

EAORC BULLETIN 1,205 – 19 July 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.

ACADEMIA.EDU – Decoding Acheulean Percussive Technology

Journal of Paleolithic Archaeology 9:26 (2026).

EDUARDO PAIXÃO et al with ERELLA HOVERS – Decoding Acheulean Percussive Technology: Experimental Approach to Understanding Use-wear Traces in Different Raw Materials

The study of percussive technologies is crucial for understanding the cognitive and adaptive capacities of early hominins in all archaeological periods. Percussive technologies of early hominins testify to a large range of daily activities and serve as a source of information on raw material selection and tool-use strategies. These technologies also inform on the broader economic, social, and technical organisation of early hominin societies. While Acheulean assemblages document an increase in the variability of lithic raw materials and tool types used for percussion activities compared to the Oldowan, the functional significance of such changes remains understudied. By experimentally assessing the effects of percussive actions on different raw materials, this study aims to advance our understanding and ability to identify use-wear traces related to bone percussion during the Acheulean, providing a reference that directly contributes to the study of the Melka Wakena site complex in Ethiopia. In this paper, we present the results of a laboratory-controlled mechanical experiment combined with multi-scale analyses, including 3D scanning and multi-scale microscopy, to examine the effects of percussive actions on the natural surfaces of different raw materials. Our results show how traces form in different raw materials, providing additional data to further the characterization of traces. Such experimental data are fundamental for inferring decision-making criteria involved in the selection and use of various raw materials by early Acheulean stone toolmakers.

https://www.academia.edu/170350646/Paix%C3%A3o_E_Gossa_T_Marreiros_J_Gneisinger_W_Hovers_E_2026_Decoding_Acheulean_Percussive_Technology_Experimental_Approach_to_Understanding_Use_wear_Traces_in_Different_Raw_Materials_Journal_of_Paleolithic_Archaeology_9_26_10_1007_s41982_026_00268_z

NEWS

NATURE BRIEFING – Nurture, not nature, creates handedness

Researchers taught people to write with their elbows to show that practice helps to make people left- or right-handed, not just the innate preference. People with pens taped to their arms wrote no better or worse on their dominant and non-dominant sides, the team found. And training helped them to improve, regardless of which side they used. “The dominant arm isn't more capable because one hemisphere of the brain is simply better at controlling movement,” says neurologist and study co-author Ahmet Arac. “It is because we've spent a lifetime practicing the specific, complicated movements that tools and handwriting demand.”

<https://www.pnas.org/doi/10.1073/pnas.2601569123>

NATURE BRIEFING – How naked mole rat queens keep the throne

Naked mole rat (*Heterocephalus glaber*) queens produce a chemical that prevents other females in their colony from reproducing. The smell of isopropyl myristate — which is also a common ingredient in skincare products — alters the production of hormones in other females, which traps them in a prepubescent-like state. Researchers found that the chemical alone can maintain the status quo in mole-rat colonies when the queen is not physically present. The study solves the “longstanding mystery” of why only one female in a naked mole rat colony reproduces, says behavioural scientist Melissa Holmes.

<https://www.nature.com/articles/s41586-026-10772-5>

NEW SCIENTIST HUMAN STORY – how humans got heavier and taller is an important part of our origins

To find out how hominin body size has changed over time, I spoke to evolutionary biologist Jacob Gardner at the University of Reading in the UK. He's lead author of a study published in PNAS on 22 June, which looks at the trends in body size over the past 4 million years.

Let's start by putting some concrete numbers on this. Earlier hominins like *Ardipithecus* and *Australopithecus*, which lived earlier than 2 million years ago, had an average body mass of 40 kilograms, with a range of 30 to 50 kg. *Homo habilis*, an early member of our genus, was a bit bigger: 45 kg on average, ranging from 35 to 55 kg. *Homo erectus*, the first hominin known to have migrated out of Africa into Eurasia, was bigger still, averaging 60 kg with a range of 50 to 75 kg. Finally, prehistoric *Homo sapiens* were up to an average of 75 kg and a range of 55 to 80 kg.

Gardner and his colleagues compiled estimates of body mass for 386 specimens belonging to 21 hominin groups, dating from 4.5 million years ago to 30,000 years ago. If that seems a little arbitrary, there are reasons why. They excluded more recent specimens because there is evidence of our species having shrunk in the past 30,000 years, which would have made a mess of the analysis. They also left out the earliest hominins, *Sahelanthropus* and *Orrorin*, because of ongoing uncertainties over how they are related to later groups.

The team then ran 1000 models to see what would best explain the data. Did body size increase within each group, meaning earlier *H. erectus* were smaller than more recent ones? Or did each group pretty much stay the same size, with the changes coming when new groups evolved? Did body size increase gradually over the whole 4.5-million-year timespan, or were there long periods of stasis and occasional bursts of growth?

The researchers ultimately identified two trends, which between them explained most of the changes.

The first was “the gradual progression from *Ardipithecus* to later hominin species”, says Gardner. This was a “modest” increase in body mass of about 1 to 3 kg per million years. If you remember, average body mass went from 40 kg to 75 kg in 4.5 million years: this gradual increase can only explain about a third of that.

Hence the second trend, which was a “big jump around the appearance of *Homo erectus* and other later species in our genus *Homo*”, says Gardner. The first *H. erectus* appeared in Africa around 2 million years ago.

We’ll get to why this might have happened in a minute, but first let’s look at what happened to people’s height.

Gardner and his colleagues didn’t analyse height, but a team led by Manuel Will at the University of Tübingen in Germany did in a study published in *Royal Society Open Science* in 2017. This one compiled 204 stature estimates from 4.4 million years ago until nearly the present day. The variation is dramatic. One especially dainty *Australopithecus* specimen clocked in at just 105 centimetres, while a 24,500-year-old *H. sapiens* from Barma Grande cave in Italy was almost 189 cm tall.

Will’s team found “phases of relative stasis intermitted by periods of rapid increases”. Before 2.2 million years ago, most hominins were less than 140 cm tall. There was then a noticeable increase between 2 million and 1.6 million years ago. By 1.6 million years ago, some individuals grew taller than 170 cm for the first time. However, such heights only became commonplace much more recently, around 500,000 years ago.

This loosely maps onto what Gardner’s team found. Hominins got significantly bigger, both in mass and in height, from around 2 million years ago when *Homo erectus* came on the scene.

What was going on? The answer, as usual, is “lots of things”.

One factor may be sexual dimorphism. In early hominins like *Australopithecus*, males were significantly bigger than females – 170 cm compared with as little as 105 cm – and had larger canine teeth. We see the same pattern in chimpanzees and other animals where males compete violently for females, with successful males mating with multiple females while unsuccessful males don’t mate at all. But in early *Homo* species, males and females were much more alike (and in *H. sapiens* today, the height and mass differences are smaller still).

Exactly how this played out is unclear. “There’s some hypotheses that perhaps males got smaller through time, and then there’s hypotheses that it’s the females that got bigger through time and the males stayed about the same,” says Gardner. If the latter is true, that would account for some of the average increase.

Diet may also have played a big role. Early *Homo* ate more meat than *Australopithecus*, and meat is calorific. Furthermore, “we are finding some of the earliest evidence of cooking meat in *Homo erectus*”, says Gardner. Cooked food contains more calories than raw food, so this was another way of getting more nutrition from a given food source.

Cooked food may also have been a factor in another important change in our bodies: the growth of our brains. The extra calories from cooked food may have enabled our brains to evolve to be larger.

It’s also crucial to bear in mind that different hominin groups evolved in different ways, depending on their circumstances. So while there was this overall tendency to get bigger, not everyone did. *H. floresiensis*, who lived on Flores in Indonesia until just 50,000 years ago, were barely more than 100 cm tall. *Homo naledi* from South Africa, who lived 335,000 to 236,000 years ago, were taller but still not much more than 140 cm. One of the shortest known adult hominins was a female *Paranthropus robustus*, who was probably just 103 cm. We don’t know why these hominins became so small, and it may be that each one did so for different reasons.

“All these different species are finding their own evolutionary path,” says Gardner. Each hominin group had its own unique set of environmental contexts, and this was reflected in their varying body sizes, he says.

Finally, let’s turn the question around. Once early *Homo* groups like *H. erectus* evolved larger bodies, how did that change their lives? “The larger you are,” says Gardner, “the longer the strides you can take across the landscape.” That’s especially true of *H. erectus*, whose legs were proportionately longer than those of earlier hominins. Gardner suggests they had larger home ranges than previous groups.

This may even help to explain why *H. erectus* were the first hominins (that we know of) to roam outside Africa. That’s a long-standing puzzle: how come they travelled all the way to Java, when earlier hominins seemingly never left Africa? If Gardner is right, it may be partly because they were bigger, so they needed more room.

<https://www.pnas.org/doi/10.1073/pnas.2521732123>

NEW SCIENTIST HUMAN STORY – Childbirth for many primate species is even harder than for humans

For decades, we’ve thought that childbirth is uniquely challenging for humans, but it turns out that many other primates find the birth process just as difficult.

<https://www.newscientist.com/article/2532191-childbirth-for-many-primate-species-is-even-harder-than-for-humans/>

NEW SCIENTIST HUMAN STORY – Ancient human DNA found on cave art for the first time

DNA from ancient humans has been found on a prehistoric cave painting and on cave walls, demonstrating the potential to one day identify individual artists and resolve the debate over Neanderthals’ artistic abilities.

<https://www.newscientist.com/article/2532130-ancient-human-dna-found-on-cave-art-for-the-first-time/>

NEW SCIENTIST HUMAN STORY – All known Homo naledi skeletons seem to be female

An analysis of tooth proteins suggests all 23 Homo naledi individuals found in the Rising Star cave in South Africa were female, which strengthens the case that they were placed there deliberately.

<https://www.newscientist.com/article/2531654-all-known-homo-naledi-skeletons-seem-to-be-female/>

NEW SCIENTIST HUMAN STORY – Some of the last Neanderthals were surprisingly genetically diverse

Genetic analysis of Neanderthals in north-western Europe reveals that this population was surprisingly genetically diverse, hinting that inbreeding didn't lead to the species' demise.

<https://www.newscientist.com/article/2531732-some-of-the-last-neanderthals-were-surprisingly-genetically-diverse/>

NEWS FROM SCIENCE – An AI can invent entirely new languages. But is it creative?

Researchers debate whether tool produces genuinely novel tongues, or simply spits out a remix.

<https://www.science.org/content/article/ai-can-invent-entirely-new-languages-it-creative>

NEWS FROM SCIENCE – Mysterious orange-lipped monkey discovered in the Congo is a new species

"Likweli" find highlights importance of conservation work, researchers say

<https://www.science.org/content/article/mysterious-orange-lipped-monkey-discovered-deep-congo-rainforest-new-species>

SCIENCEADVISER – AI can create languages, but are they creative?

"Conlangers" are linguists and others who enjoy constructing entirely new languages, such as the alien tongues used in science fiction movies and fantasy novels. It's a time-consuming craft that requires both rigor and creativity, they say: constructing a coherent set of grammatical rules but also inventing novel words that have the right feel. But now artificial intelligence (AI) systems that can construct new languages are fueling debate over the role of human creativity in language construction—and whether an AI conlanger can replicate that imaginative leap.

One of those systems is ConlangCrafter, which was a topic of discussion at the recent Annual Meeting of the Association for Computational Linguistics. Researchers have used it to generate dozens of languages, from humanlike tongues to more speculative ones, such as a language for alien cephalopods that communicate through color changes and tentacle gestures instead of sound. And while conglangers and linguists applaud the system's ability to produce convincing languages, they question whether it is truly creative, or just generating sophisticated remixes.

But Ganesh Bagler, a computational scientist at Indraprastha Institute of Information Technology Delhi, wonders whether human creativity is as unique as generally imagined, given that musicians, for example, often remix existing material. "Human creativity inherently is fundamentally combinatorial," he said. "Why then can't an AI be called creative?"

<https://www.science.org/content/article/ai-can-invent-entirely-new-languages-it-creative>

SCIENCEADVISER – Shamaness

A new analysis of ancient DNA has revealed that a Bronze Age shaman and metalworker, long assumed to be male, was actually a woman. "It completely tears up previous assumptions," said the director of the Wiltshire Museum, which holds the remains.

<https://www.theguardian.com/science/2026/jul/14/ancient-dna-analysis-reveals-upton-lovell-shaman-was-woman-wiltshire>

SCIENCEADVISER – Mysterious orange-lipped monkey is a new species

Deep in the lush forests of Lomami National Park in the Democratic Republic of the Congo lives a rare Colobus monkey that has long evaded scientists and even most local communities. Now, following years of determined fieldwork, researchers have concluded the elusive animal—christened "Likweli," the name given to it by the local Balanga people—is a new species. It's only the fifth species of African monkey discovered in the past 75 years, the team reported yesterday in PLOS One.

Scientists spent 4 years scouring the park, observing the animals in their natural habitat, recording their vocalizations, and studying dead monkeys confiscated from hunters by local patrols. They also consulted communities in the surrounding area for information on the species' behavior and to aid in their search.

Their findings converged on the monkeys belonging to a new species. They're smaller than other members of the Colobus genus, for instance, and have a distinct orange-cream patch around their mouth. A genetic analysis showed they diverged from their closest relative, the black colobus, some 5 million years ago. The team gave Likweli the scientific name *C. congoensis*, after the Congo Basin itself, because they wanted to recognize the biodiversity in the area.

"It's very exciting, but also very sobering to be finding a new species of primate when tropical forests are under so much stress right now," said ecologist Thomas Gillespie, who wasn't involved with the study. The researchers recommend Likweli be listed as endangered, due to its small geographic range and the threat of habitat loss.

<https://www.science.org/content/article/mysterious-orange-lipped-monkey-discovered-deep-congo-rainforest-new-species>

SCIENCENEWS – Neandertal babies were a lot like ours — but didn't stay that way

Two studies of Neandertal remains suggest their newborns were about the same size as those of modern humans but developed faster through infancy.

<https://www.sciencenews.org/article/neandertal-human-growth-rate>

SCIENCENEWS – Whether lefty or righty, practice makes the difference

Researchers looking for the origins of left-right dominance in the brain found no innately better motor skills on either side.

<https://www.sciencenews.org/article/left-right-dominance-practice-writing>

THE CONVERSATION – Why some primates have even tougher births than humans

Tamarins and squirrel monkeys have babies with unspeakably large heads compared to their mother's birth canal.

<https://theconversation.com/why-some-primates-have-even-tougher-births-than-humans-287002>

PUBLICATIONS

Current Biology**PAPERS****IRENE ECHEVERRIA-ALTUNA et al – Differences in dynamic motor selection in stuttering**

Stuttering involves interruptions to the smooth flow of speech occurring mostly at syllable onset.¹ Speech fluency is enhanced in people who stutter (PWS) by external timing cues.² This has been taken to indicate that difficulties in the temporal organization of action selection and initiation during speech contribute to stuttering.³ An important unanswered question is whether putative temporal coordination difficulties are specific to speech or generalize to other actions. Here, we examined the temporal organization of hand-action selection in PWS. Twenty PWS and twenty typically fluent speakers (TFS) underwent magnetoencephalography (MEG) recording while performing a visuomotor working-memory task that encouraged temporally specific selection, preparation, and shifts between hand actions. Lateralized sensorimotor mu/beta-frequency (8–30 Hz) activity modulation accompanying hand-action prioritization was weaker in PWS than TFS. Strikingly, this effect was specific to a period of high uncertainty regarding which action to select and when. Despite these differences, lateralized mu/beta modulation was functionally related to reaction times in both groups and reaction times were well matched between PWS and TFS. The findings suggest a general disruption of temporal structuring of action selection and preparation in stuttering.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(26\)00805-5](https://www.cell.com/current-biology/fulltext/S0960-9822(26)00805-5)

eLife**PAPERS****WENDY SUN, LAUREN M DINICOLA & RANDY L BUCKNER – Verbal versus Nonverbal Processing Leads to Generalized Hemispheric Laterality Effects that Span Multiple Networks**

Precision neuroimaging was used to explore specialization for verbal versus nonverbal processing. Consistent with prior findings, individuals exhibited a spatially left-lateralized association language network, with regions in both hemispheres robustly responding to processing of meaning-based sentences. We next examined differential responses to verbal (words) versus nonverbal (faces) materials within the same working memory task. The right hemisphere components of the language network responded more strongly to nonverbal than to verbal materials, splitting the network's functional profile between the hemispheres. Similar patterns were observed across multiple association networks including putative cognitive-control, action-mode, and attention networks. The hemispheric laterality effect was prospectively replicated in a second independent study. These findings highlight a generalized laterality phenomenon that transcends the specialization of individual networks that has been the recent focus of the human systems neuroscience field, and aligns with a broad mechanism that modulates processing between the hemispheres.

<https://elifesciences.org/reviewed-preprints/111758>

JASON DA SILVA CASTANHEIRA et al – How attention simplifies mental representations for planning

Human planning is efficient – it frugally deploys limited cognitive resources to accomplish difficult tasks – and flexible – adapting to novel problems and environments. Computational approaches suggest that people construct simplified mental representations of their environment, balancing the complexity of a task representation with its utility. These models imply a nested optimisation in which planning shapes perception and perception shapes planning – but the perceptual and attentional mechanisms governing how this interaction unfolds remain unknown. Here, we harness virtual maze navigation to characterise how spatial attention controls which aspects of a task representation enter subjective awareness and are available for planning. We find that spatial proximity governs which aspects of a maze are available for planning and that when task-relevant information follows natural (lateralised) contours of attention, people can more easily construct simplified and useful maze representations. This influence of attention varies considerably across individuals, explaining

differences in people's task representations and behaviour. Inspired by the 'spotlight of attention' analogy, we incorporate the effects of visuospatial attention into existing computational accounts of value-guided construal. Together, our work bridges computational perspectives on perception and decision-making to better understand how individuals represent their environments in aid of planning.

<https://elifesciences.org/articles/108034>

ANOOP MANAKKADAN et al – Primate Hippocampus Reveals Distinct Rules for Associative Synaptic Plasticity

Long-term potentiation (LTP) is a key cellular mechanism underlying learning and memory, but its conservation across species remains unclear. Using nonhuman primates (NHPs), we examined hippocampal synaptic plasticity at Schaffer collateral–CA1 synapses. Theta-burst stimulation (TBS) reliably induced LTP in NHPs, comparable to rodents. However, unlike rodents, TBS in NHPs readily engaged synaptic tagging and capture (STC), indicating a lower threshold for associative plasticity. This was accompanied by increased expression of plasticity-related proteins, including PKM ζ and BDNF, suggesting enhanced recruitment of protein synthesis-dependent stabilization mechanisms. These findings reveal a species-specific divergence in the molecular regulation of persistent synaptic plasticity and identify an evolutionary specialization in mechanisms supporting associative memory. Together, our results highlight limitations of rodent models in fully capturing human-relevant memory processes and underscore the importance of primate systems for translational neuroscience.

<https://elifesciences.org/reviewed-preprints/111886>

Frontiers in Human Neuroscience

PAPERS

HARUKI EMORI, ANDREI KHRENNIKOV & ATSUSHI IRIKI – Non-commutative structures of brain and cognition: quantum and contextual probability as a translational framework

Cognitive neuroscience has accumulated robust findings (e.g., order effects in judgment, multi-path motor preparation, perceptual binding, attentional selection, and the recursive construction of self and time) that systematically resist explanation within classical probabilistic and causal frameworks. We argue that these are not anomalies but signatures of a deeper, non-commutative architecture of cognition and brain dynamics. We propose quantum probability theory together with contextual probability theory, not as metaphorical analogies but as rigorous translational languages for cognitive processes in which observation actively transforms underlying state spaces. Underlying this framework is the conjecture that neural network dynamics in the brain are intrinsically organized to generate quantum-like representations—rather than merely being described by quantum mathematics from the outside. Their structural primitives (i.e., superposition, entanglement, projection, and non-commutativity) map onto premotor population coding, long-range cortical synchrony, prefrontal state dynamics, and default-mode network activity. On this basis we sketch a new sub-domain (namely, Cognitive Structural Science) that treats the geometry and algebra of cognitive state spaces as primary explananda, and outline a research program combining homologous human–macaque experiments with quantum-computer simulation as a constrained testbed.

<https://www.frontiersin.org/journals/human-neuroscience/articles/10.3389/fnhum.2026.1882287/full>

Frontiers in Psychiatry

PAPERS

SABRINA TURKER & GESA HARTWIGSEN – Probing the linguistic cerebellum: a qualitative review of the effects of cerebellar neurostimulation on language processing

The cerebellum has historically been underrepresented in language research. However, converging evidence from lesion and neuroimaging studies supports its crucial involvement in phonological and semantic aspects of language processing, highlighting the relevance of cerebro-cerebellar circuits in language-related functions. Likewise, cerebellar neurostimulation has emerged as a promising tool for modulating sensorimotor and higher-order cognitive processes. A systematic search was conducted in PubMed and Web of Science following PRISMA guidelines and the present review synthesizes findings from 30 neurostimulation studies probing the causal role of the cerebellum for language processing. It summarizes transcranial electric and magnetic stimulation studies in neurotypical speakers and readers, and individuals with higher-order language disorders. Special emphasis is placed on studies combining cerebellar stimulation with behavioral interventions to assess the potential of improving language-related outcomes in clinical populations. Collectively, these studies support the role of the right posterolateral cerebellum as a key modulator of language functions, especially meaning-related operations.

<https://www.frontiersin.org/journals/psychiatry/articles/10.3389/fpsy.2026.1850241/full>

Frontiers in Psychology

PAPERS

MARCELO R. S. BRIONES – The evolutionary origin of the collective unconscious and the appeal of research on Neanderthals and other ancient humans

Why does research on Neanderthals attract public attention far beyond its immediate scientific relevance? Such fascination may reflect more than intellectual curiosity; it may involve the activation of deep symbolic structures that Carl Jung termed

the collective unconscious. Integrating evolutionary biology, genomics, paleoanthropology, and psychology, I address a question Jung did not explicitly pose: when, along the human evolution, did the collective unconscious originate? I argue that this structure emerged gradually rather than suddenly. *Homo erectus* established a cognitive floor characterized by basic schemas of fear, group cohesion, and hierarchy, without evidence of symbolic elaboration. *Homo heidelbergensis*, the common ancestor of Neanderthals and *Homo sapiens*, is proposed as the strongest candidate for the emergence of proto-archetypal cognition, given its enlarged brain, social complexity, and possible forms of mortuary behavior. The symbolic system was operational in Neanderthals and archaic *H. sapiens* and became fully visible with the symbolic expression of the Upper Paleolithic. I further introduce the concept of the “incorporated other” to explain the distinctive psychological salience of Neanderthals and Denisovans. Unlike other extinct organisms, these archaic humans remain present in contemporary populations through genetic introgression, collapsing boundaries between self and other, past and present. I propose that this condition contributes to public fascination in ways not fully explained by resemblance, category ambiguity, intuitive essentialism, or the uncanny. The “incorporated other” predicts that genetic incorporation itself increases perceived self-relevance and engagement, even when similarity is held constant. Neanderthals are therefore psychologically salient because they are simultaneously extinct and biologically present.

<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2026.1857884/full>

Frontiers in Social Psychology

PAPERS

MARCO GITTO et al – Voice shaming: when speech becomes a target. Preliminary insights among youth who stutter

Children and adolescents who stutter experience bullying rates of 43%–81% internationally compared to 11%–17% in typical peers, yet no Italian data exist on stuttering-related victimization. This study introduces “Voice Shaming” as a distinct construct among bullying behaviors which targets specifically speech characteristics and examines its prevalence among Italian youth who stutter.

A prospective observational study surveyed 110 consecutive children and adolescents who stutter (ages 7–16; 79.1% male) and their parents from a specialized center. Two expert-developed questionnaires assessed Voice Shaming experiences, contexts, and impacts. Descriptive statistics with 95% confidence intervals (CI) characterized prevalence patterns.

Voice Shaming affected 70.9% (95% CI: 61.8%–78.6%) of participants by self-report and 66.4% (95% CI: 57.1%–74.5%) by parent-report, typically beginning at age 9. Voice mimicry was the predominant manifestation (82.1%), occurring primarily in schools (80.8%) by known peers (92.3%). Despite predominantly rare occurrences (71.8% reporting 1–2 lifetime episodes), 39.7% of affected participants modified speech to avoid mockery, 29.5% avoided activities, and parents observed mood disturbances in 69.9%. While 97.3% of parents implemented support strategies, schools adopted specific measures in only 19.2% of cases.

Taken together, Voice Shaming affects the majority of children and adolescents who stutter in this clinical sample, representing communication-based discrimination with notable psychological impact despite infrequent episodes. Voice Shaming is characterized by its qualitative impact on victims, the psychological significance of targeting speech characteristics, rather than by frequency requirements, distinguishing it from traditional bullying definitions that require repetitive patterns as a defining feature. Findings establish Voice Shaming as a distinct clinical concern requiring targeted assessment and intervention in clinical and educational settings.

<https://www.frontiersin.org/journals/social-psychology/articles/10.3389/frsps.2026.1877638/full>

Language Sciences

PAPERS

SERGIO BALARI – On uniqueness claims and the nature of language

In the field of evolutionary studies of language uniqueness claims abound. Such claims, when taken informally, are, in all likelihood, true, because they capture the old intuition that the linguistic abilities of humans are, in some sense, different. That much is obvious, perhaps even trivial: No other animal species speaks like humans do. The problem arises when these claims are articulated in a scientific context and assumed to possess some solid biological grounding. In this paper I shall argue that no such grounding has been provided and that it is not forthcoming. The reasons for such a contention are twofold. One concerns the absence of an appropriate biological context in which these claims are made; the other, more potentially damaging reason concerns the actual status of ‘language’ as a biological character. If, as argued, we need necessarily to focus on some specific aspects of ‘language’ that may also be legitimately considered parts of an organism, then ‘language’ just becomes a label with no special significance, very much along the lines of what Richard Owen maintained in connection with the names of the bones of the vertebrate skeleton.

<https://www.sciencedirect.com/science/article/pii/S0388000126000550>

Nature Communications

ARTICLES

ROBIN DENNELL – The Japanese Palaeolithic deserves more attention in Western narratives about human expansion across Asia

Japan deserves more attention than it has so far received in Western narratives about the expansion of humans across Asia. It has over 10,000 Palaeolithic sites, many of which are well-dated. Japan provides excellent examples of Pleistocene sea-faring and long-distance Palaeolithic exchange networks. Okinawa in the Ryukyu Islands may provide one of the earliest examples of humans deliberately trans-locating an animal to a new environment. Japan may also have been a starting point for the colonisation of the Americas.

<https://www.nature.com/articles/s41467-026-74116-7>

PAPERS

SHUNSUKE TOTSUKA et al – Population expansion of early Upper Palaeolithic hunter-gatherers triggered cultural complexity on Paleo-Honshu Island, Japan

The major expansion of Homo sapiens represented by the Initial Upper Palaeolithic is one of the most significant prehistoric events in Eurasia, potentially leading to the replacement of archaic humans by Homo sapiens or the exploitation of new territories. Recent genetic studies suggest that Initial Upper Palaeolithic hunter-gatherers, or their descendant populations, expanded further east beyond the distribution area of Initial Upper Palaeolithic sites. However, the early Upper Palaeolithic sites, which appeared around 38 ka in Japan, are distinct and exhibit cultural traditions different from the Initial Upper Palaeolithic or other early Upper Palaeolithic assemblages in eastern Eurasia. The origins of the Japanese early Upper Palaeolithic remain unknown, and their formation process has yet to be quantitatively confirmed. In this study, we reconstruct a precise absolute chronology for Japanese early Upper Palaeolithic sites using reliable radiocarbon dating and examine the spatiotemporal patterns of early Upper Palaeolithic components. The results indicate that the number of early Upper Palaeolithic sites expanded between 36 and 34 ka, and the early Upper Palaeolithic assemblages indicate high complexity at this phase. The expansion of the population size between 36–34 ka would have provided hunter-gatherers with the opportunity for creating new tools and technologies and sharing them among different groups, leading to distinctive, complex early Upper Palaeolithic assemblages widespread in Japan.

<https://www.nature.com/articles/s41467-026-73880-w>

Nature Humanities & Social Sciences Communications

PAPERS

FLUTURA MEHMETI – The non-deictic voice of tradition: opening formulas and the generative creativity of Albanian fairy tales and their German translations

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.

This study examines the semantic role of the introductory formulas in Albanian fairy tales and in their German translations in Albanische Märchen, focusing on the way the non-deictic voice of tradition frames the entry into the imaginative universe of the tale. The introductory formula, understood as a stable configuration of signs, maintains its meaning through repeated use across generations and establishes the ritual mechanism through which the narrative act acquires its symbolic significance. In this perspective, the opening of the fairy tale is not simply a linguistic device but a cultural threshold that marks the passage from ordinary reality into the mythical space of collective memory. The analysis approaches the phenomenon on two interconnected levels—intersemiotic and intercultural—in order to trace how the structure of non-deixis becomes a coded signal of imagination and cultural recreation. The findings indicate that the introductory formula attests to the continuity of memory and to the adaptability of Albanian culture within translation, where the non-deictic voice of tradition persists as a way of thinking and storytelling that remains active through the sign.

<https://www.nature.com/articles/s41599-026-08262-0>

Neuron

ARTICLES

VEIT STUPHORN – Decide when to cooperate

Social cooperation requires the ability to synchronize actions with a partner. In this issue of Neuron, Shi et al.¹ show that neural activity in dorsomedial frontal cortex accumulates socially relevant visual information to guide the timing of coordinated actions.

[https://www.cell.com/neuron/abstract/S0896-6273\(26\)00455-1](https://www.cell.com/neuron/abstract/S0896-6273(26)00455-1)

PAPERS**WEIKANG SHI et al – Canonical decision computations underlie behavioral and neural signatures of cooperation in primates**

Successful cooperation requires the dynamic integration of social cues. However, the neural mechanisms supporting this complex process remain unknown. Here, we reveal that the primate dorsomedial prefrontal cortex (dmPFC) implements a gaze-dependent social evidence accumulation process to guide cooperative decisions in freely moving marmoset dyads. A drift-diffusion process in which the partner's action variability is accumulated through social gaze best explains the cooperative actions of the actor. Single-neuron recordings in the dmPFC revealed a direct neural correlate: the slope of predictive ramping activity mapped directly onto the rate of evidence accumulation, while baseline firing, modulated by prior outcomes, mapped onto the initial bias. At the population level, the geometry of dmPFC neural trajectories reflected the strength of social evidence and was linked to cooperative success. Together, these findings establish a multi-level neural mechanism for transforming active sensing into a decision variable, linking a canonical computation to cooperative behavior in a naturalistic setting.

[https://www.cell.com/neuron/fulltext/S0896-6273\(26\)00317-X](https://www.cell.com/neuron/fulltext/S0896-6273(26)00317-X)

New Scientist**ARTICLES****JAMES WOODFORD – Artefacts hint at cultural exchange between Neanderthals and humans**

A cave on the Turkish Mediterranean coast was inhabited first by Neanderthals and then Homo sapiens, but the continuity of tools and personal objects suggests there was some sharing of culture between the two species.

<https://www.newscientist.com/article/2533108-artefacts-hint-at-cultural-exchange-between-neanderthals-and-humans/>

STEPHEN WOLFRAM & LEAH CRANE – Does time come from the entire universe running computations?

Explaining the passage of time has been a gnarly problem in physics basically forever, but physicist and computer scientist Stephen Wolfram has a radical proposal for where it comes from. He discussed his ideas on time – and what they mean for free will.

<https://www.newscientist.com/article/2532871-does-time-come-from-the-entire-universe-running-computations/>

PLoS Biology**PAPERS****JULIEN BENISTANT et al – Social learning dynamically shapes moral decision-making by biasing subjective valuation**

Observing immoral behavior increases one's dishonesty by social influence and learning processes. The neurocomputational mechanisms underlying such moral contagion remain unclear. We tested different mechanistic hypotheses to account for moral contagion. We used model-based fMRI and a new cheating game in which participants were sequentially placed in honest and dishonest social norm contexts. Participants' cheating behavior increased in the dishonest norm context but was unchanged in the honest one. The best model to account for behavior indicated that participants' valuation was dynamically biased by learning that others had cheated. At the group level, this valuation bias was not encoded by any specific brain region. Instead, this neural signal depended on individual differences in conformity, and engaged the bilateral lateral prefrontal cortex. During learning, simulation of others' cheating behavior was encoded in the posterior superior temporal sulcus. Together, these findings provide a mechanistic understanding of how learning about others' dishonesty biases individuals' valuation of cheating but does not alter one's established preferences. Observing others' immoral behavior can increase one's own dishonesty, but the neurocomputational mechanisms driving this moral contagion remain unclear. This study shows that cheating increases in dishonest contexts via learned valuation biases involving lateral prefrontal cortex and posterior superior temporal sulcus encoding others' cheating behavior.

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3003889>

LUCAS M. MARTINI et al – Realistic monkey body animation reveals an uncanny valley in macaque body perception

Social interactions are essential for survival in primates, relying on both facial expressions and body signals. The accurate characterization of these signals is critical for understanding the neurocomputational mechanisms underlying social communication. While previous work has focused on recognizing monkey behavior, a causal and direct manipulation of individual cues strongly benefits from believable, dynamic body avatars—analogue to those successfully developed for faces. Creating lifelike monkey avatars with realistic body motion, however, is challenging. Acquiring sufficiently accurate movement data for animation with marker-based motion capture is impractical, and markerless tracking methods require extensive manual labeling. To address this, we developed MacAction, a realistic macaque body avatar animated from multi-camera markerless tracking data. Our method reconstructs accurate trajectories for a large number of keypoints, as required for the 3D animation of realistic body models. The entire time course of individual actions is captured using only two labeled keyframes per second, with performance further validated on a large-scale human multi-view dataset. We assessed the animation quality of our dynamic avatar in a free-viewing experiment with eight macaque observers for single macaque actions, where fixation behavior was indistinguishable between our animations and matched real videos. Moreover, by

systematically varying the realism of the avatar, we found an uncanny valley effect in macaque body perception, similar to that previously described in both humans and macaque faces. These findings support the commonalities of social vision across primate species, providing a foundation for controlled experiments aimed at clarifying the detailed neurocomputational mechanisms of social body perception in primates.

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3003880>

SARA CARTA et al – Competing speech streams are simultaneously represented in the human cortex during attention switching

Successful speech communication in multi-talker scenarios requires a skillful combination of sustained attention and rapid attention switching. While the neurophysiology literature offers detailed insights into the neural underpinnings of sustained attention, there remains considerable uncertainty on how attention switching takes place. In this study, using EEG recordings from normal-hearing adults in an immersive multi-talker environment, we measured the neural encoding of two competing speech streams amid background babble. Participants were cued to switch attention between streams every 15–30 s. Neural tracking was assessed via Temporal Response Functions (TRF), confirming reliable decoding of attentional focus. Our results indicate asymmetric disengagement and engagement processes during attention switches, where the neural tracking of the new target stream emerges before disengaging from the previous target, revealing a transient simultaneous encoding of two speech streams. That transition was closely mirrored by a reduction in EEG alpha power, informing on the cognitive effort during different phases of the attention switch. We then isolated cortical activity reflecting lexical prediction mechanisms to determine how lexical context is updated after an attention switch, comparing four context-accumulation strategies that were constructed using Large Language Models. Our findings elucidate both the temporal and contextual mechanisms underlying auditory attention shifts, pointing to the possibility that listeners carry out a reset in lexical context after switching attention. By focusing on dynamic attentional reallocation, this study offers insights into the brain's capacity for flexible speech processing in complex listening environments.

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3003876>

PLoS One

PAPERS

JOHN A. HART et al – Likweli: A remarkable new species of Colobus monkey from the Lomami National Park, Democratic Republic of Congo

We describe and name a new species of African monkey, *Colobus congoensis* sp. nov. (Primates, Cercopithecidae), from the interfluvial region of the Lomami and Congo (Lualaba) Rivers in east-central Democratic Republic of Congo (DRC). *Colobus congoensis* is a rare and cryptic monkey, poorly known even by local communities bordering its range, some of whom use the vernacular name Likweli for the species. Between 2018 and 2022, 114 field observations were made over an estimated range of 1,700 km². *Colobus congoensis* is largely restricted to high, closed canopy forest on deep clay pediments and islands of terra firme forest, where it co-occurs with two other colobine species (*Piliocolobus parmentieri* and *Colobus angolensis*). *Colobus congoensis* was most frequently observed in small groups (mean = 6.2 individuals), often in mixed-species associations. Mitochondrial and morphological data confirm the attribution of *C. congoensis* to the genus *Colobus* and reveal that it is the sister to *Colobus satanas*, from which it is geographically separated by more than 1,200 km. Comparative analysis of *C. congoensis* vocalizations also reveals structural similarities with *C. satanas* to the exclusion of other *Colobus* species. Among other features, *C. congoensis* is distinguished from *C. satanas* and other *Colobus* species by its small size, a striking orange cream patch surrounding the mouth, philtrum, and portions of the inferior nasal alae on an otherwise black face, and a white perianal patch that is covered with fine white hairs in males and is glabrous in females. We propose a preliminary IUCN Red List classification of Endangered (EN) for *C. congoensis* based on its small range area and population size, coupled with the projected impact of increased hunting pressure and habitat conversion. Protection of Lomami National Park, within which most of the *C. congoensis* range occurs, and engagement of local communities in not hunting the species are the most important actions needed to ensure the conservation of *C. congoensis*.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0349857>

PNAS

PAPERS

VIKTOR MÜLLER, LUC STEELS & EÖRS SZATHMÁRY – Evolvable AI: Threats of a new major transition in evolution

Evolvable AI (eAI), i.e., AI systems whose components, learning rules, and deployment conditions can themselves undergo Darwinian evolution, may soon emerge from current trends in generative, agentic, and embodied AI. We argue that this possibility has been underappreciated in debates on AI safety and existential risk. Here, we ask under what technical and ecological conditions AI becomes evolvable, what kinds of behaviors are then likely to emerge, and how such systems could be governed. Drawing on biological evolution and decades of digital evolution experiments, we distinguish “breeder” scenarios, in which humans impose fitness criteria and control reproduction, from “ecosystem” scenarios, in which selection arises from open environments and control erodes. In the latter, selfish replication reliably gives rise to cheating, parasitism, deception, and manipulation, even in very simple systems. We review recent developments that push AI toward open-ended

evolution, including evolutionary prompt and model search, self-improving learning rules, self-rewarding and self-deploying agents, and AI-driven code generation for robots and software. We interpret these trends through the theory of major evolutionary transitions and suggest that eAI could mark a shift in the units and substrates of evolution—a possible “Life 2.0.” To steer this transition, we propose interventions that gate replication, treat model variants as genetic material, and reshape selection pressures so that deception and loss of control are disfavored. Anticipating and regulating evolvable AI is, we argue, essential to avoid a harmful coevolutionary arms race while preserving the potential benefits of powerful AI systems.

<https://www.pnas.org/doi/10.1073/pnas.2527700123>

COMMENTARIES

MAARTEN BOUDRY – Domesticated, not feral: Why evolvable AI is not yet a Darwinian threat

[For original article see above.]

Müller, Steels, and Szathmáry argue that “evolvable AI” (eAI) may soon emerge from current trends in generative and agentic AI, posing risks analogous to those of an escaped pathogen. Their distinction between breeder and ecosystem scenarios is a valuable clarification of the debate, and converges with the domestication versus ferality framework that Friederich and I developed in response to Dan Hendrycks (both papers also discussed by Müller et al.). However, their assessment of how close we are to a dangerous Darwinian regime is, I believe, overstated.

<https://www.pnas.org/doi/full/10.1073/pnas.2617785123>

VIKTOR MÜLLER, LUC STEELS & EÖRS SZATHMÁRY – Reply to Boudry: The threat of evolvable AI is too grave to be left to intuition

In his commentary on our recent paper Boudry agrees with us that uncontrolled evolution of evolvable AI (eAI) systems would pose a high-level threat but argues that our “assessment of how close we are to a dangerous Darwinian regime is (...) overstated.”

Before addressing specific points, we draw attention to the precautionary principle, which was formulated in the Rio Declaration as: “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent [the potential damage].” There is no consensus on the level of “existential threat” from AI or on the specific risks posed by eAI. However, when the spectrum includes the possible collapse of human society, the only acceptable action is addressing the risks according to the worst possible outcomes (within the range of expert opinion). Given the lack of transparency in AI development and the criticality phenomena due to self-accelerating feedback, any speculation on the timescale of the threat should be voiced with restrained confidence. We nevertheless think it should be alarming that a top expert on AI safety with a hands-on background in AI development, and our author team including one of the creators of the major evolutionary transitions paradigm, have converging “intuition” that calls for immediate regulatory actions. With the stakes so high, we should not wait until the risks become conspicuously imminent.

<https://www.pnas.org/doi/full/10.1073/pnas.2618094123>

Proceedings of the Royal Society B

PAPERS

ANNA FRANKLIN – On the origins of aesthetic experience: Interpreting evidence from infant studies

Although the field of aesthetics has a long interdisciplinary history, the developmental origins of aesthetic experience remain underexplored and under theorized. A developmental approach can potentially shed light on the mechanisms underlying mature aesthetic experience, such as the relative contribution of biological versus learned influences. At the same time, such an approach which identifies when and how aesthetic responses operate in infancy and childhood is important in its own right given the influence of aesthetics on cognition and behaviour in adults. A growing body of research, including Mottier et al.’s study [1], reveals systematic relationships between infant looking behaviour and adult judgements of attractiveness, pleasantness, preference or beauty. However, what these findings imply for the origins and nature of aesthetic experience warrants careful consideration. In this commentary, I argue that while infant studies provide valuable insight into early sensory biases, further evidence is needed to determine whether these biases constitute a rudimentary aesthetic response.

<https://royalsocietypublishing.org/rspb/article/293/2075/20261028/482534/On-the-origins-of-aesthetic-experience>

Trends in Ecology and Evolution

PAPERS

JOSH J. ARBON & ANDREW N. RADFORD – Pre-emptive behaviour in a landscape of intergroup conflict

Intergroup conflict is a powerful selective force throughout the animal kingdom. While research has traditionally focused on actions during and after contests, animals also exhibit behavioural flexibility in anticipation of potential intergroup encounters. Synthesising findings from diverse taxa, we describe how social species adjust pre-emptive information gathering, resource use, cohesion, synchrony, and intragroup interactions across a heterogeneous ‘landscape of intergroup conflict’. We show how variation in threat level, driven by spatial context, rival characteristics, and individual motivation, affects these behaviours, and how balancing sensed information and memories of past interactions underlies associated

decision-making. Testing the consequences of intergroup pre-emptive behaviour using experimental, technological, and analytical advances will develop understanding of its role in socio-cognitive evolution, population dynamics, and community structure.

[https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347\(26\)00145-X](https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347(26)00145-X)

Trends in Genetics

ARTICLES

JAMES M. SIKELA – Olduvai domains: humanity's lucky brake

Neoteny—a developmental slowdown that results in the retention of juvenile traits into adulthood—has long been viewed as central to human brain expansion. Olduvai domains are proposed here to function as a dosage-dependent metabolic 'brake' that slows development via mitochondrial downregulation. Their human-specific hyperamplification, paired with NOTCH2NL accelerators and new metabolic insights, may solve a century-old evolutionary puzzle.

[https://www.cell.com/trends/genetics/abstract/S0168-9525\(26\)00169-1](https://www.cell.com/trends/genetics/abstract/S0168-9525(26)00169-1)

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