sophistication of laypeople's evolutionary hypothesizing. To establish this, other features are scrutinized, such as linguistic marks of hypothesis, and presence of empirical evidence.

Conclusion

Unsurprisingly given the communities under study, most of these hypotheses deal with evolved sex differences and have negative implications for women. In a way, they epitomize the type of crude evolutionary reasoning that detractors of evolutionary psychology often criticize. On the other hand, this is also a remarkable and rare instance of science being appropriated collectively

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*Speaker

by laypeople, who use evolutionary theories and concepts to make sense of the world. Could this be harnessed to provide evolutionary scientists with inspiration and novel hypotheses to test?

Searching for Causality: From Phylogenetic Coevolutionary Models to Phylopaths to DAGs

Václav Hrnčíř * [1], Angela Chira [1], Russell Gray [1]

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In trying to explain the major turning points in human history, we run into the problem of insufficient empirical historical data. While the archaeological evidence is fragmentary and can only tell us about a limited part of human culture (the material one that preserved for millennia), the written sources testify only to a relatively recent and geographically restricted history of complex cultures. Many scholars therefore turn for help to cross-cultural ethnographic data. These provide a wealth of information on diverse cultures from around the world. However, ethnographic data are generally only observational, making it difficult to draw any causal inferences from them. In this talk, we will describe several approaches to this problem, using our recent study examining the causality between traditional alcohol consumption and levels of political complexity as an example. In working on this study, we made several methodological iterations. We started with phylogenetic Bayesian models of coevolution, then moved to phylogenetic path analysis (phylopath), and finally to causal theory based on directed acyclic graphs (DAGs). We summarize the pros and cons of each method and show whether social drinking of alcohol really might have facilitated the rise of civilizations.

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*Speaker

Improving research transparency via synthetic datasets when analysing sensitive or confidential data

Daniel Major-Smith [*] [1]

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Making data and analysis scripts openly-available alongside scientific publications is increasingly recognised as vital for ensuring reproducibility, transparency and trustworthiness in science. The practice of data and code sharing has increased in recent years in many disciplines, yet there is still room for improvement. While data and code should be shared whenever possible, there are some circumstances where data cannot be made publicly-available. For instance, there may be concerns over releasing potentially-sensitive or identifiable data. Or, when using secondary data sources, there may be restrictions in place regarding the publication of such datasets. While valid, these restrictions are at odds with open science best practices. These concerns are likely to be common for many of the datasets used within the evolutionary human sciences, which often explore sensitive topics and/or make use of secondary data.

In this talk, I will discuss methods of 'synthetic data generation'. These methods create synthetic datasets modelled on the original observed data – thus maintaining the features and relations of the original data – while minimising the risk of participant disclosure as the data are wholly simulated. The resulting synthesised datasets and analysis scripts can then be released alongside the scientific publication, allowing the research to be 'quasi-reproducible'. I will discuss methods of synthesising data using the R package 'synthpop' (https://www.synthpop.org.uk/) and my recent experiences facilitating the adoption of these synthetic data practices within a UK birth cohort study (ALSPAC; the Avon Longitudinal Study of Parents and Children).

The importance of sharing data and code is undeniable, yet we also must acknowledge the need for researchers to maintain control over access to potentially-sensitive and/or confidential data. This synthetic data approach provides a reasonable compromise between these competing demands, allowing researchers to make de-identified synthesised data openly-available while complying with data security and participant confidentiality best practice.

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[*]Speaker

Settlement strategy: Reviewing classic models of mobility and construction

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Human settlement strategy consists of key decisions people must make about where to live, for how long, and what to build there. These decisions have important consequences for the constructed ecology, resilience, and social environment of current and past populations. Decades of research in optimal foraging in particular have given us a heuristic understanding of how mobility relates to land use. But mobility remains understudied in evolutionary approaches to behavior, relying on limited theoretical models developed last century. Mobility is also rarely the focus of theoretical work, included as a cost and predicted as a by-product of foraging considerations, limiting our ability to extrapolate to non-foraging populations. After all, strategic settlement spans the diversity of human livelihoods. Finally, the question of "what to build", addressing investments in the landscape, is currently disconnected from population mobility patterns, hindering our ability to conceptualize feedbacks from the constructed environment. I present a review of key models of mobility and investment used in the evolutionary social sciences, touching upon classic cost-benefit formulations (marginal value theorem, ideal free distribution, technological investment model) as well as more recent simulation methods (agent based models) and their derivatives. I discuss recent empirical tests and theoretical developments, highlighting persistent gaps that frustrate our ability to connect mobility, ecology, and culture and the mechanisms of co-construction that define them. In particular, I discuss the problematic inclusion of risk and uncertainty, the limited treatment of time and its importance in optimal decision making, and lack of conceptual relation between different models as areas for future work. I hope to have an open discussion of how settlement strategy is formulated in our field, and think more broadly about the role of classic behavioral ecology models in understanding diverse settlement strategies.

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[*]Speaker

SocioMap: Tools for integrating data across datasets for large-scale cross-cultural analysis

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A key challenge in conducting comparative analyses across social units, such as religions, ethnicities, or cultures, is that data on these units is often encoded in distinct and incompatible formats across diverse datasets. This can involve simple differences in the variables and values used to encode these units (e.g., Roman Catholic is V130 = 1 vs. Q98A = 2 in two different datasets) or differences in the resolutions at which units are encoded (Maya vs. Kaqchikel Maya). These disparate encodings can create substantial challenges for the efficiency and transparency of data syntheses across diverse datasets. We introduce SocioMap (catmapper.org/sociomap), a user-friendly set of tools to help users translate four kinds of categories (religion, ethnicity, language, and subdistrict) across multiple, external datasets. SocioMap's key functions include: (1) **explore** contextual information about specific categories, (2) **translate** new sets of categories from existing datasets and published studies, (3) identify and **integrate** novel combinations of datasets for researchers' custom needs, including automatically generated syntax (e.g., R, Stata) to merge datasets of interest, and (4) publish and **share** merging templates for public re-use and open science. We outline SocioMap's key functions, current progress in SocioMap's development, and long-range goals for the platform.

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- Turecek Petr

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Author Index