EAORC BULLETIN 1,158 – 24 August 2025

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NOTICES

FORMATTED VERSION OF THIS BULLETIN
A pdf formatted version of this Bulletin is available for download at martinedwardes.me.uk/eaorc/eaorc_bulletins.htm.

PUBLICATION ALERTS
If you have had a paper or book published, or you see something which would be of interest to the group, please send me a publication alert so that I can include it in the newsletter. Many thanks to those who have already sent in alerts.
If there is a journal you feel I should be tracking on a regular basis, let me know.

And if you have any other ideas for extending the "EAORC experience", please contact me.

EDITORIAL INTERJECTIONS

Comments in curly brackets are editorial interjections. The Editor reserves the right to be wrong, and doesn't object to being called out on it.

NEWS

NATURE BRIEFING – Primates might have evolved in the cold

The common ancestors of all modern primates — including us — might have flourished in the cold winters of North America, rather than the warmth of the jungle. Researchers combined fossil data with climate reconstructions and statistical modelling to map where our primate ancestors lived and what the climate was like at that time. "For decades, the idea that primates evolved in warm, tropical forests has gone unquestioned," said evolutionary biologist and study co-author Jorge Avaria-Llautureo. "Our findings flip that narrative entirely."

https://www.earth.com/news/early-primates-evolved-in-cold-climates-not-tropical-jungles/

NEWS FROM SCIENCE – Don't blame the algorithm: Polarization may be inherent in social media

In simulations, AI-generated users of stripped-down social media without content algorithms still split into polarized echo chambers.

https://www.science.org/content/article/don-t-blame-algorithm-polarization-may-be-inherent-social-media

NEWS FROM SCIENCE – DNA from ancient bones reveals how Indigenous Americans got their mucus

Neanderthals and Denisovans passed along gene that provides a sticky shield against germs.

https://www.science.org/content/article/dna-ancient-bones-reveals-how-indigenous-americans-got-their-mucus

NPR – Chimpanzees pick up communication styles from their moms, not their dads

Human communication is a complex weave of words and gestures — a mix of vocal and visual signals. "People use vocal and visual communication in a very rich and combined way," says Joseph Mine, a biologist at the University of Rennes in France. But how and when this capacity originated is somewhat mysterious. It's not like the emergence of human communication is visible in the fossil record — there are no gestures enrobed in amber, no syllables imprinted upon prehistoric rock.

https://www.npr.org/2025/08/16/nx-s1-5502642/chimp-moms-babies-human-language-communication-style

SCIENCEADVISER – Signals of the corn

Although plants seem like the strong, silent type, they actually chat with each other quite often through volatile organic compounds, electrical signals, and mycorrhizal networks. One of their most common topics of gossip: potential threats. And this chatter can make a big difference for crops, which is why agricultural scientists are eager to listen in. Turns out that maize, one of the world's most valuable crops, is especially chatty when planted in a crowded field—chemical communication protects the plants from disease and herbivores.

While studying densely planted corn fields, researchers noticed that even though stalks in the inner rows were smaller, they were much safer from herbivores than those on the outskirts. And this had nothing to do with them being tucked inside: In greenhouse experiments, the team found that corn planted in soils that previously had grown the plants close together gained increased resistance to insects, nematodes, and pathogens, too, indicating that the crowded plants had altered the soil they grew in.

Using chemical, physiological, and genetic analyses, the team dug up the dirt on the corn's methods: Densely planted shoots release the volatile linalool, which increases production of the hormone jasmonate. Jasmonate goes on to promote the release of benzoxazinoids, which foster a lasting change in the soil microbiome; this leads to both pest protection and hindered growth after only three days of high-density planting.

In a related Science Perspective, plant geneticists Niklas Schandry and Claude Becker were surprised that the corn was able to mount this defense so quickly. The study "highlights the importance of balancing defense and growth in response to a combination of environmental factors" and points to linalool production as a possible breeding target to help the critical crop maintain this balance, they write.

https://www.science.org/doi/10.1126/science.adz7633

SCIENCENEWS – Ancient hominids made long road trips to collect stone for tools

A Kenyan site shows early hominids transported stone 13 kilometers for toolmaking as early as 2.6 million years ago.

https://www.sciencenews.org/article/ancient-hominids-road-trips-stone-tools

THE CONVERSATION – Our primate ancestors evolved in the cold – not the tropics

New research overturns decades of assumptions about how – and where – our lineage began.

https://theconversation.com/our-primate-ancestors-evolved-in-the-cold-not-the-tropics-263236

PUBLICATIONS

Current Biology

ARTICLES

JOAN B. SILK & STACY ROSENBAUM – Animal behavior: Female power and leverage in gorilla societies

Male gorillas are about twice as big as females and have much larger canines. Nonetheless, in multi-male groups of mountain gorillas, most females are able to dominate some adult males. Females may leverage their relationships with top-ranked males to gain power over other males.

https://www.cell.com/current-biology/abstract/S0960-9822(25)00867-X

Evolutionary Anthropology

PAPERS

MARCELO O. ORTELLS & STEPHON STEWART – The Multivariate Basis of Human Brain Evolution: The Prerequisites of Fire Control and Cooking

This study investigates the evolutionary origins of the human brain, focusing on the trend of increasing size in hominins, while also addressing exceptions such as Homo naledi, Homo floresiensis, and the recent reduction observed in Homo sapiens. It examines hypotheses related to brain enlargement, challenging the Social Brain and Ecological Hypotheses by suggesting that the increase in brain size was not an inevitable response to social complexity or ecological pressures. While the Cooking Hypothesis is considered, it is not identified as the primary driver of brain expansion. Instead, fire control and cooking are proposed as prerequisites for sustaining brain size increases by meeting the energetic demands of larger brains. Additionally, we examine mutations that influenced brain size and complexity and contributed to the genetic variability that was pivotal to brain evolution, particularly in Africa during its final phase.

https://onlinelibrary.wiley.com/doi/abs/10.1002/evan.70008

JAYASHREE MAZUMDER & PARTH RANDHIR CHAUHAN – Revisiting "Tool" for a More Unified and Holistic Definition in Animal Behavior

Understanding the concept of "tool" is vital for the study of animal behavior and cognition. The definition of what exactly constitutes a tool, its characteristics, and the corresponding behaviors is pivotal yet challenging due to its often arbitrary and anthropocentric nature. This ambiguity hinders our comprehension and necessitates further exploration into the essence of tools. A precise and widely accepted definition is critical for progress in fields such as anthropology, cognitive science, and evolutionary biology, enabling a more focused study on the evolution of tool use. It is important to identify why and how certain objects become tools among different species, including humans. This paper seeks to refine the definition of a "tool" by synthesizing prior research involving tools, tooling, or tool-using animals, aiming to offer a unified framework that can support and guide future research endeavors in understanding the intricacies and evolution of tool use across species.

https://onlinelibrary.wiley.com/doi/abs/10.1002/evan.70014

GERALD E. LOEB – Did Down-Regulated Instincts Enable Human Gene-Culture Coevolution?

The unique intellectual and cultural attributes of Homo sapiens that arose during the Middle Stone Age are often ascribed to positive evolutionary development of novel physical or personality traits, but attempts to correlate cultural with genetic evolution have been unsuccessful. Humans are also unique, however, in their ability to ignore or override hormonal and pheromonal instincts that define the social structures and behaviors of other animals. Humans can rapidly invade new environments because they invent rather than inherit such behaviors, which cumulatively we call a culture. Downregulation of instincts makes the invention and learning of cultures necessary, which imposes both an opportunity and a burden on individuals and societies. Cultural evolution enables human societies to invent, promulgate, compete and evolve their social structures in a generation or two rather than the hundreds of generations required for significant genetic evolution. Nevertheless, residual instincts may conflict with and delimit novel cultures and their social structures.

https://onlinelibrary.wiley.com/doi/full/10.1002/evan.70015

Frontiers in Behavioral Economics

PAPERS

GEOFFREY M. HODGSON – Altruism and morality: some problems for Max U

This essay considers some limitations of the assumption of utility maximization (Max U) as an explanation of human action. Leading promoters of the assumption explicitly avoid the question of motivation, to focus instead on manifest behavior. Max U is strictly unfalsifiable. With appropriate assumptions and contextual variables, it can be made to fit any real-world behavior. Max U is neither specifically human nor a product of evolution: it assumes a static set of preferences. Altruism, by

definition, can be costly. If those costs result overall in a net disutility, even with a "warm glow" from helping others, then this is incompatible with the Max U assumption, where no voluntary behavior reduces utility. Relevant too are criticisms of "folk psychology," where behavior is deemed to stem from stable preferences and beliefs. We also need to consider the nature of moral sentiments and how they evolved in cooperative human groups. Overall, an evolutionary perspective enables the development of a richer explanation of human behavior, including moral motivations, altruism and self-interested pursuits.

https://www.frontiersin.org/journals/behavioral-economics/articles/10.3389/frbhe.2025.1610022/full

Frontiers in Human Neuroscience

PAPERS

KATHERINE MARIE TRICE & ZHENGHAN QI – From encoding to remembering: pragmatic inferences reveal distinct routes of word learning in autistic children

development. In autism, mentalizing difficulties may constrain word-learning pathways, limiting language-acquisition opportunities. We ask how autistic children encode and retrieve novel words and what drives individual differences. We test whether autistic children's word learning benefits from pragmatic inferences, as in non-autistic. Forty-nine 6-to-9-year-old verbal autistic children participated. During learning, four novel words in the direct-mapping condition (DM) could be uniquely mapped to one novel object and four in the pragmatic-inference condition (PI) required children to assume speaker intent. Immediate recall and retention (15-min delay) were tested via four-alternative-forced-choice-task. Autistic children showed above-chance PI mapping, no immediate recall differences, and PI retention advantage. However, individual difference analyses suggest a bimodal PI-retention pattern: 55% showed above-chance PI word recognition (PI-Retained) and 45% at-or-below-chance (PI-Limited). Retention profiles do not reflect general memory—most PI-Limited children remembered DM words well. Instead, profile was associated directly with learning success. For PI-Limited specifically, learning performance was at-chance. Eye-movement during learning showed converging evidence: only PI-Retained consistently diverged between looks-to-target and competitor. Only nonverbal IQ in conjunction with initial mapping reliably differentiated groups, not mentalizing or language measures. This suggests distinct pathways of word-meaning acquisition in autistic children with otherwise similar profiles. While PI resolution may facilitate word-meaning acquisition for some, DM better serves others. This underscores the importance of characterizing learning processes as a pathway to understanding the heterogeneity of language in autism.

https://www.frontiersin.org/journals/human-neuroscience/articles/10.3389/fnhum.2025.1633013/full

DOMINIKA SLUŠNÁ et al with WOLFRAM HINZEN – White matter microstructure of language pathways in non-verbal autism: insights from diffusion tensor imaging and myelin water imaging

Absence of language development is a condition encountered across a large range of neurodevelopmental disorders, including a significant proportion of children with autism spectrum disorder. The neurobiological underpinnings of non-verbal ASD (nvASD) remain poorly understood.

This study employed multimodal MRI to investigate white matter (WM) microstructural abnormalities in nvASD, focusing on language-related pathways. We analyzed diffusion tensor imaging (DTI) metrics–fractional anisotropy (FA), mean diffusivity (MD), and radial diffusivity (RD)–alongside myelin water imaging (MWI) metrics, including myelin water fraction (MWF) and intra/extracellular water T2 relaxation time (T2IE). A cohort of 10 children with nvASD and 10 age-matched typically developing controls was examined across eight major language-related tracts and the corticospinal tract (CST) as a motor reference.

While DTI and MWI metrics showed no significant inter-group lateralization differences, MWF and T2IE exhibited pronounced lateralization exclusively in the nvASD group. Results also revealed significant microstructural differences in nvASD. MD and RD were the most sensitive DTI parameters, demonstrating widespread increases, whereas FA was less discriminatory. MWF exhibited the largest percentage change relative to controls (25–50%), suggesting a marked reduction in myelin content within affected tracts. Concurrently, widespread increases in T2IE indicate a less densely packed extra-axonal space, consistent with altered axonal integrity and reduced cellular surface area per unit volume.

These findings align with prior evidence linking myelin abnormalities to ASD. Notably, microstructural differences were not restricted to language-related tracts but also extended to the CST, suggesting a more extensive WM disruption in nvASD. The absence of significant correlations between MRI-derived metrics and clinical measures highlights the complexity of the neurobiological alterations in nvASD. As the observed lateralization patterns may reflect, in part, the influence of methodological variability in tract definition, segmentation strategy, and tractography method, these results should be interpreted with caution. Future studies with larger cohorts and longitudinal designs are required to clarify the developmental trajectory of these microstructural abnormalities, their relationship with language impairment severity, and their potential role as biomarkers for nvASD.

https://www.frontiersin.org/journals/human-neuroscience/articles/10.3389/fnhum.2025.1551868/full

ADINA CAMELIA BLEOTU et al – The role of Universal Grammar and crosslinguistic influence in the interpretation of recursive set-subset adjectives in adult Romanian L1-English L2 bilinguals

Our research contributes to debates about the role of Universal Grammar constraints and crosslinguistic influence in sequential bilingual acquisition and use. We investigate experimentally how adult Romanian L1-English L2 bilinguals interpret sequential adjectival modifiers of a noun in recursive set-subset contexts in both languages (e.g., flori mici roşii, lit. 'flowers small red' in Romanian L1, red small flowers in English L2, meaning 'the subset of red flowers among the set of small flowers', and not the coordinative 'the red and small flowers'). We ask whether the Recursive Set-Subset Ordering (RSSO) Constraint is observed in both Romanian L1 and proficient English L2 speakers, such that the adjective closer to the head noun indicates the set and the adjective further away indicates the subset. Our study employs a story-based, forced choice comprehension task to test RSSO against Adjective Ordering Restrictions (AORs), as two competing possible sources for adjective ordering and interpretation. While AOR captures ordering preferences of adjectives naming conceptual properties (e.g., ASize AColor N in English, N AColor ASize in Romanian), RSSO posits a structure-dependent principle in terms of sets and subsets (e.g., ASubset ASet N in English, N ASet ASubset in Romanian). We find that bilinguals adhere to the RSSO in both languages even in contexts where AOR and RSSO are in conflict. This finding supports RSSO's status as a UG syntactic-semantic constraint. Interestingly, for a few participants, we also found evidence for crosslinguistic influence stemming from language-specific differences in branching directionality, linear order, and AORs.

{Hmm. Does it work with quantitative adjectives as well as with qualitative? How about "Donald Trump is a total, complete waste of space"? Is "complete" the set and "total" the subset? Or are they mutually reinforcing, or is "complete waste of space" an idiom that doesn't like to be interrupted? I can't help thinking that the argument they make here is actually "if x then y": "if RED SMALL FLOWERS means, in English L2, THE SUBSET OF RED FLOWERS AMONG THE SET OF SMALL FLOWERS, and not the coordinative THE RED AND SMALL FLOWERS then …" – but couldn't it equally mean – in both English and Romanian – THE SUBSET OF FLOWERS WHICH ARE BOTH RED AND SMALL AMONG THE SET OF FLOWERS? And what do we do with "black funeral hearse"? As usual, treating language as a logical system by imputing form and devising rules kind of misses the point.}

https://www.frontiersin.org/journals/human-neuroscience/articles/10.3389/fnhum.2025.1537488/full

Frontiers in Psychology

PAPERS

ANNE-MAI MEESAK et al – Unlocking early academic skills: children's cognitive processes, learning skills, and parental beliefs and behaviors predicting children's language and math skills

This study explored the emerging academic skills of five-year-old Estonian children, focusing on cognitive processes, learning skills, and parental beliefs and behaviors. While previous research has concentrated on a limited number of skill areas and aspects of the home environment, this study aimed to provide a more comprehensive understanding of children's early learning by studying multiple skills and parental characteristics concurrently.

Data was collected through direct e-assessments of children's skills alongside parental questionnaires (N = 279).

We found positive relationships between children's cognitive processes, language, math, and learning skills, emphasizing the importance of considering multiple skills together. While children's cognitive processes and learning skills contribute to the development of their academic skills, parental beliefs and behaviors are also important. Considered as a whole, parental perceptions of their children's cognitive difficulties and kindergarten involvement predicted both language and math skills, whereas parents' education and social expectations were only related to language outcomes. In contrast, children's learning skills predicted solely their math skills. Importantly, the frequency of parental home activities was not directly linked to children's academic skills, showing that their relationship in early childhood might be more complex.

These results highlight the significance of a holistic approach to children's development, integrating both child- and parent-related factors and suggesting that active participation in kindergarten and fostering social skills may outweigh high academic expectations and frequency of home-based activities in supporting children's academic growth.

https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2025.1610243/full

Frontiers in Sociology

PAPERS

NILS KLOWAIT & MARIA EROFEEVA – The presentation of self in the age of ChatGPT

Contemporary debates about artificial intelligence (AI) still treat automation as a straightforward substitution of human labor by machines. Drawing on Goffman's dramaturgical sociology, this paper reframes AI in the workplace as supplementary rather than substitutive automation. We argue that the central—but routinely overlooked—terrain of struggle is symbolic-interactional: workers continuously stage, conceal, and re-negotiate what counts as "real" work and professional competence. Large language models (LLMs) such as ChatGPT exemplify this dynamic. They quietly take over the invisible, routinised tasks that underpin cognitive occupations (editing, summarizing, first-draft production) while leaving humans to enact the highly visible or relational facets that sustain occupational prestige. Drawing on diverse sources to illustrate our theoretical argument, we show how individual workers, dramaturgical teams, and entire professional fields manage impressions of expertise in order to counter status threats, renegotiate fees, or obscure the extent of AI assistance. The paper itself, having been intentionally written with the 'aid' of all presently available frontier AI models, serves as a meta-

reflexive performance of professional self-staging. The dramaturgical framework clarifies why utopian tales of friction-free augmentation and dystopian narratives of total displacement both misread how automation is actually unfolding. By foregrounding visibility, obfuscation, and impression management, the article presents a differentiated case for AI's impact on the performative structure of work, outlines diagnostic tools for assessing real-world AI exposure beyond hype-driven headlines, and argues for a more human-centered basis for evaluating policy responses to the 'fourth industrial revolution.' In short, AI enters the labor process not as an autonomous actor, but as a prop within an ongoing social performance—one whose scripts, stages, and audiences remain irreducibly human.
https://www.frontiersin.org/journals/sociology/articles/10.3389/fsoc.2025.1614473/full

Linguistic Typology
PAPERS
ILJA A. SERŽANT et al with ANDREAS HÖLZL – A typology of positional differential argument marking
In this paper, we introduce the notion of positional differential argument marking, a pattern in which the use of argument-coding devices, such as flags or indexes, is contingent upon the linear position of arguments in the clause. Compared to factors such as animacy and referentiality, the impact of word order on differential argument marking is understudied. In order to fill this gap, we compiled and annotated a dataset of 93 PDAM patterns, identified in a genealogically and areally diverse convenience sample of 70 languages. Most patterns involve a competition between a default, or zero, form and a non-zero form, but word order was found to affect argument indexing and argument flagging in a non-identical way. Non-zero indexing is more likely in the case of preverbal arguments. Non-zero flagging is favored in verb-edge orders and also when the argument is used in a non-default position. We hypothesize that this distinction reflects avoiding higher costs in processing referents in the discourse in the case of indexing, but more efficient comprehension of the clause in the case of flagging.
https://www.academia.edu/143579336/A_typology_of_positional_differential_argument_marking

Nature Human Behaviour
ARTICLES
ANNA TRUZZI – Infant attachment in chimpanzees
A negative relationship with caregivers early in life known as 'disorganized attachment' has disruptive long-term consequences in humans. Rolland et al. find no evidence for this relationship pattern in free (that is, wild) chimpanzees in their natural environment, which underscores its maladaptive nature and indicates the role of context in shaping caregiver–infant relations.
https://www.nature.com/articles/s41562-025-02177-7

ERIC FELTHAM & NICHOLAS A. CHRISTAKIS – Social network cognition among isolated villagers reveals distinct patterns of bias
People not only inhabit social networks, but also form beliefs about their social world. We assessed these beliefs in isolated villages in Honduras, and found that individuals overestimated kinship ties in their social networks, misperceived ties across social and economic lines, and exhibited perceptual biases that systematically varied.
https://www.nature.com/articles/s41562-025-02222-5

PAPERS
JULIA MARSHALL et al – When development constricts our moral circle
Many people believe that our 'moral circle' expands as we grow up. We first care for family members and friends, then gradually extend this care to distant others. Some scholars argue that this presumed broadening of moral concern is driven by our increasing capacity to recognize, through reason, that the suffering of strangers matters as much as the suffering of those we love. Yet, recent research complicates this story. In several domains, younger children start out with a more expansive moral circle than older children and adults. Younger children are more likely than their older counterparts to judge relationally, physically and phylogenetically distant others as worthy of help or protection. These findings suggest, counterintuitively, that development may not widen our moral circle but may sometimes narrow it. This Perspective raises the possibility that, rather than focusing on overcoming biases against caring for distant others, we should also recognize that, in some domains, we possess an early-emerging tendency to care for them.
https://www.nature.com/articles/s41562-025-02212-7

ELÉONORE ROLLAND et al with CATHERINE CROCKFORD & ROMAN M. WITTIG – Evidence of organized but not disorganized attachment in wild Western chimpanzee offspring (Pan troglodytes verus)
Human attachment theory outlines three organized types: secure, insecure avoidant and insecure resistant, all considered adaptive responses to maternal care for offspring survival. In contrast, disorganized attachment is hypothesized to be maladaptive and therefore uncommon in wild mammals, though this remains untested. We assessed attachment types in 50 wild chimpanzees (ages 0–10 years) in Taï National Park, Côte d'Ivoire. Using 3,795 h of mother and offspring focal

observations, we found no behaviours indicative of disorganized attachment. To explore organized attachment, we analysed a subset of 18 immature chimpanzees and their behavioural responses to 309 natural threatening events. Their responses showed organized attachment patterns: some sought maternal closeness (secure-like), while others displayed independence (insecure avoidant-like). Our study supports the hypothesis that organized attachment types are adaptive and have a long evolutionary history.

https://www.nature.com/articles/s41562-025-02176-8

THOLE H. HOPPEN et al – Meta-analysis of randomized controlled trials examining social comparison as a behaviour change technique across the behavioural sciences

Research on social comparison as a behaviour change technique (SC-BCT) has increased substantially. We conducted a random-effects meta-analysis of randomized controlled trials investigating SC-BCTs across the behavioural sciences (PROSPERO: CRD42022343154). We searched MEDLINE, PsycINFO and Web of Science from inception to January 2024. Seventy-nine randomized controlled trials (N = 1,356,521) investigating effects on behaviours related to climate change mitigation, health, performance and service were included. In the short term (mean 3.7 months post-intervention), SC-BCTs produced small effects relative to both passive (Hedges' g = 0.17; 95% confidence interval, 0.11–0.23; k = 37; P < 0.001) and active control conditions (g = 0.23; 95% confidence interval, 0.15–0.31; k = 42; P < 0.001). A greater number of SC-BCT sessions and emphasis on desired (versus undesired) behaviours were associated with larger effects. Moderation effects were observed in only a few analyses, highlighting the need for further testing. SC-BCTs also produced significant small effects in the long term (mean 6.2 months post-intervention). Small effects should be interpreted in the context of low cost and scalability (for example, sending one or two emails). Certainty of evidence, using GRADE criteria, ranged from low to moderate depending on the analysis. More high-quality research is needed.

https://www.nature.com/articles/s41562-025-02209-2

ERIC FELTHAM, LAURA FORASTIERE & NICHOLAS A. CHRISTAKIS – Cognitive representations of social networks in isolated villages

People not only form social networks, they construct mental maps of them. We develop a sampling strategy to evaluate network cognition in 10,072 adults across 82 Honduras villages and systematically map the underlying village networks. In 17 villages, we also discern the genetic relatedness of all 1,333 residents. Observers overestimate the social interactions among kin and are 33.38 percentage points (J) more accurate in judgements of ties between non-kin (95% confidence interval: 31.27–35.49). Counterintuitively, observers had more accurate beliefs about non-kin pairs, especially when the observers were popular, middle-aged, or educated. Observers were less able to accurately judge ties across different religions or wealth. Individuals in villages that cultivate coffee, requiring coordinated effort, demonstrated greater bias to view networks as connected. Finally, more accurate respondents had better access to information that we experimentally introduced to their peers. Overall, people inflate the number of connections in their networks and exhibit varying accuracy and bias, with implications for how people affect and are affected by the social world.

https://www.nature.com/articles/s41562-025-02221-6

Nature Humanities & Social Sciences Communications
PAPERS

MYUNGHOON KANG et al – Partisan attitudes and the motivation behind the spread of misleading information

It is widely known that partisan attitudes drive individuals to mistakenly believe misleading information is true, resulting in the spread of misleading information. It is also possible that partisan attitudes create a gap between belief and behavior. That is, partisan attitudes lead individuals to spread misleading information even if they know that it is unlikely to be true. However, the latter possibility has not been closely examined. This study aims to fill this lacuna. We find evidence that partisan attitudes hindered the correction of mistaken beliefs, which drove individuals to spread misleading information. However, there is no evidence that partisan attitudes contribute to the spread of misleading information by widening the gap between belief and behavior.

https://www.nature.com/articles/s41599-025-05714-x

Nature Scientific Data
PAPERS

PETER RANACHER et al – A global and interoperable dataset of linguistic distributions derived from the Atlas of the World's Languages

Asher and Moseley's Atlas of the World's Languages illustrates the past and present spatial distribution of human languages across more than 100 maps. While the Atlas is an impressive resource, its data are not readily accessible for research. Language areas are presented as printed maps and referenced by name, rather than as digital spatial objects linked to a standardised language catalogue. To address these limitations, we present a digital dataset derived from the Atlas. We georeferenced the map images, digitised the language polygons in a Geographic Information System (GIS), and linked each polygon to a Glottocode — a unique identifier for languages and language varieties. Following the FAIR principles, we provide

the data as a faithful digital replication of the Atlas (comprising 6,992 distinct language areas) and in enriched, aggregated versions for contemporary and traditional languages. The datasets capture the spatial distribution of human languages as depicted in the Atlas, with each polygon linked to an unambiguous identifier, enabling computational analyses of the origins, distribution, and drivers of global linguistic diversity.
https://www.nature.com/articles/s41597-025-05828-6

ZDZISŁAW LEWANDOWSKI et al with SLAWOMIR WACEWICZ – The Apemen Faces Database (ApeFD)
The Apemen Faces Database is a novel and versatile stimulus set designed for research in behavioral biology, evolutionary psychology, and related fields. The dataset comprises 620 photorealistic, artificially generated facial images of 31 generalized hominin models, available in multiple ocular coloration variants (31 hominins x 20 color variants). Each of the 31 facial portraits is paired with geometric morphometric data and norming information that includes perceptual ratings of six constructs (Threat, Sociability, Trustworthiness, Health, Age, and Masculinity). Further, editable .psd files enable easy generation of a wide spectrum of great ape eye phenotypes. The images were designed to be morphologically diverse, sufficiently humanlike to elicit social attributions, yet clearly non-human. This unique "humanlike but not human" design facilitates the study of face perception beyond the boundaries of extant human variation, offering novel opportunities for investigating cognitive and perceptual mechanisms in both humans and non-human primates.
https://www.nature.com/articles/s41597-025-05813-z

Nature Scientific Reports
PAPERS

TADEUSZ W. KONONOWICZ et al – Spatio-temporal dynamics of ingroup interactions in macaques
When sharing a space with others, many species including humans evolved a compromise regulating occupancy influenced by social determinants. For example, students in a classroom tend to sit close to their friends, keeping the same spots across days, revealing the social structure in the classroom. This place preference suggests that factors such as social hierarchy and affiliation can shape space utilization, contrasting with random walk models of agents moving at random in any given direction. Here, we asked whether spatial occupancy of macaques within two unisex groups of four individuals, reveals a structured space utilization beyond simple spatial affordance within the finite space. To this end, in two groups of four animals, we analyzed the simultaneously recorded positions of each individual while the group roamed in an enclosure. The data was gathered using automated devices that allow measuring accurate simultaneous positions and calculating precise inter-individual distance, which is impossible in classical ethology, even using GPS devices. Thus, our setup opens new possibilities for modelling approaches, to characterize social interaction dynamics in small enclosures. We found that (1) The identity of each animal could be decoded from its individual pattern of spatial occupancy, revealing that each animal sustained a consistent spatial footprint across multiple days. (2) The average distance between monkeys was a proxy for their social hierarchy, confirming that interpersonal distance is correlated with affiliation and dominance hierarchy. (3) Alternating the social context by removing one of the monkeys revealed that only removing the closest social partner influenced occupancy. (4) Finally, the distribution of distance between pairs of monkeys was bimodal and was modeled using a random walk approach with an additional parameter reflecting the propensity to stay in close proximity, which was again related to dominance hierarchy. These analyses reveal that space utilization is structured as a function of social determinants in macaques and demonstrate the usefulness simple modeling approaches to further study group organization in neuro-ethological settings.
https://www.nature.com/articles/s41598-025-16391-w

New Scientist
NEWS

These ants are one of the most effective teams in the natural world
Typically, individuals work less effectively in bigger teams, but weaver ants buck this trend by increasing their power output when they pull together.
https://www.newscientist.com/article/2492076-these-ants-are-one-of-the-most-effective-teams-in-the-natural-world/

Fossil teeth may come from a new species of early hominin
Some 2.6-million-year-old teeth found in Ethiopia hint that an unknown species from the Australopithecus genus coexisted with one of our Homo relatives, but it is hard to draw firm conclusions from the evidence.
https://www.newscientist.com/article/2492288-fossil-teeth-may-come-from-a-new-species-of-early-hominin/

REVIEWS

MICHAEL MARSHALL – Did childcare fuel language? A new book makes the case
Review of 'The Origin of Language: How we learned to speak and why' by Madeleine Beekman. Simon & Schuster (2025).
Rearing our unusually underdeveloped young may account for the evolution of language. Michael Marshall is intrigued, but wants more evidence from Madeleine Beekman's The Origin of Language.

https://www.newscientist.com/article/mg26735570-200-did-childcare-fuel-language-a-new-book-makes-the-case/

BETHAN ACKERLEY – Exploring humanity's ancient origins in fantastic new BBC documentary
BBC iPlayer (UK); PBS, US (17 September)
Human delivers an unusually clear picture of Homo sapiens as a species shaped by climate, animals, plants, other hominins and the interactions of its own nomadic groups. Bethan Ackerley is enthralled.
{I watched the first episode but was disappointed. It is very much an archaeologist's view of Homo sapiens, and seemed to fall into what (for me) is the elephant trap of language origins research: the search for that magical moment when "language" suddenly appeared and propagated across the planet at the speed of light.}
https://www.newscientist.com/article/mg26735570-500-exploring-humanitys-ancient-origins-in-fantastic-new-bbc-documentary/

PLoS One
PAPERS

AMIN MEKACHER, MAX FALKENBERG & ANDREA BARONCHELLI – How language, culture, and geography shape online dialogue: Insights from Koo
Founded in India in 2020, the microblogging site 'Koo' launched as an alternative to mainstream social media platforms, with the explicit aim of catering to non-Western communities in their vernacular languages, and capitalising on a period of tension between the Indian government and Twitter which led many users to seek Twitter-alternatives. Drawing on a near-complete dataset totalling over 71M posts and 399M user interactions, we show how Koo attracted users from several countries including India, Nigeria and Brazil, but with variable levels of sustained user engagement. We highlight how Koo's interaction network was shaped by multiple country-specific migrations displaying strong divides between linguistic and cultural communities, for instance, with English-speaking communities from India and Nigeria largely isolated from one another. Finally, we analyse the content shared by different linguistic communities and identify cultural patterns which, we speculate, promoted similar discourses across language groups. Our results show that for language groups of similar sizes, Indian languages fostered higher discourse diversity than non-Indian languages, possibly highlighting synergistic effects which boosted the uptake and retention of these groups. Despite this, Koo failed to capitalise on this synergy and ceased operations in July 2024. With this context, our study points to some of the possible reasons why the multilingual and politically diverse platform Koo struggled to remain sustainable, failing to stave off competition from its US-based competitors, despite its commitment to cultivating support for the different vernacular communities of Indian social media users.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0329838

STEVEN T. GOLDSTEIN et al with MICHAEL PETRAGLIA – Cultural, economic, and settlement shifts over the last 9,000 years at Kakapel Rockshelter, Western Kenya
The spread of food production in sub-Saharan Africa involved multi-directional dispersals of domesticated plant and animal species, often associated with major migrations. The Lake Victoria Basin of eastern Africa was likely an important crossroads in this process, hosting interactions between diverse populations with hunter-gatherer, mobile pastoralist, and farming lifeways in the Holocene. Recent discovery of a large assemblage of ancient domesticated plant remains at Kakapel Rockshelter in the Chelelemuk Hills of Busia County, western Kenya have provided new insights into the timing for when different domesticated crops were adopted within this key region. Here, we expand on the archaeological and cultural context for these findings by reporting results of field excavations, regional surveys, radiocarbon dating, and artifact analyses for deposits recovered from Kakapel Rockshelter dating over the last 9,000 years. Multiple occupational episodes with distinct cultural and technological traits are apparent including Early Holocene foragers, Early Iron Age agropastoralists, and multiple Later Iron Age populations. Agropastoralism first appears here by c. 2400 BP, but it is not until the introduction of sorghum and finger millet after c. 1200 BP in association with arrivals of new groups with Nilotic ancestry that we document the shift to a higher density of sites and longer-term settlement in the region.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0328805

Proceedings of the Prehistoric Society
PAPERS

ERIC GUIRY et al – Pigs, pannage, and the solstice: isotopic insights from prehistoric feasting at Newgrange
Newgrange, the Neolithic monument and centerpiece of the Brú na Bóinne UNESCO World Heritage complex, is a high-profile example of prehistoric societies' observation of, and reverence for, solar events. Comparatively little is known about how these concepts were remembered by those using Newgrange over subsequent millennia. While excavations have uncovered large quantities of later material culture, debate continues about what these subsequent activities represent. We combine zooarchaeological, radiocarbon, and isotopic evidence to assess the nature and seasonality of human–animal–environment relationships at Newgrange. Results show a concentration of feasting activity, focused on pigs, dating to 2600–2450 BC and indicate that most pigs were slaughtered shortly after a period of rapid, pannage-fueled weight gain. This seasonal specificity indicates feasting likely occurred in the weeks around the winter solstice and suggests that, centuries after passage tomb

construction ended, practices at Newgrange continued to focus on the general winter solstice timeframe. We also connect a unique isotopic signature for mast (tree nuts) with pannage husbandry, a pattern that should allow for reinterpretation of archaeological pig diets and human–woodland relationships across Europe.
https://www.cambridge.org/core/journals/proceedings-of-the-prehistoric-society/article/pigs-pannage-and-the-solstice-isotopic-insights-from-prehistoric-feasting-at-newgrange/ECC3D799B42C21FAA0EDF3045C230F33

Proceedings of the Royal Society B
PAPERS

NICHOLAS CHAPOY et al – Dominance rank, facial morphology and testes size in male white-faced capuchins: evidence for pre- and post-mating competition
Male reproductive success is determined by the interplay of female mate choice and male–male competition, often linked to dominance rank in social animals. Across taxa, elaborate ornaments, such as bright coloration or large antlers, often function as badges of status, signalling male competitive ability to rivals. In species where females mate with multiple males, post-mating sperm competition also plays an important role in male reproductive success and is associated with larger relative testes size. We investigate the relationship between morphological features and dominance rank in wild male white-faced capuchins. Using parallel-laser photogrammetry, we measured aspects of facial morphology, including facial width-to-height ratio, and testes size. We found that alpha males had significantly larger facial width-to-height ratios, wider faces and wider scrota than subordinate males. These results suggest that facial traits potentially function as badges of status in male white-faced capuchins and may play a role in pre-mating competition and/or mate choice, while differences in scrotal size reflect adaptations for post-mating competition. This study highlights the under-recognized role of facial trait evolution in sexual selection among relatively gracile yet highly visually oriented mammals and the potential variability of sexual traits in species characterized by strong reproductive skew among males.
https://royalsocietypublishing.org/doi/10.1098/rspb.2025.0645

LUZ CARVAJAL AND CHRISTOPHER KRUPENYE – Mental representation of the locations and identities of multiple hidden agents or objects by a bonobo
Humans are adept at navigating the social world in part because we flexibly map the locations and identities of agents around us. While field studies suggest primates can track individual conspecifics, controlled experiments are needed to determine the complexity of this capacity and isolate the underlying representations. Across five object-choice tasks, we show that our closest relative, a bonobo (Kanzi), can concurrently track the locations and identities of multiple (specifically, two) hidden agents (Experiment 1), that this capacity deploys mental representations rather than tracking agents' last observed locations (Experiment 2), and that these representations can integrate visual or auditory signatures of identity (Experiment 3). Finally, we show that this bonobo performs similarly on an analogous multiple-object tracking invisible displacement task (Experiments 4–5), consistent with multiple agent- and object-tracking potentially recruiting common representational machinery. This work uncovers the rich representations of the social world that are shared by humans and other apes.
https://royalsocietypublishing.org/doi/full/10.1098/rspb.2025.0640

Royal Society Open Science
PAPERS

OLGA PELLONI et al – Subword symmetry in natural languages
Symmetric patterns are found in the orderly arrangements of natural structures, from proteins to the symmetry in animals' bodies. Symmetric structures are more stable and easier to describe and compress, which is why they may have been preferred as building blocks in natural selection. The idea that natural languages undergo an evolutionary process akin to the evolution of species has been pervasive in the study of language. This process might result in symmetric patterns as in other natural structures, but the notion of symmetry is rarely associated with the study of natural language. In this study, we look for symmetric patterns in text data, considering the length of subword units under a range of possible subword analyses. We study the length of subword units in 32 languages and discover that the splits of long words tend to be symmetric regardless of the segmentation method and that some automatic methods give symmetric splits at all word lengths. These results include natural language in the set of phenomena that can be described in terms of symmetry, opening a new research avenue for the empirical study of text data as a structure comparable to various other structures in the natural world.
https://royalsocietypublishing.org/doi/10.1098/rsos.250295

JELLE VAN DER WERFF et al – Humans can find rhythm in randomly timed sounds
Humans are keen pattern-seekers and take advantage of regularities present in their environment. In the temporal domain, we may call these patterns rhythms, but what is rhythm? Definitions vary, but all presuppose a categorical distinction between rhythm and randomness. Here, we challenge this view and show that two types of random sound sequences—classically considered arrhythmic by experimenters—differ in the amount of regularity humans reconstruct from them. When asked to synchronize to randomly timed sounds, participants leverage statistics to estimate the underlying tempo of the

sequence, similar to linear statistical estimators. Theoretically, our results challenge current definitions of rhythm by showing that rhythmicity and randomness are instances of a continuum. Methodologically, our data and mathematical model show that a common method for creating random timing, namely the jittering of event onsets, introduces an undesirable regularity that humans readily exploit. New experiments should aim to maximize temporal randomness, and past experiments' outcomes require reconsideration.
https://royalsocietypublishing.org/doi/10.1098/rsos.250453

Science
NEWS
DNA from ancient bones reveals how Indigenous Americans got their mucus
Neanderthals and Denisovans passed along gene that provides a sticky shield against germs.
https://www.science.org/content/article/dna-ancient-bones-reveals-how-indigenous-americans-got-their-mucus

REVIEWS
BRENNA R. HASSETT – Discovering Denisova: A pair of authors invite readers to get to know the elusive archaic human
Review of 'The Secret World of Denisovans' by Silvana Condemi & François Savatier. The Experiment (2025).
The Secret World of Denisovans, the latest collaboration from paleoanthropologist Silvana Condemi and journalist François Savatier, begins with an entirely relatable admission: It can be difficult to accept when old paradigms are obliterated by new. The not-quite-sapiens, not-quite-Neanderthal Denisovan genome was first isolated from a single phalanx epiphysis found in 2008. For paleontologists used to grappling with ambiguous fossil material, the clarity of a Denisova's genetic difference came as a shock. The DNA discovery of Denisova has meant much more than just another species to share the planet with; it gave us an entirely new way to understand the past.
https://www.science.org/doi/10.1126/science.adz6753

Trends in Cognitive Sciences
PAPERS
LIN BIAN – How early beliefs about brilliance shape gender gaps
Why do gender gaps persist in many of the most prestigious fields and careers? An emerging theory highlights the role of two interrelated 'brilliance beliefs': the idea that success in certain fields requires exceptional intellectual ability, alongside the stereotype that brilliance is more common in men than in women. This review synthesizes growing evidence that these brilliance beliefs take root in early childhood, and outlines the psychological processes through which they work in tandem to discourage girls' participation. I discuss promising approaches that can interrupt these beliefs, as well as their consequences, before they become deeply entrenched. Addressing brilliance beliefs in early childhood is a critical step toward breaking cycles of exclusion and fostering equity.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00181-0

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