

EAORC BULLETIN 1,187 – 15 March 2026

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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

JOHN TEMPLETON FOUNDATION – Your Hero’s Journey: The Key to Unlocking Meaning in Your Life

Ben Rogers, a behavioral economist, wanted to know what would happen if ordinary people told their life stories in the arc of the hero’s journey, a timeless narrative of many blockbuster films and bestselling novels. He drew from the mid-20th century mythologist Joseph Campbell, who theorized that all mythic narratives follow the same plotline, which he referred to as the hero’s journey. In the hero’s journey, the main character experiences a life disruption, begins a quest, meets friends, encounters obstacles, and transforms themselves before returning home to share what they have learned to challenge others. In addition to Marvel movies or fantasy novels, many ancient stories like Beowulf and Gilgamesh follow the same basic pattern.

In a series of 14 studies, Rogers and his colleagues found that the more people thought of their own life as a hero’s journey, the more meaning they experienced in life.

<https://www.templeton.org/news/your-heros-journey-the-key-to-unlocking-meaning-in-your-life>

NEW SCIENTIST HUMAN STORY – A new find

A new Homo habilis specimen has come to light. It was excavated in 2012 and 2014 from the Koobi Fora Formation at Ileret, Kenya. Researchers led by Frederick Grine at Stony Brook University in New York and Ashley Hammond at the Catalan Institute of Palaeontology Miquel Crusafont in Barcelona described the remains in The Anatomical Record on 13 January. Grine and Hammond were unable to talk to me, but Tattersall published a commentary on the find on 24 January and we talked on the phone (both of us struggling with the worst connection ever).

The new specimen is the most complete H. habilis ever found. It includes a collarbone (clavicle), fragments of the shoulder blade (scapula), both upper arm bones (humerus), both of each of the two lower arm bones (ulna and radius) and fragments of the base of the spine (sacrum) and hip bone (os coxae).

There’s still a lot missing: the head, ribcage, spine, hands, legs and feet. But it’s enough to figure out a lot about H. habilis.

The most obvious thing is that H. habilis had relatively long arms. One of the big trends in human evolution is for arms to become shorter: our ape cousins have long arms, relative to their legs, whereas our arms are decidedly shorter. Compared with other Homo species like Homo erectus, H. habilis had long arms.

For Tattersall, this is evidence that H. habilis was still spending a fair bit of time in trees, where long arms are an advantage. Before Homo, earlier hominins like Australopithecus seem to have lived hybrid lifestyles where they spent some time in trees and some time walking on two legs on the ground. “It’s a way of life that has no equivalent in the contemporary world, but

obviously it was a very successful one for a long time,” he says. Whereas later Homo species like H. erectus were pretty committed to bipedal walking on the ground, H. habilis still had one foot in the trees.

The skeleton also suggests that H. habilis was fairly slight. The researchers estimated that the individual stood about 160 centimetres tall yet weighed just 30 to 33 kilograms. That’s smaller than most H. erectus specimens, again marking H. habilis as distinct.

There are still lots of things we don’t know. We have very little information about the diet of H. habilis or their social dynamics and group size. It’s also unclear how long the species was around for or how widespread they were.

Still, it does seem like H. habilis’s days of being a wastebasket taxon might be over.

<https://anatomypubs.onlinelibrary.wiley.com/doi/10.1002/ar.70145>

NEW SCIENTIST HUMAN STORY – Stone Age symbols may push back the earliest form of writing

Mysterious signs engraved on objects reveal that a form of proto-writing may have been used in Europe 40,000 years ago, tens of thousands of years before the emergence of a full writing system.

<https://www.newscientist.com/article/2516606-stone-age-symbols-may-push-back-the-earliest-form-of-writing/>

NEW SCIENTIST HUMAN STORY – When we interbred with Neanderthals, they were usually the fathers

Genetic evidence hints that there was a strong bias for male Neanderthals and female humans to mate, rather than any other combination.

<https://www.newscientist.com/article/2517239-when-we-interbred-with-neanderthals-they-were-usually-the-fathers/>

NEW SCIENTIST HUMAN STORY – Humans are the only primates with a chin – now we finally know why

Biologists have debated the reason why Homo sapiens evolved a prominent lower jaw, but this unique feature may actually be a by-product of other traits shaped by natural selection. Read more

<https://www.newscientist.com/article/2515693-humans-are-the-only-primates-with-a-chin-now-we-finally-know-why/>

NEW SCIENTIST HUMAN STORY – Don't miss this story

Homo habilis makes a cameo in this feature about the evolution of our hands. The story is about a kind of paradox. On the one hand, we know that hands are one of our more important features – opposable thumbs and all that. But we haven’t been able to figure out very much about how they evolved. That’s because a lot of the bones in our hands are small and fragile, so we haven’t had many preserved specimens from ancient humans to compare. Except that, one by one, they have been turning up – and we actually have a narrative now. It might change with new discoveries, but we finally have a solid outline of what happened.

<https://www.newscientist.com/article/2514431-the-untold-story-of-our-remarkable-hands-and-how-they-made-us-human/>

NEW SCIENTIST HUMAN STORY – What we’ve got wrong about love and connection

Every time I read anything about dating, I become even more glad I’m married. Dating was hard enough when I was young: the current profusion of dating apps, which creates a situation where every single person can be casually rejected by hundreds of strangers every month, sounds like an ego-crushing nightmare. So I was excited to read David Robson’s review of Bonded by Evolution, in which psychologist Paul Eastwick dismantles a lot of myths about dating. In particular, there is a widespread idea that dating is a marketplace where we’re all competing to snag the most desirable mates. Eastwick argues this is completely wrong: while a lot of us can agree about who looks attractive in a photo, our opinions diverge enormously once we actually spend time with people. This means it’s less important to be really, really, really, ridiculously good looking and more important to be “honest, respectful and kind”.

<https://www.newscientist.com/article/mg26935820-400-what-to-read-this-week-bonded-by-evolution-by-paul-eastwick/>

NEWS FROM SCIENCE – After 35 years, Ig Nobel ceremony to leave the U.S.

Finances and Trump policies underlaid the decision to move the satirical science event to Switzerland.

<https://www.science.org/content/article/after-35-years-ig-nobel-ceremony-leave-u-s>

SCIENCEADVISER – The pure joy of puzzle solving—for a raccoon

People can spend hours trying to solve silly puzzles, like the one where you have to remove a dowel with a bolt through it from a glass bottle, even though there’s no reward other than knowing you bested a complex problem. Raccoons, it seems, feel a similar kind of glee at solving puzzles.

Researchers gave raccoons a puzzle box containing a single marshmallow. To get inside, they could choose from three entry points; some of these puzzle boxes were easily opened, like doors with no locks, while others were sealed shut with mechanisms much harder to crack. Intriguingly, the animals explored and opened other doors after they’d obtained the treat. “We weren’t expecting them to open all three solutions in a single trial,” said lead author Hannah Griebeling in a statement. “They kept problem solving even when there was no marshmallow at the end.”

Their continued curiosity indicates intrinsic motivation, according to the researchers: They inherently enjoy gaining knowledge, perhaps because they receive a similar kind of mental reward to what humans feel solving puzzles. That could mean some of their annoying urban antics—like opening locked garbage cans—are done for fun, not just food.

“Understanding the cognitive traits that help raccoons thrive can guide management of species that struggle, and inform strategies for other species, like bears, that use problem solving to access human-made resources,” said Griebing.

<https://www.sciencedirect.com/science/article/pii/S000334722600028X>

SCIENCEADVISER – Smart slime

The slime mold *Physarum polycephalum* shocked scientists 16 years ago when it almost exactly produced the efficient connections between cities surrounding Tokyo that people spent years figuring out. It continues surprising researchers with its apparent intellect—even though it lacks any semblance of a brain.

<https://knowablemagazine.org/content/article/living-world/2026/learning-memory-learning-physarum-polycephalum-slime-mold>

SCIENCEADVISER – Seals have complex vocal learning on the brain

This harbor seal is more than just a cute face—it also has an impressive capacity for flexible vocal learning. marcel burkhard In the late 1970s and early 1980s, a harbor seal named Hoover delighted visitors to the New England Aquarium with his uncanny ability to mimic human speech, barking out phrases like “Hello, there!” and “Come over here!” in a thick Maine accent. In general, pinnipeds—the group of marine mammals that includes seals and sea lions—are capable of complex vocal learning and flexibility.

To investigate the neurobiological basis of these abilities, scientists examined postmortem brains from harbor seals, elephant seals, and California sea lions. They also looked at brains from coyotes, which howl in chorus with one another but don’t demonstrate flexible vocal learning, as a comparison. The team found that seals and sea lions, but not coyotes, showed a strong, direct connection between the vocal motor cortex and a part of the brainstem involved in speech—a neural pathway associated with voluntary control of vocalization. Elephant and harbor seals also possessed a forebrain circuit similar to the one involved in vocal learning and mimicry in birds.

These differences in neural connectivity, the researchers reported, could explain why some pinniped species seem to have a greater capacity for vocal flexibility and learning. Hoover, of course, remains in a class of his own.

<https://www.science.org/doi/10.1126/science.adx9367>

SCIENCEADVISER – Chimps and bonobos are both aggressive—they just have different bullies and targets

Primatologist Frans de Waal once characterized bonobos as the “make love not war” ape, based on their tendency to use sexual contact to resolve conflicts. While wild chimpanzees—their close evolutionary cousins—wage wars over resources, wild bonobos spend their time much more pleasurably. But does that really mean chimpanzees are more aggressive? A team of researchers wasn’t convinced.

Indeed, past studies have provided little clarity: One found male chimps are more aggressive than male bonobos, while another found the opposite. So, the team examined the rates of aggressive behaviors—including no-contact moves like chasing another individual as well as direct aggressive contact—exhibited by 22 captive groups of chimpanzees and bonobos. Overall, the two species were equally aggressive, but they differed in both aggressors and targets. “Despite being less aggressive towards females than chimpanzee males are, bonobo males are still aggressive towards each other,” lead author Emile Bryon explained to Science Adviser. Ultimately, Bryon and colleagues found “chimpanzee males are aggressive against all, whereas all bonobos are aggressive, but target mainly the males.” Perhaps most intriguingly, the team found considerable differences between the studied groups; both the most aggressive and least aggressive groups were bonobos.

As the two species are our closest living kin, “some see in them a reflection of our nature or how we ought to be: aggressive and war-minded like chimpanzees, or peaceful like bonobos,” said Bryon in a statement. “The truth is that, evolutionarily speaking, we are equally related to both species. And the dichotomy between aggressive chimpanzees and peaceful bonobos might be less clear than previously thought.” What studies like this really tell us about our own nature is more nuanced.

“Aggression can vary widely,” Bryon told Science Adviser. “Recognizing this variation and understanding its roots suggests that it can be better understood, managed, and even reduced.”

<https://www.science.org/doi/10.1126/sciadv.adz2433>

PUBLICATIONS

Behavioral and Brain Sciences

PAPERS

SEVERINE B.S.W. HEX et al with MORTEN H. CHRISTIANSEN – Multimodality as a safeguard of honesty in communication and language: from Animals to Humans

From spider dances to human language, multimodality is ubiquitous in natural communication systems. Much scholarship has been devoted to investigating why multimodality evolved and the role it plays in communication. Here, we highlight the

role of multimodality in safeguarding the most fundamental prerequisite of all functioning, extant communication systems: honesty. We begin by introducing the arms race between honesty and deception in natural communication systems, and the critical role socially-mediated controls can play in maintaining signal honesty when classic, intrinsic costs are not sufficient. We next introduce three ways by which multimodality buffers signal honesty by 1) providing insurance against signal unreliability in dynamic environments, 2) forming an honest, multimodal gestalt with which to cross-validate signal honesty, and 3) increasing signal complexity, making the entire signal harder to fake. We then discuss the case of highly cooperative societies, with human language emphasized, and argue that signal honesty is important especially in complex and cooperative societies wherein the need to cooperate and be accepted as part of the group may supersede honesty. Finally, we propose future directions wherein human and non-human communication research could expand beyond the well trodden realms of competition and mate attraction to investigate the role of multimodality and honesty in cooperative, “cheap” signals, and emphasize the importance of drawing from both the human and non-human literatures in investigating the forces that have shaped the evolution of communication.

<https://www.cambridge.org/core/journals/behavioral-and-brain-sciences/article/abs/multimodality-as-a-safeguard-of-honesty-in-communication-and-language-from-animals-to-humans/C5933E82A4254BD85007744FF635A4B3>

Cell

PAPERS

YUE-CHEN LIU et al with DAVID REICH – Papuan admixture predated the settlement of Palau

The first people reached Remote Oceania 3,000 years before present (BP), arriving roughly simultaneously in the southwest Pacific, the Marianas Archipelago, and Palau. However, no genome-wide ancient DNA data have been available from Palau, a gap we address by reporting 21 individuals from four archaeological sites dating between 2,900 and 500 BP. All had approximately 60% ancestry related to East Asians and 40% to Papuans, similar to present-day Palauans, the longest stretch of population continuity anywhere in Remote Oceania. The lengths of contiguous Papuan ancestry segments in the oldest individuals show that major admixture between Papuans and East Asians in the ancestors of all sampled Palauans began prior to first settlement. This differs from the pattern in the southwest Pacific, where sampled individuals of the Lapita archaeological culture from three different islands had almost entirely East Asian ancestry, with large amounts of Papuan admixture observed only hundreds of years later.

[https://www.cell.com/cell/abstract/S0092-8674\(26\)00176-5](https://www.cell.com/cell/abstract/S0092-8674(26)00176-5)

SUEL-KEE KIM et mul – Human-specific features of the cerebellum and ZP2-regulated synapse development

Understanding the unique features of the human brain compared with non-human primates has long intrigued humankind. The cerebellum refines motor coordination and cognitive functions, contributing to the evolutionary development of human adaptability and dexterity. To identify shared and divergent features across primates, we conducted single-nucleus transcriptomic and chromatin accessibility profiling of the adult cerebellar cortex in humans, chimpanzees, macaques, and marmosets. We revealed human-specific transcriptomic and regulatory features, particularly those involved in synaptogenesis. Notably, we identified enrichment of the sperm receptor zona pellucida glycoprotein 2 (ZP2) and its potential interactors, known for their roles in gamete interaction, in human granule cells (GCs). Experimental data show that ZP2 expression in human GCs is induced by pontine mossy fibers, reducing synaptic proteins at the pontocerebellar glomerular synapses and decreasing cerebellar neuron electrophysiological activity. This unexpected co-option of ZP2 in human-specific synapse regulation provides insights into the evolutionary specialization of the human cerebellum.

[https://www.cell.com/cell/fulltext/S0092-8674\(26\)00221-7](https://www.cell.com/cell/fulltext/S0092-8674(26)00221-7)

Current Biology

PAPERS

HENKJAN HONING – The biology of musicality

Recent interdisciplinary advances have transformed the study of the evolution of music. Rather than treating music as a cultural artifact, current research targets musicality — the biological capacity enabling humans to perceive, produce, and enjoy structured sound. Evidence from observations of infants, cross-cultural studies, and neuroscience shows that humans possess innate predispositions for rhythm, pitch, and temporal expectation that arise independently of training. Comparative studies have revealed that components of musicality have distinct evolutionary histories: primate research supports gradual development of rhythmic and audiomotor integration, while convergent traits in vocal-learning species highlight shared biological constraints. Neuropsychological and developmental findings have further shown that musicality is not reducible to language, drawing instead on perceptual, motor, and affective systems that likely predate speech. Collectively, these insights establish musicality as a fundamental cognitive capacity and provide a robust framework for investigating how its components evolved, how they function across species, and why music is central to human life.

[https://www.cell.com/current-biology/abstract/S0960-9822\(26\)00140-5](https://www.cell.com/current-biology/abstract/S0960-9822(26)00140-5)

EINAR R. ANDREASSEN, CHRIS D. FRITH & DANIEL YON – Public communication alters private confidence

We use private feelings of confidence to coordinate our public, social lives. When making joint decisions we can share uncertainty honestly to reach an accurate consensus, or exaggerate our confidence to increase our influence. Some theories suggest that we can strategically distort the confidence we express to others while leaving our private feelings unchanged, but recently we hypothesised that our interactions with others may be a key source of beliefs about uncertainty in our own minds. Consistent with this idea, we show that changes in how we publicly communicate our confidence to others can lead to changes in private confidence when we're alone. Our experiments and modelling reveal how social interaction can shape our sense of confidence — which could explain how confidence biases emerge and persist in interacting groups.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(25\)01703-8](https://www.cell.com/current-biology/fulltext/S0960-9822(25)01703-8)

eLife

PAPERS

RYAN MALONEY et al – Drift in Individual Behavioral Phenotype as a Strategy for Unpredictable Worlds

Individuals, even with matched genetics and environment, show substantial phenotypic variability. This variability may be part of a bet-hedging strategy, where populations express a range of phenotypes to ensure survival in unpredictable environments. In addition to phenotypic variability between individuals (“bet-hedging”), individuals also show variability in their behavioral phenotype across time, even absent obvious external cues. There are few evolutionary theories that explain random shifts in phenotype across an animal’s life, which we term phenotypic drift. We use individuality in locomotor handedness in *Drosophila melanogaster* to characterize both bet-hedging and drift. We use a continuous circling assay to show that handedness spontaneously changes over timescales ranging from seconds to the lifespan of a fly. We compare the amount of behavioral drift and bet-hedging across a number of different fly strains and show independent strain-specific differences in bet-hedging and behavioral drift. We show manipulation of serotonin changes the rate of behavioral drift, indicating a potential circuit substrate controlling behavioral drift. We then develop a theoretical framework for assessing the adaptive value of phenotypic drift, demonstrating that drift may be adaptive for populations subject to selection pressures that fluctuate on timescales similar to the lifespan of an animal. We apply our model to real-world environmental signals and find patterns of fluctuations that favor random drift in behavioral phenotype, suggesting that drift may be adaptive under some real-world conditions. These results demonstrate that behavioral drift plays a role in driving variability in a population and may serve an adaptive role distinct from population level bet-hedging.

<https://elifesciences.org/reviewed-preprints/103585>

Evolutionary Anthropology

PAPERS

CERI SHIPTON – Lithic Miniaturization Provides a Signature of an MIS4-3 Southern Dispersal of *Homo sapiens*

Fossil and artefactual evidence shows *Homo sapiens* in Eurasia well before 75 ka. However, genetic evidence suggests all extant non-African populations derive almost all of their ancestry from a dispersal that only diverged in the last 60–50 ka. In northern Eurasia, the Upper Paleolithic with its laminar blade knapping provides an archeological signature of this dispersal, but no equivalent is yet established for southern Asia, Wallacea, and Sahul. This paper suggests that lithic miniaturization may provide such a signature as it appears across these southern regions from around 50 ka. It can be traced back to the southwestern edge of Asia at 55 ka, and then coastal east Africa at 68 ka. In both these cases it is also associated with laminar blade technology. Lithic miniaturization is implicated in behaviors including bow-and-arrow hunting, compound tools, hair-shaving, and scarification. The ecological and social implications of these behaviors may have given later *Homo sapiens* a competitive advantage over both other hominins and earlier dispersals of our own species.

<https://onlinelibrary.wiley.com/doi/full/10.1002/evan.70027>

Evolutionary Human Sciences

PAPERS

AMMIE K. KALAN & CLAUDIO TENNIE – Brokering Peace in the Ape (Culture) Wars

Mid-last century, controversy existed around the question whether non-human great apes have culture. To a large degree, this is no longer controversial - apes have their own cultures. However, there remains controversy around how to best study ape culture, given the varying and often dichotomized contributions from captive and field-ape research. Here, we present a historical summary of the ape culture wars since their inception and how this has evolved over time. We then focus on debates surrounding wild versus captive-ape research with an emphasis on culture, detailing major arguments arising from both research domains. Throughout, we critically deconstruct these arguments, illustrating the nuance behind these critiques, while highlighting their assumptions, overgeneralizing statements and potential constraints. We further provide potential solutions to help alleviate the issues we describe, when possible. We also offer a metacritique of ape culture research for its scientific and political impact, irrespective of one’s expertise. In closing, we summarize concrete recommendations for a richer and more holistic understanding of ape, and human, culture.

<https://www.cambridge.org/core/journals/evolutionary-human-sciences/article/brokering-peace-in-the-ape-culture-wars/A3C78D93CA9320569423082312563D50>

Frontiers in Environmental Archaeology

PAPERS

EVA FRANCESCA MARTELLOTTA et al with FRANCESCO D'ERRICO – From edge to mark. Investigating the relationship between cut marks and lithic raw materials

Understanding the relationship between animal processing practices and stone tool use is essential for interpreting Paleolithic lifeways. These activities leave behind two key forms of archaeological evidence: butchery marks (“cut marks”) and lithic tools. While both faunal and lithic remains are critical to understanding past behaviors, they are rarely studied in an integrated framework. In particular, the characterization of cut marks produced by tools made from different raw materials remains underexplored. This study presents an experimental protocol designed to address this gap by establishing a baseline for identifying cut marks created using dacite, flint, and obsidian tools. Both retouched and unretouched edges were used in controlled cutting actions on bone. The results show that the different raw materials exhibited varying degrees of cutting performance. However, statistical analyses of the resulting cut marks revealed limited patterns that could reliably distinguish between raw material types. These findings highlight the need for more refined analytical approaches capable of linking cut mark features to specific tool types or materials. Such advancements hold significant potential for regions as the southern Caucasus, where diverse raw material use and reduction strategies complicate the interpretation of butchery practices.

<https://www.frontiersin.org/journals/environmental-archaeology/articles/10.3389/fearc.2026.1738188/full>

Frontiers in Psychiatry

PAPERS

YU-LU YANG et al – Changes in regional homogeneity of the social brain in individuals with autism spectrum disorder after social skills training

This study examined changes in regional homogeneity (ReHo) following Social Skills Training (SST) and their association with improvements in social deficits in individuals with autism spectrum disorder (ASD).

44 adolescents and adults with ASD (aged 12-30) were recruited, 38 participants (20 in training group, 18 in control group, matched for sex, age, and IQ) were retained after quality control of MRI data. The training group underwent magnetic resonance imaging (MRI) scans and assessments of Aberrant Behavior Checklist (ABC) and Social Responsiveness Scale (SRS) before and after a 14-week SST program, while the control group completed the same MRI scans and assessments at the same time point but did not receive SST.

Resting-state functional MRI analyses revealed significant group × condition interactions in five social brain regions, including the right medial frontal gyrus, right insula, and left medial superior frontal gyrus. At the endpoint of SST, the training group showed reduced ReHo in these regions alongside significant decreases in scores of ABC total, social withdrawal factor, SRS total, social awareness, social cognition, social communication factors. The control group, in contrast, showed only limited improvements on specific subscales, while the training group demonstrated a broader pattern of behavioral gains. We also found an exploratory association between the decrease in ReHo of the right medial frontal gyrus and the reduction in the ABC total score in training group.

These findings indicate that SST may modulate local functional connectivity within the social brain networks, and these connectivity changes may correlate with observed behavioral improvements.

<https://www.frontiersin.org/journals/psychiatry/articles/10.3389/fpsy.2026.1674370/full>

Frontiers in Psychology

PAPERS

MICHAEL A. ARBIB & VALENTINA CUCCIO – The Body in Language, the Language Beyond the Body: Embrainment and Graded Embodiment in the Evolution and Use of Language

We reject the notion that the assertion "language is embodied" has a yes/no answer and instead introduce an account of a gradient of embodiment that ranges from "strict embodiment" restricted to elements of language describing humans engaged in practical bodily interaction to fully abstract concepts. We show how concepts may blend strict embodiment and abstraction, and demonstrate that strictly embodied knowledge may ground linguistic meaning phylogenetically and ontogenetically. Much adult language use resides "high" in a tower of abstraction. However, movement away from strict embodiment need not imply movement only up the tower of abstraction. Embodied simulation combined with metaphor provides one mechanism for linking abstraction to embodiment. An account of biocultural evolution shows how changes primarily in brain structure (embrainment) made possible the linkage of practical action to pantomime in grounding protolanguages and how cultural evolution built on this to create a symbolic and physical environment that depends on the availability of grammar to create metaphors and new abstractions. Critiquing the claim that large language models mirror the human brain's language system, we show how human embrainment links disembodied processing to processes that are strictly embodied.

<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2026.1774505/abstract>

ALICE KARBANOVA & ANJA-XIAOXING CUI – Music speaks louder than lyrics: a conceptual priming experiment

Although the processing of language and music are thought to be related, the semantic interplay of these domains in song remains relatively unexplored. This study investigates how music and lyrics contribute to conceptual meaning-making in song interpretation using a conceptual priming experiment.

Fifty participants completed a lexical decision task in which target words were semantically related either to the music or to the lyrics of an ecologically valid song prime. Reaction times were used to infer semantic alignment.

The results showed significantly faster responses to target words associated with the music than to those associated with the lyrics of the prime. This effect remained significant even after controlling for various properties of the primes and targets, which had been assessed by an additional 234 participants in complementary studies prior to the priming experiment. We also found a significant interaction between target type (music- vs. lyrics-related) and the Euclidean distance of valence and arousal between the prime and target: affective distance predicted reaction times only for music-derived targets. Ratings from the complementary studies indicated that music evoked more positive and arousing responses than lyrics, while lyrics appeared to dampen the affective intensity of musical excerpts. Our findings challenge the assumption of tight integration between melody and lyrics in song processing. They suggest that music and language contribute unequally to conceptual interpretation in song, with music playing a more dominant role. These results offer new insights into the construction of multi-modal meanings and the cognitive mechanisms underlying song comprehension.

<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2026.1659797/full>

SHUYAN ZHAO & PENG ZHOU – Experimental investigations on children’s early structural representation: a view from classifier phrases in Mandarin

Linguistic theories divide on whether children’s early representation of language is based on hierarchical structural relations or on linear relations. To shed further light on this debate, the present study investigated Mandarin-speaking children’s choices of classifiers for noun–noun compounds, where the first noun is a modifier noun, and the second noun is a head noun. In these noun–noun compounds, the classifier agrees with the head noun, rather than the linearly closer modifier noun. Two experiments were conducted. Experiment 1 explored whether 4- to 6-year-olds would choose the classifier for the compounds based on linear distance or structural relations. Experiment 2 examined whether children’s choices were influenced by their lexical knowledge of specific classifiers. The results of Experiment 1 show that 4-, 5- and 6-year-olds all chose classifiers that were compatible with head nouns, favoring the structural relation, but the accuracy rate of the 4-year-olds was significantly lower than that of the 5- and 6-year-olds. The findings of Experiment 2 indicate that once the 4-year-olds’ lexical knowledge of specific classifiers was improved, their accuracy rates also significantly improved. The findings provide new evidence for the proposal that children’s early representation of language is based on hierarchical structural relations rather than linear relations.

<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2026.1782713/full>

MARY ANGELENE J. & ALAMELU C. – Gender euphoria reimagined: toward an Extended Theory of Trans-Identity

The paper focuses on developing an Extended Theory of Trans-Identity integrating Nagoshi et al.’s trans-identity theory with the creative expression of the self to explore gender-euphoric experiences.

Having explored Austin et al.’s research on the artistic expression of trans people, the article attempts to explore the creative manifestation of identity as an important aspect of trans-identity formation, alongside Nagoshi et al.’s trans-identity theory. The synthesis of four aspects, including physical embodiment, self-construction, social construction, and the creative manifestation of the identified gender leading to the attainment of gender-euphoric factors identified by Austin et al. and Leitch et al., culminates in an Extended Theory of Trans-Identity. The theoretical framework is applied to *I Am Vidya: A Transgender’s Journey* (2013), the autobiography of Living Smile Vidya, who is an eminent trans theatre artist and activist from Tamil Nadu, India. Furthermore, the use of a literary text to validate the Extended Theory draws on Schilling’s concept of theory extrapolation from literature. The exemplifying textual analysis of the dynamic role of the four aspects of trans-identity in asserting transness and achieving gender euphoria attempts to substantiate the proposed theoretical extension. The results indicate that identity construction through the creative aspect, in combination with the biopsychosocial aspects, contributes to the utmost attainment of gender euphoria.

Therefore, the article formulates an extended version of the trans-identity framework, emphasising the inclusion of creativity in the gender-affirmative journeys of trans people.

<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2026.1738195/full>

Mind & Language**PAPERS****ROBERT PETER FARQUHARSON – Computation and cognitive maps: Symbols and spaces, or paths and graphs?**

Gallistel argues that path integration in desert ants is evidence that cognitive maps represent metric space (content), which, in turn, is evidence of systematicity and classical computation (format). I present other results where ants violate metric assumptions like symmetry, suggesting their navigation is not classically systematic. I then argue that ant navigation fits a cognitive graph hypothesis, a middle ground between metric maps and abandoning map-like representations altogether.

Cognitive graphs are equally compatible with connectionist models of computation. The debate over cognitive maps in insects like ants, therefore, sheds wider light on the computational foundations of cognitive science.

<https://onlinelibrary.wiley.com/doi/abs/10.1111/mila.70028>

ANDREA RIVADULLA-DURÓ – Hearing what we would like to hear: The prima facie view of indirect self-talk

Subtle variations in the way we address ourselves—using the first-person pronoun I versus the second-person pronoun You or one's own name—have distinct effects on motivation, emotion regulation, and performance. The dominant explanation of these effects appeals to the notion of psychological distance. In this paper, I argue against this explanation and develop an alternative account, drawing on the prima facie view of perceptual imagination. On my view, the differential effects of indirect self-talk are better explained by associative responses to the grammatical structures typically used by others when addressing us.

<https://onlinelibrary.wiley.com/doi/abs/10.1111/mila.70020>

ZHENGXI JIN – Embedding mental files in the world

Cognitive scientific explanations can take either a mechanistic or design perspective. Some recent philosophical works propose to apply the mechanistic perspective to the influential mental file framework. The design perspective, however, remains underexplored. This paper takes on this task, arguing that mental files have been designed by natural selection to efficiently represent property cluster structures in the environment—such as objects and kinds—to facilitate our learning about them. It also shows that the design perspective can help resolve a previous debate between two specific accounts of mental files.

<https://onlinelibrary.wiley.com/doi/full/10.1111/mila.70015>

Nature

ARTICLES

SOFIA CAETANO AVRITZER – Keep calm and be transparent: advice from scientists who retracted their papers

Retractions correct the scientific record, but they have stigma attached to them. Some in the research community want that to change.

<https://www.nature.com/articles/d41586-026-00763-x>

Nature Communications

PAPERS

MATTHEW J. HORNSEY, JESSICA L. SPENCE & CASSANDRA M. CHAPMAN – Meta-analyses on charitable giving clarify evidence for empathic and effective altruism

We are providing an unedited version of this manuscript to give early access to its findings. Before final publication, the manuscript will undergo further editing. Please note there may be errors present which affect the content, and all legal disclaimers apply.

Effective altruists argue that charitable giving is over-influenced by empathic responses and should instead be guided by cost-benefit analyses about the effectiveness of giving. To provide insight into the extent to which empathy and effectiveness are associated with charitable giving in the population, two meta-analyses are conducted, synthesising 416 effect sizes from 124 papers sampling 74,797 participants. Here we show that effectiveness, $r = 0.34$, $SE = 0.04$, 95%CIs [0.28, 0.40], and empathy, $r = 0.25$, $SE = 0.02$, CIs [0.21, 0.29], both positively relate to charitable giving overall. However, prediction intervals reveal significant heterogeneity. Moderation analyses reveal one crucial caveat to the overall association between effectiveness and charitable giving: although the mean effect is relatively large when effectiveness is measured, $r = 0.42$, CIs [0.35, 0.48], manipulated effectiveness has a weak effect, $r = 0.03$, CIs [-0.10, 0.17]. Our findings suggest that while people may self-perceive as effective altruists, they give like empathic ones, a disjunction that calls for deeper causal investigation.

<https://www.nature.com/articles/s41467-026-70230-8>

Nature Ecology & Evolution

OBITUARIES

FRANCESCO D'ERRICO, LYN WADLEY & CHRIS HENSHILWOOD – Paola Villa (1939–2024)

Paola Villa's contributions to prehistoric archaeology were vast and covered a remarkable range, from the Lower Palaeolithic to the Neolithic. Her work spanned methodological advances — such as pioneering research on breakage patterns of human and animal bones, and multiple contributions on site formation processes and bone taphonomy — to in-depth analyses of major Lower and Middle Palaeolithic sites in Italy and Spain, and Middle Stone Age sites in southern Africa. She made groundbreaking discoveries, such as firmly identifying cannibalism in the Neolithic (P. Villa et al. *Science* 233, 431–437; 1986) and demonstrating the use of controlled heating and pressure-flaking techniques to shape 73,000-year-old bifacial points at Blombos Cave in South Africa (V. Mourre et al. *Science* 330, 659–662; 2010). She showed that the latter innovation occurred 50,000 years earlier than previously documented, which redefined the timeline of these key technological achievements. Her extensive work provided insights into topics as varied as the first colonization of and earliest deliberate use of fire in Europe;

Neanderthal hunting weapons, cognition and demise; as well as the use of bone and ivory tools in the Lower and Middle Palaeolithic of Europe. Known for her tenacity, encyclopaedic knowledge and collaborative spirit, Paola combined rigour with innovation and transformed every project she undertook.

https://www.academia.edu/165005541/nature_ecology_and_evolution

Nature Humanities & Social Sciences Communications

PAPERS

MENGYUN WANG & QUAN XU – Does dispositional awe foster young adults' international altruism? The roles of self-transcendence and identity with all humanity

We are providing an unedited version of this manuscript to give early access to its findings. Before final publication, the manuscript will undergo further editing. Please note there may be errors present which affect the content, and all legal disclaimers apply.

International altruism is crucial for promoting global stability and peaceful development. Thus, it is vital to identify factors that can enhance international altruism. Building upon the revised small-self hypothesis, we investigated whether dispositional awe affects international altruism, as well as the mediating roles of self-transcendence and identity with all humanity (IWAH), in different cultural contexts. A total of 780 participants from China (N = 497) and the US (N = 283) took part in this study. The multiple mediation model revealed that dispositional awe was positively associated with international altruism in both countries. Furthermore, in the Chinese sample, dispositional awe indirectly affected international altruism through the mediating roles of self-transcendence and IWAH, both parallelly and sequentially. By contrast, in the US sample, dispositional awe indirectly affected international altruism through the independent mediating effect of IWAH, and the sequential mediating effects of self-transcendence and IWAH. Overall, these findings contribute to understanding the potential factors of international altruism across cultures from a unique perspective of positive psychology and provide practical insights for enhancing intergroup relations.

<https://www.nature.com/articles/s41599-026-06926-5>

Nature Mental Health

PAPERS

HSIANG-YUAN LIN, MICHAEL BREAKSPEAR & LAURENT MOTTRON – From heterogeneity to idiosyncrasy in the autistic brain

The profound heterogeneity of the autism 'spectrum' has hindered the search for unifying mechanisms, leaving the promise of subtyping unfulfilled. Here we argue this stems from focusing on eliminating, rather than explaining, variability. We propose a fundamental reframing, elevating idiosyncrasy—stable, person-specific neural, cognitive and behavioral patterns—from statistical noise to the core signal to be understood. We introduce a dynamical systems perspective where autistic neurodevelopment follows an altered stochastic trajectory. This process generates a unique distribution of outcomes—featuring both a recognizable central tendency (the prototype) and broad, heavy tails (idiosyncrasy). This structured variability implies embedded threshold effects rather than discrete subtypes or simple Gaussian-like variation (a dimensional continuum). This framework explains why group-average approaches are often inconclusive and necessitates a shift toward individual-level, non-Gaussian analytical tools. Embracing idiosyncrasy as a hallmark of more rigorously defined autism can resolve long-standing paradoxes, advance research, foster personalized support, and bridge the gap between biomedical science and the neurodiversity movement.

<https://www.nature.com/articles/s44220-026-00601-z>

Nature Neuroscience

PAPERS

ANDREA I. LUPPI et al – Competitive interactions shape mammalian brain network dynamics and computation

How does brain network architecture balance cooperation and competition between distributed circuits? Here we use computational whole-brain modeling to examine the dynamical and computational relevance of cooperative and competitive interactions in the mammalian connectome. Across human, macaque and mouse, we show that to faithfully reproduce brain activity, model architecture consistently combines modular cooperative interactions with diffuse, long-range competitive interactions. Across species, competitive interactions preferentially link regions characterized by opposite profiles of cytoarchitecture, gene expression and receptor expression. The model with competitive interactions provides superior subject specificity, consistently outperforming the cooperative-only model and exhibiting excellent fit to the spatiotemporal properties of the living brain. These properties were not explicitly optimized, instead emerging spontaneously. Competitive interactions in the generative connectivity produce more synergistic and hierarchical dynamics, leading to enhanced performance for neuromorphic computing. Altogether, this work provides a generative link among network architecture, dynamical properties and computational performance in the mammalian brain.

<https://www.nature.com/articles/s41593-026-02205-3>

Nature Scientific Reports

PAPERS

DIANE A. AUSTRY et al – Towards the complexity of laugh communication in great apes: exact facial replications in laugh faces of orangutans and chimpanzees

We are providing an unedited version of this manuscript to give early access to its findings. Before final publication, the manuscript will undergo further editing. Please note there may be errors present which affect the content, and all legal disclaimers apply.

Exact facial replications, where individuals match the same facial variant type (e.g., Duchenne smiles) of others, play a central role in everyday social interactions of humans. Such replications help to improve an understanding of others by allowing individuals to be emotionally more in tune with them and/or to predict their behaviours. In this study, we tested for exact facial replications in orangutans and chimpanzees – the great apes phylogenetically farthest from and closest to humans, respectively. We tested in 96 subjects (from altogether eight social groups) whether such facial replications occurred within three seconds for laugh faces, homologues of human smiles/laugh faces. We focused on two variant types (laugh faces with and without the upper teeth exposed), using a two-step method. Our study revealed that both the orangutans and chimpanzees showed exact facial replications for laugh faces where the upper teeth were not exposed, i.e., the variant type that was least associated with rough/risky play. Such variant preference for exact replications might help being emotionally more in tune with others and/or predict their behavioural actions – either one could lead to important advantages, such as prolonging play (a correlation found for the studied orangutans). These findings infer an evolutionary continuity of exact facial replications across great apes (and humans) and a complexity for pre-human laugh communication. Laugh faces of ancestral apes must have already been complex in form and function 10–16 million years ago, and later within the hominin lineage become even more effective tools of everyday social communication.

<https://www.nature.com/articles/s41598-026-43992-w>

SRIRANJANI MANIVASAGAM & ANNE SCHACHT – Social learning of emotion and its implication for memory: an ERP study

We are providing an unedited version of this manuscript to give early access to its findings. Before final publication, the manuscript will undergo further editing. Please note there may be errors present which affect the content, and all legal disclaimers apply.

Social learning of emotional salience from surrounding social cues is particularly advantageous under conditions of uncertainty. Yet, the neural mechanisms underlying this process and its consolidation into long-term memory remain poorly understood. In this two-day EEG study, we examined whether emotional salience from social cues (facial expressions) transfers to perceptually uncertain target images, and whether such learned salience is preserved in memory even after the social cues are removed. On Day 1 (learning session), preregistered analyses provided no evidence for an automatic emotional salience transfer across trials under the task's uniform perceptual uncertainty. Instead, exploratory ERP analyses indicated that the use of social cues depended on subjective perceptual uncertainty, indexed by participants' classification accuracy of the target image. P1 amplitudes in the learning session reflected this modulation. On Day 2 (test session), recognition performance and ERPs revealed evidence for additive emotional salience effects. EPN amplitudes were enhanced for accurately classified positive target images previously paired with social cues. In contrast, LPC amplitudes were reduced for negative target images in the social cue condition, independent of classification accuracy. Together, these findings suggest that the influence of social cues is contingent on subjective uncertainty. When internal valence judgments were strong (positive images), social cues added to emotional salience; when internal valence judgments were weaker (negative images), participants relied more heavily on the social cue, resulting in weaker memory encoding.

<https://www.nature.com/articles/s41598-026-42906-0>

Neuron

PAPERS

RODRIGO QUIAN QUIROGA – 20 years of concept cells: From invariant responses to a unique coding of human memory

I discuss human single-neuron recordings and the discovery of concept cells—i.e., neurons representing specific concepts in the hippocampus and surrounding cortex—about 20 years ago. I then present the main properties of concept cells and show how these neurons are involved in forming and storing memories in coordination with complementary neocortical representations. Finally, I compare the response properties of concept cells with those reported in the hippocampus of other species and argue that the abstract representation by concept cells is exclusively human and might be a cornerstone of human cognitive abilities, such as our power for high-level abstract thinking and generalization.

[https://www.cell.com/neuron/abstract/S0896-6273\(26\)00051-6](https://www.cell.com/neuron/abstract/S0896-6273(26)00051-6)

New Scientist

ARTICLES

DAVID ROBSON – 'Singing' dogs may show the evolutionary roots of musicality

Some Samoyeds adjust the pitch of their howls depending on the music being played, showing a form of vocal ability they might have inherited from their wolf ancestors.

<https://www.newscientist.com/article/2518339-singing-dogs-may-show-the-evolutionary-roots-of-musicality/>

MICHAEL MARSHALL – The first apes to walk upright may have evolved in Europe

A single femur found in Bulgaria appears to represent an ape or early hominin that walked on two legs before any known African hominin, but the evidence is far from conclusive.

<https://www.newscientist.com/article/2518516-the-first-apes-to-walk-upright-may-have-evolved-in-europe/>

Patterns

PAPERS

GEORGIA CHANNING & AVIJIT GHOSH – AI for scientific discovery is a social problem

AI is being increasingly applied to scientific research, but its benefits remain unevenly distributed across different communities and disciplines. While technical challenges such as limited data, fragmented standards, and unequal access to computational resources are already well known, social and institutional factors are often the primary constraints. Narratives emphasizing autonomous “AI scientists,” the underrecognition of data and infrastructure work, misaligned incentives, and gaps between domain experts and machine-learning researchers all limit the impact of AI on scientific discovery. Four interconnected challenges are highlighted in this paper: community coordination, the misalignment of research priorities with upstream needs, data fragmentation, and infrastructure inequities. We argue that addressing these challenges requires not only technical innovations but also intentional community-building efforts, cross-disciplinary education, shared benchmarks, and accessible infrastructure. We call for reframing AI for science as a collective social project, where sustainable collaboration and equitable participation are treated as prerequisites for achieving technical progress.

[https://www.cell.com/patterns/fulltext/S2666-3899\(26\)00006-1](https://www.cell.com/patterns/fulltext/S2666-3899(26)00006-1)

PLoS One

PAPERS

EUJIN LEE et al – Changes in infant head shape: Developmental trends during the first year of life and secular changes observed in recent years

The cephalic index (CI), defined as the percentage of head width to length, has been used in multiple studies. However, CI only provides 2D information, and comprehensive methods to assess the 3D cranial shape are yet to be established. Currently the typical pattern of changes in the head shape in healthy infants remains to be determined. There are only a few studies that followed the changes during the first year of life at frequent intervals or investigated differences between the subpopulations. In this retrospective cross-sectional study, we aimed to identify the morphological changes in the head that occur during the first year of life in healthy Japanese infants and capture differences in relation to background characteristics including age and birth year. We used 1,980 records of measurement data including over the head distances from the left tragon to the right tragon and from the glabella to the occipital protuberance, and head circumference. Complete data across three measurements were available for 909 records. From these measurements, head length, width, and height were estimated to determine CI, volume and a head roundness measure, Globularity Index (GI), by ellipsoid approximation. During the first year, the estimated marginal mean of CI reached the highest level 100.57 (95% CI [97.64, 103.50]) at 6 months (Cohen's d: 0.88–1.07, $p < 0.001$), displaying front-to-back flattening before declining to 90.12 (95% CI [85.22, 95.02]) at 12 months following the effect of age, controlling for sex and birth year. We also observed secular changes during the period from 2010 to 2019, with recent birth years presenting more elongated head shape at 3 months of age. These indicated that distinct morphological changes in the head which may result from different growth rates in specific regions occur and secular changes can be observed during the early periods of infancy.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0344700>

URSULA HESS et al with MARINA DAVILA-ROSS & KATJA LIEBAL – Evolutionary echoes of emotion: Humans mimic other primate expressions

Humans readily mimic the emotional behavior of conspecifics -- a behavior linked to empathy. Yet, whether humans unconsciously mimic the emotional expressions of non-human primates remains an open question. Human observers watched short videos with positive (play-face), negative (open-mouth threat display) or neutral expressions by monkeys and apes (while their own facial expressions were filmed and automatically coded), rated the expressions for emotional content and indicated their degree of liking of and closeness to the primates. Participants mimicked both positive and negative expressions and were able to correctly identify the expressions as positive or negative. These findings shed new light on the deep-rooted, cross-species nature of emotional connection, suggesting that humans are able to empathize and mirror the emotions of other species.

Proceedings of the Royal Society B

PAPERS

STEPHANIE L. MASON, STEPHANIE L. KING & AMANDA R. RIDLEY – Ontogenetic evidence of socially learned call sequences in Western Australian magpies

Combinatoriality is the capacity to combine discrete vocal elements into larger structures. Previously thought unique to human language, combinatoriality has now been documented in several non-human taxa. This capacity is believed to be related to social complexity and the need to transmit complex information, as predicted by the social complexity hypothesis for communicative complexity (SCHCC). Research into combinatoriality has predominantly focused on adult repertoires, limiting the ability to determine social influences on the emergence of vocal sequences. We used longitudinal observations of magpie fledglings to document the emergence of their non-song repertoire and investigate the effect of social complexity on repertoire size and the rate at which call sequences are acquired. We found that fledglings acquire their sequence repertoires over time and produce the sequences of their social group—not the broader population—suggesting they are socially learned. Furthermore, individual sociability was found to modulate this process: fledglings who spent more time with others produced sequences sooner and those with more social contacts produced more sequence types. This study is the first to document the emergence of combinatoriality in an open-ended vocal learner and provide individual-level ontogenetic evidence that the SCHCC applies to combinatoriality.

<https://royalsocietypublishing.org/rspb/article/293/2066/20251620/480728/Ontogenetic-evidence-of-socially-learned-call>

Science

PAPERS

VANI G. RAJENDRAN, LUIS PRADO & JUAN PABLO MARQUEZ – Monkeys have rhythm

Synchronizing movements to music is a hallmark of human culture, but its evolutionary and neurobiological origins remain unknown. This ability requires (i) extracting a steady rhythmic pulse, or beat, out of continuous sounds; (ii) projecting this pattern forward in time; and (iii) timing motor commands to anticipate future beats. Here, we demonstrate that macaques can synchronize to a subjective beat in real music and even spontaneously do so over alternative strategies. This contradicts the influential “vocal-learning hypothesis” that musical beat synchronization is privileged to species with complex learned vocalizations. We propose an alternative view of musical beat perception and synchronization as a continuum onto which different species can be mapped based on their capacity to coordinate the general abilities listed above through association with reward.

<https://www.science.org/doi/10.1126/science.adp5220>

PETER F. COOK et al – Seal and sea lion brains have evolved to support volitional control of vocal behavior and learning

Seals and sea lions have highly developed volitional breathing control, to which the phocid seals add vocal production learning, including mimicry. In this work, using histology and ex vivo diffusion magnetic resonance imaging tractography, we provide evidence for a phylogenetic spectrum of accumulative neural adaptations supporting aspects of volitional vocal control across pinnipeds. Otariids and phocid seals, but not coyotes, have a direct connection between the vocal motor cortex and phonatory brainstem nuclei. Harbor seals showed hypertrophic connectivity between the anterior ventrolateral thalamus and the vocal premotor cortex—part of a forebrain circuit related to vocal learning in birds and mimicry in humans and parrots. We demonstrate that phocid seals have auditory-premotor pathways potentially related to developmental call learning.

<https://www.science.org/doi/10.1126/science.adx9367>

Science Advances

PAPERS

EMILE BRYON et al – Chimpanzees are not more aggressive than bonobos but target sexes differently

The long-standing view that bonobos (*Pan paniscus*) are peaceful while chimpanzees (*Pan troglodytes*) are aggressive has shaped our understanding of primate and human social evolution. However, recent observations from the wild challenge this dichotomy, warranting standardized comparative analyses of aggression in the *Pan* species. Here, we examined aggressive interactions across 22 zoo-housed groups of chimpanzees (N = 9 groups, 101 individuals) and bonobos (N = 13 groups, 88 individuals) using Bayesian social network analysis. We find no species differences in overall or contact aggression rates, accounting for group size and sex ratio. However, aggression patterns diverge by sex: Bonobos exhibit higher female-to-male aggression, while chimpanzees show the reverse. Notably, absolute aggression rates varied substantially between groups within each species, reinforcing recent evidence on group-specific social structures in *Pan*. These findings challenge the traditional aggression dichotomy between bonobos and chimpanzees and provide insights into the evolutionary dynamics of social conflict strategies in great apes, including humans.

<https://www.science.org/doi/10.1126/sciadv.adz2433>

Trends in Cognitive Sciences

PAPERS

DORSA AMIR & BENJAMIN PITT – What does it mean for culture to ‘shape’ cognition?

Human culture and cognition vary widely across groups, but how exactly culture ‘shapes’ cognition remains underspecified. In this review, we outline four qualitatively different pathways by which culture can shape cognition. In this framework, culture can (i) privilege some cognitive processes, while leaving alternative processes intact; (ii) prune unused alternative processes, which are irretrievably lost; (iii) produce new cognitive processes; or (iv) have no effect on cognition at all. To illustrate the utility of this framework, we apply it to three debated effects of culture on cognitive processes, namely, visual illusions, large exact number abilities, and spatial–numerical associations. The distinctions we propose can serve to reframe long-standing debates, sharpen empirical predictions, and open new avenues of research in cognitive diversity.

[https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613\(26\)00022-7](https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(26)00022-7)

ZHIVAR SOURATI, ALIREZA S. ZIABARI & MORTEZA DEGHANI – The homogenizing effect of large language models on human expression and thought

Cognitive diversity, reflected in variations of language, perspective, and reasoning, is essential to creativity and collective intelligence. This diversity is rich and grounded in culture, history, and individual experience. Yet, as large language models (LLMs) become deeply embedded in people’s lives, they risk standardizing language and reasoning. We synthesize evidence across linguistics, psychology, cognitive science, and computer science to show how LLMs reflect and reinforce dominant styles while marginalizing alternative voices and reasoning strategies. We examine how their design and widespread use contribute to this effect by mirroring patterns in their training data and amplifying convergence as all people increasingly rely on the same models across contexts. Unchecked, this homogenization risks flattening the cognitive landscapes that drive collective intelligence and adaptability.

[https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613\(26\)00003-3](https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(26)00003-3)

Trends in Ecology and Evolution

PAPERS

WILLIAM K. OESTREICH et al – Resource variability shapes the ecology of social information and collective sensing

Social information expands individual sensing of resources in dynamic ecosystems, yet why social strategies evolve in resource pursuit remains unsettled. We posit that resource variability along three axes mediates the emergence of collective sensing by altering the value of social information for maximizing individual resource gain and minimizing its variance. Drawing from empirical examples across taxa and scales, we offer testable predictions under the hypothesis that resource variability shapes this dual value of social information. Variance-induced risks to survival represent an underappreciated factor amplifying the value of social signals and cues, especially when resources are patchy, ephemeral, and abundant. This perspective bridges classical ecological models and burgeoning interest in collective behavior, providing the ‘why’ underlying the ‘how’ of sensory collectives.

[https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347\(26\)00026-1](https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347(26)00026-1)

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