

EAORC BULLETIN 1,209 – 16 August 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

NEW SCIENTIST HUMAN STORY – The genome of a long-extinct ancient human is hiding within us

We all have bits of DNA from a long-lost “ghost ancestor” inside us – and by putting all the different bits together, we might be able to reconstruct their genome.

<https://www.newscientist.com/article/2582522-the-genome-of-a-long-extinct-ancient-human-is-hiding-within-us/>

NEW SCIENTIST HUMAN STORY – Woolly mammoths butchered by humans were mostly female

Genetic tests of mammoth remains have found a stark contrast in the sex ratio between sites where the animals died naturally and those associated with humans, offering hints about how our ancestors hunted.

<https://www.newscientist.com/article/2582513-woolly-mammoths-butchered-by-humans-were-mostly-female/>

NEW SCIENTIST HUMAN STORY – Lost civilisation in the Amazon may have numbered 3 million people

Laser-scanning surveys reveal that the ancient Aquiri civilisation was bigger than previously thought, building tens of thousands of large geometric earthworks in what was once thought to be pristine wilderness.

<https://www.newscientist.com/article/2582152-lost-civilisation-in-the-amazon-may-have-numbered-3-million-people/>

NEW SCIENTIST HUMAN STORY – Magic rituals took place in an Australian cave for 25,000 years

Preserved plant cells show that grasses were brought into Cloggs cave in Australia and burnt over many millennia, revealing the ancient origins of rituals practised by the GunaiKurnai people.

<https://www.newscientist.com/article/2580559-magic-ceremonies-took-place-in-an-australian-cave-for-25000-years/>

NEWS FROM SCIENCE – Were these ancient rock images painted with human blood?

Macabre ingredient may have helped murals on Chinese cliffs survive nearly 2000 years of weathering.

<https://www.science.org/content/article/were-these-ancient-rock-images-painted-human-blood>

NEWS FROM SCIENCE – Denisovans towered over their contemporaries and munched a bunch of meat

A pair of studies dissects the stature and diets of our mysterious archaic cousins.

<https://www.science.org/content/article/denisovans-towered-over-their-contemporaries-and-munched-bunch-meat>

SCIENCEADVISER – Denisovan leg bones debut

Scientists say they have found the first fossilized leg bones belonging to Denisovans, extinct cousins of Neanderthals who once lived throughout eastern and southern Asia—offering long-awaited clues to the hominins' stature and diet.

As described in two bioRxiv preprints released last week, researchers identified Denisovan protein sequences within a partial femur and tibia from two different individuals, dredged up by fishermen in 2010 in the Strait of Taiwan. Radiocarbon dates suggest the leg bones are about 45,000 years old. The bones' length and thickness indicate that these Denisovan individuals weighed about 80 kilograms (176 pounds) and stood some 180 centimeters (5 feet, 11 inches) tall. That's big for their time—on par with tallest, sturdiest Neanderthals and larger than most other hominins at the time, including our own species.

"They were very tall!" said archaeologist Ben Marwick. "Previously we knew that Denisovans had big brains from the skull and teeth finds, and now we know they had big bodies also."

An isotope analysis of the tibia also revealed that this Denisovan, like European Neanderthals, ate lots of meat from large mammals but apparently didn't eat much seafood (poor things; they didn't know what they were missing!).

<https://www.science.org/content/article/denisovans-towered-over-their-contemporaries-and-munched-bunch-meat>

SCIENCENEWS – Sugar may have been a key ingredient in human evolution

Fruits, not just meats, may have fueled brain growth in our primate cousins and human ancestors.

<https://www.sciencenews.org/article/sugar-ingredient-human-evolution-fruit>

THE CONVERSATION – Can DNA from cave paintings tell us who the artists were?

A new study has retrieved human genetic material from the walls of caves with ancient rock art.

<https://theconversation.com/can-dna-from-cave-paintings-tell-us-who-the-artists-were-287926>

THE CONVERSATION – How animals prepare for war

Humans aren't the only ones to preempt conflict.

<https://theconversation.com/how-animals-prepare-for-war-287995>

THE CONVERSATION – The psychology of overconfidence: why excessive self-belief is often successful

Most people are overconfident. There's an evolutionary reason for this.

<https://theconversation.com/the-psychology-of-overconfidence-why-excessive-self-belief-is-often-a-successful-strategy-in-life-289063>

PUBLICATIONS

American Journal of Biological Anthropology

PAPERS

M.C. O'HARA et al – Dietary Adaptation in *Paranthropus robustus* Postcanine Teeth

Recent studies of *Paranthropus robustus* crania identified temporal trends in features associated with increased bite force production, coinciding with environmental shifts toward more arid conditions. To test whether the evolution of postcanine teeth also reflects increasing mechanical demands associated with hard food consumption, we analyzed trends in the architecture of *P. robustus* postcanine teeth, including crown area, tooth shape, and average (AET) and relative (RET) enamel thickness.

2D mesial sections were created from microCT scans of upper premolars ($n = 24$), upper molars ($n = 14$), and lower molars ($n = 16$) from multiple South African sites. Descriptive statistics, Mann–Whitney U tests, and Jonckheere–Terpstra tests were used to identify significant differences over time, with Holm–Bonferroni corrections applied for multiple comparisons. Significant temporal trends existed in premolar morphology with increased crown area (CA), absolute crown strength (ACS), overall enamel thickness (AET and RET), and increased enamel thickness over the occlusal half of the tooth. Upper molars increased in CA but no other measured variable. Lower molars showed no significant temporal trends in any measured variable.

These results suggest rapid dental evolution in response to dietary pressures, with varying and independent rates of change between different tooth types. These findings support the hypothesis that selection resulted in shifts to *P. robustus* dental morphology to increase mechanical resistance, consistent with an expanding dietary niche that incorporated increasingly challenging foods.

Upper premolar enamel thickness in *Paranthropus robustus* increased significantly over time, consistent with selective pressure for hard-object feeding.

Premolars showed more changes than upper or lower molars, suggesting mosaic rather than uniform dental evolution in the *P. robustus* lineage.

<https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70332>

LLOYD A. COURTENAY & JULIA ARAMENDI – Missing Landmark Estimation Using Reverse Engineering: Challenges and Potential Solutions for the Study of Hominin Long Bones

Fragmentary preservation represents a fundamental limitation in palaeoanthropological research, particularly for postcranial elements where symmetry cannot be exploited and large portions of bone are frequently missing. Although a wide range of virtual reconstruction methods exist, many rely on strong anatomical priors, localized interpolation, or reference specimens that risk biasing reconstructions toward predefined morphologies. The present study introduces a new approach for estimating the coordinates of missing landmarks, termed the Reverse Engineering (RE) approach. This method establishes mathematical relationships between morphological patterns observed in complete reference specimens and those preserved in reduced portions of each bone, allowing missing regions to be inferred from patterns of covariation rather than local geometric proximity. We demonstrate that the RE approach performs consistently across a range of reconstruction scenarios, including cases where substantial portions of bone are missing, and in empirical applications to Neanderthal femoral and humeral specimens. Importantly, reconstructed specimens retain morphological signal in subsequent morphometric analyses, regardless of the extent of missing data. While limitations remain, as is the case for all reconstruction methods applied to fragmentary fossil material, the RE approach offers a robust and flexible alternative that does not depend on symmetry or a single reference specimen. As such, it represents a valuable addition to the methodological repertoire available to palaeoanthropologists working with incomplete postcranial remains.

<https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70334>

WILLIAM J. O'HEARN et al – Meat Acquisition Skill and Male Reproductive Success in Guinea Baboons

In human foraging societies, hunting skill is often interpreted as a signal of male quality linked to reproductive success through his ability to provision his family and community. Similarly, in some bird and insect species, males offer mates food to indicate their quality as a provider. Among nonhuman primates, however, the relationship between meat sharing and reproductive success is underexplored, leaving the evolutionary origins of this phenomenon unresolved.

Guinea baboons (*Papio papio*) are a promising model to investigate whether meat sharing signals male quality, since females choose their mates, have been shown to rely on males to catch and transfer prey, and respond to male foraging skill. We combined records of 109 meat-eating events with 9 years of behavioral data to test whether males who more frequently acquired and transferred meat to females had more females in their social units for longer.

Contrary to our predictions, we found no evidence that females preferred males who acquired or transferred meat more frequently, suggesting that meat acquisition is not a signal of male quality in Guinea baboons.

One explanation may be the relatively low frequency of meat-eating events. Another is that females are less dependent on males for meat than previously reported. Our results revealed that nearly half (41%) of female meat intake originated from sources besides her unit male, including the first documented cases of female prey capture (11% of events) in this species. Thus, females likely apply other, more pertinent criteria in mate choice.

Current Biology**PAPERS****PRANAV MISRA et al – Invariant neural representation of parts of speech in the human brain**

Elucidating the internal representation of language in the brain has major implications for cognitive science, brain disorders, and artificial intelligence. A pillar of linguistic studies is the notion that words have defined functions, often referred to as parts of speech. Here, we recorded invasive neurophysiological responses from 1,801 electrodes in 20 patients with pharmacologically resistant epilepsy while they were presented with two-word phrases consisting of an adjective and a noun. We observed neural signals that distinguished between these two parts of speech. The representation of parts of speech showed invariance across visual and auditory presentation modalities; robustness to word properties such as length, order, frequency, and semantics; and even generalization across different languages. The selective signals were circumscribed within a small region in the left lateral orbitofrontal cortex. This selective, invariant, and localized representation of parts of speech extends classic fronto-temporal language models, providing a target for mechanistic and causal tests of how the brain represents the basic building blocks of language, and introduces a systematic approach to elucidate the orchestration of more complex aspects of language.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(26\)00928-0](https://www.cell.com/current-biology/fulltext/S0960-9822(26)00928-0)

eLife**PAPERS****BENJY BARNETT & STEPHEN M FLEMING – Distinct neural representations of perceptual and numerical absence in the human brain**

The ability to represent absences is fundamental to human perception and cognition. Sensitivity to perceptual absences depends on inferring a lack of sensory evidence, enabling the recognition of a lack of environmental resources or other objects. In turn, encoding absence as a concept – in the form of the number zero – has enabled a multitude of technological and mathematical advances. Whether perceptual and conceptual absences rely on overlapping or distinct neural representations in the human brain, however, remains unknown. We employed three different tasks together with magnetoencephalography (MEG) to characterise neural representations of absence evoked within perceptual and numerical domains. Using multivariate decoding and Bayes factor analyses, we replicate previous findings of shared representations of numerical absence across symbolic and non-symbolic formats. In contrast, we show that these representations of numerical absence are distinct to those evoked by perceptual absences. This result held even after controlling for stimulus-level confounds which generate surface-level similarities between perceptual absences and non-symbolic empty sets. Our results extend a boundary between perception and cognition to the domain of absence and provide insight into the different mechanisms employed by the human brain to both perceive and conceive of absences.

<https://elifesciences.org/reviewed-preprints/112088>

Evolutionary Anthropology**ARTICLES****BERNARD WOOD & DANIEL BIGGS – A Critical Endorsement**

Our contribution provides an overview of Wilfrid Le Gros Clark's early life and career, his developing interest in human evolution, and how invitations from Robert Broom and Louis Leakey encouraged him to visit South Africa to see the southern African hominin fossil evidence at firsthand. That experience converted Le Gros Clark from being skeptical of Dart and Broom's interpretations to being one of their foremost supporters. Le Gros Clark's conversion resulted in a brief but heated dispute involving Solly Zuckerman that led to Le Gros Clark focusing on the interpretation of the early fossil evidence for human evolution for the rest of his career, while Zuckerman shifted his attention to science policy. The combination of Le Gros Clark's considerable reputation and his steadfast support were crucial elements in the development of paleoanthropology within Africa.

<https://onlinelibrary.wiley.com/doi/full/10.1002/evan.70044>

CLÉMENT ZANOLLI et al with ISABELLE CREVECOEUR, BRIAN VILLMOARE & BERNARD WOOD – The Early Homo Conundrum: Challenges and Potential Solutions

In September 2025, 23 scholars met at a workshop in Bordeaux (France) organized by the University of Bordeaux and the Senckenberg Research Institute and Natural History Museum Frankfurt, to present and discuss their views on the origins and earliest phases of the evolution of the genus *Homo*. The workshop, entitled “The early *Homo* conundrum—Challenges and potential solutions” (hereafter “eH25”) took place a few months after the 25th anniversary of the publication of Wood and Collard's seminal papers published in 1999 and close to the 10th anniversary of the publication of the Ledi-Geraru mandible.

<https://onlinelibrary.wiley.com/doi/full/10.1002/evan.70043>

Frontiers in Nutrition

PAPERS

ARCHER RACE SCHAEFFER et al – Beyond speech perception: contemporary landscape of language agnostic hearing assessment

Speech perception testing remains the dominant framework for cochlear implant (CI) outcomes assessment, yet its reliance on language introduces two fundamental limitations. Mechanistically, speech recognition performance reflects a composite of peripheral auditory encoding, cognitive processing, and linguistic knowledge, obscuring the contribution of each. Practically, language-dependent testing systematically underserves patients with limited English proficiency, prelingually deafened children, and others for whom verbal response formats are not viable. Language agnostic hearing tests (LAHTs) assess auditory function without requiring linguistic processing, offering a more precise probe of the auditory periphery and central encoding pathways and a more equitable framework for diverse populations. This narrative review was conducted via a systematic search of PubMed, MEDLINE, and Embase and examines the evidence for LAHTs across three domains: psychoacoustic resolution measures (spectral, temporal, and spectrotemporal), naturalistic stimulus measures (environmental sound identification, music perception, and phoneme discrimination), and electrophysiologic measures. Across the adult CI and hearing impairment literature, psychoacoustic measures demonstrate consistent, moderate-to-strong correlations with speech recognition outcomes. Spectral ripple discrimination and the Spectrotemporally Modulated Ripple Test (SMRT) predict speech outcomes in both English-speaking and non-English-speaking populations, though their validity at higher ripple densities is constrained by signal aliasing in CI processors. The Audible Contrast Threshold (ACT) has achieved clinical deployment for hearing aid fitting, and environmental sound identification deficits documented by the Familiar Environmental Sounds Test reveal safety-relevant dimensions of auditory function that speech batteries do not capture. In prelingually deafened children, the expected correlations between psychoacoustic resolution and speech recognition are largely absent, suggesting qualitatively distinct auditory reorganization that current measures incompletely characterize. Across domains, LAHT-speech correlations are real but partial: these measures predict speech outcomes without replacing them, and their relationship to patient-reported quality of life remains uninvestigated. The evidence supports integrating LAHTs as complementary tools in clinical practice and research, with the greatest immediate utility in candidacy screening, outcomes characterization in linguistically diverse populations, and mechanistic investigation of device and patient factors underlying outcome variability.

<https://www.frontiersin.org/journals/neuroscience/articles/10.3389/fnins.2026.1887850/full>

iScience

PAPERS

RAÚL HERNÁNDEZ-PÉREZ et al – Dog brain representations of human facial expressions: Encoding happiness and differentiating specific negative expressions

Dogs can distinguish human facial expressions, particularly happiness, yet brain processes remain unclear. Using fMRI, we conducted two experiments in awake pet dogs. In Experiment 1 ($n = 8$), happy faces elicited a stronger response than neutral faces in a right temporal cluster extending to the caudate nucleus, including the rostral Sylvian gyrus. In Experiment 2 ($n = 12$), dogs viewed faces expressing happiness, anger, fear, or sadness. Using the Experiment 1 cluster as a region of interest, a machine-learning classifier distinguished happiness from each negative facial expression, but not between negative pairs, showing differential BOLD responsiveness to happy faces. Whole-brain representational similarity analyses revealed activity patterns differentiating angry vs. fearful faces (right mid ectosylvian and left splenial gyri) and sad vs. fearful faces (right rostral suprasylvian gyrus) but not angry vs. sad faces. This provides direct evidence that dog brains can distinguish between two negative facial expressions.

[https://www.cell.com/iscience/fulltext/S2589-0042\(26\)02278-9](https://www.cell.com/iscience/fulltext/S2589-0042(26)02278-9)

Nature Communications

PAPERS

NICOLAS MARTIN et al with ISABELLE CREVECOEUR – Bony labyrinth morphology reveals deep population history and isolation among Homo sapiens in prehistoric northeastern Africa (44–3 ka)

Understanding the population history of Homo sapiens in northeastern Africa has been hindered by the scarcity of human remains and ancient DNA data. Here, we analyse bony labyrinth morphology, a reliable proxy for population affinities, in 148 individuals dating from the Late Pleistocene to the Late Holocene from the Nile Valley region, the Horn of Africa, Central Africa, comparative Pleistocene fossils from Africa and Eurasia, and recent South Africans. Shape analyses reveal morphological continuity among Middle Nile Valley foragers and close affinities with earlier African H. sapiens fossils, suggesting deep regional ancestry. In contrast, local Neolithic food producers exhibit distinct morphologies, supporting a major demographic shift beginning 8000 years ago. A subgroup of Early Holocene Nile Valley foragers displays unusual bony labyrinth morphology and congenital inner ear-specific pathological changes consistent with possible syndromic conditions. This may result from several demographic scenarios, including prolonged endogamy and geographic isolation under environmental constraints. Comparative data from the Horn of Africa and Central Africa reveal high morphological diversity, suggesting strong population substructure and dynamic demographic trajectories during the Holocene. These findings

provide rare insights into prehistoric population structure in the region, and demonstrate the usefulness of bony labyrinth morphology where ancient DNA is unavailable.

<https://www.nature.com/articles/s41467-026-76423-5>

Nature Human Behaviour

PAPERS

SUSEENDRAKUMAR DURAIVEL et al – Distinct neural processes link speech planning and execution

Speaking is the primary way that humans communicate. This communication is enabled by a production system that can plan and execute unique combinations of speech sounds. Although a distributed network of brain regions has been implicated in speaking, it is unclear how planning and execution of speech are coordinated to produce meaningful sounds. Leveraging the high spatio-temporal resolution of intracranial recordings at different spatial scales, we show distinct neural mechanisms that facilitate speech planning and execution. During planning, different levels of speech units are coded discretely at distinct prefrontal sites. These planned units are then dynamically integrated at various cortical levels to guide subsequent execution. During speech execution, speech motor regions generate continuous sequences that reflect both discrete speech sound units and their transitional properties between units. This rapid neural transition from discrete speech units to motor sequences links speech planning with execution and enables our effortless ability to speak.

<https://www.nature.com/articles/s41562-026-02546-w>

YUNPENG BAI et al – Hierarchical resource rationality explains human reading behaviour

Reading is a pervasive and cognitively demanding activity that underpins modern human culture. It is a prime instance of a class of tasks where eye movements are coordinated for the purpose of comprehension. Existing theories explain either eye movements or comprehension during reading, but the critical link between the two remains unclear. Here we propose resource-rational optimization as a unifying control principle governing adaptive reading behaviour. Eye movements are selected to maximize expected comprehension while minimizing cognitive and temporal costs, organized hierarchically across nested time scales: fixation decisions support word recognition; sentence-level integration guides skipping and regression; and text-level comprehension goals shape memory construction and rereading. A computational implementation successfully replicates an unprecedented range of findings in human reading, from lexical effects to comprehension outcomes. Together, these results suggest that resource rationality provides a general mechanism for coordinating perception, memory and action in knowledge-intensive human behaviours, offering a principled account of how complex cognitive skills adapt to limited resources.

<https://www.nature.com/articles/s41562-026-02534-0>

ZILIANG XIONG & KONSTANTINA KILTENI – Human ticklishness is a widespread, culturally shared and bodily organized sensory experience

Human ticklishness is one of the oldest yet unresolved scientific puzzles. As early as the time of Aristotle and Socrates, scholars have speculated on its origins and function, but fundamental questions remain. Is ticklishness culturally shared or specific? Does it follow a structured bodily topography, and how does it relate to other bodily sensations? Here we analysed data from three cultural groups (Chinese, Dutch and Greek) and reveal consistent behavioural patterns and social dynamics. We extracted a high-resolution bodily map of ticklishness and show that it generalizes across cultures and individuals, and is distinct from maps of touch sensitivity, pain and pleasure. When tested against predictions from five historical and contemporary theories, we show that no single theory can fully explain the ticklishness topography. Although ticklishness is stronger in rarely touched regions, supporting Darwin's hypothesis, its topography relies on a psychophysiological mechanism that is more complex than previously assumed.

<https://www.nature.com/articles/s41562-026-02535-z>

Nature Reviews Genetics

ARTICLES

MOLLY SCHUMER & LOREN H. RIESEBERG – Genetics and genomics of hybridization

Once considered rare in some species groups, we now appreciate that hybridization between distinct lineages is a feature of essentially all branches of the eukaryotic tree of life. Determining the drivers of hybridization across species and locally along genomes is not just a question of history; it is fundamental to understanding genomic variation, adaptation and even disease risk across diverse species. Here, we start by reviewing methodological advances that may improve our understanding of the frequency of hybridization and its evolutionary effects. Next, we compile results from traditional and genomic sources of evidence to estimate the incidence of hybridization in nature and discuss the causes and consequences of this key evolutionary process. Finally, we highlight open questions, including whether hybridization promotes diversification, and how such questions could be addressed in the future.

<https://www.nature.com/articles/s41576-026-00995-7>

Neuron**PAPERS****SAMUEL A. NASTASE et al with ADELE GOLDBERG – Unifying the structures of language in a neural population code**

Large language models (LLMs) have mastered human language in ways that no previous computational system has. While rule-based, symbolic systems sufficed for constrained, well-defined problems, they were not able to accommodate the context-sensitive expressivity of natural language. LLMs instead use statistical learning to encode the diversity of linguistic structures into a unified high-dimensional embedding space. Strikingly, this context-driven, distributed representation closely parallels neural population codes, suggesting that the human language system may have converged on a similar computational strategy. Drawing on a growing body of work at the intersection of artificial intelligence and cognitive neuroscience, we show that LLMs can serve as cognitively plausible models of the neural computations supporting language in the human brain. We conclude that explaining how language can emerge from neural population codes, in both biological and artificial systems, will not be achieved through the incremental refinement of algebraic-symbolic theories but will demand new theoretical paradigms.

[https://www.cell.com/neuron/fulltext/S0896-6273\(26\)00579-9](https://www.cell.com/neuron/fulltext/S0896-6273(26)00579-9)

New Scientist**ARTICLES****JAMES WOODFORD – Denisovans may have dwarfed other ancient humans**

Two leg bones found on the seabed near Taiwan have been identified as Denisovans, and their size suggests these hominins stood up to 190 centimetres tall.

<https://www.newscientist.com/article/2584088-denisovans-may-have-dwarfed-other-ancient-humans/>

PLoS One**PAPERS****DANIELLE BARTH et al – Word choice is coupled with grammar: The case of kinship**

Is it true that ‘grammars code best what speakers do most’, as Du Bois suggested already in 1985? And do members of different cultures privilege talk about kinship relations to differing degrees? Could this be linked to the differential centrality of kinship to the vastly diverse grammars of the world’s languages? We bring these three questions together in this study. Kinship relationships are central to the organisation of all human societies. Yet, we know little about what influences the frequency of reference to kin in spontaneous language use. In this study, we test factors that potentially associate with frequency of kin-term usage across 22 typologically diverse languages. Using a communicative task involving the description, arrangement and narration of pictures, we establish the proportion of human reference expressions formulated as kin terms in interactive language use and show that it does indeed differ across languages. We then examine candidate predictors for the usage frequency of kin-based lexical formulations (choice of word categories) by looking at (i) a structural variable (‘kintax’, the presence of grammatical means for encoding kinship in the language), (ii) a lexical variable (complexity of a subset of each language’s kinship term system), (iii) a discourse variable (type of interaction a language user engages in at the time of speaking or signing), and (iv) a topicality variable (type of stimulus a language user references at the time of speaking or signing). We find all these to be relevant, but we focus on structural kintax. This provides a way of addressing Du Bois’s hypothesis about the interaction between language structure and language use in human communication: the grammatical imprint of a language correlates with language users’ word-choice patterns. We show that the more grammar you have for this semantic domain, the more you talk about it.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0355784>

Royal Society Open Science**PAPERS****VINCENT OBERHAUSER, IAIN COUZIN & MOHAMMAD SALAHSHOUR – Risk and retribution: how punishment uncertainty weakens norms of cooperation**

Punishment can sustain cooperation, but in real-world settings, sanctions are often inconsistently applied. We tested how punishment uncertainty affects cooperation when individuals can choose between institutions with predictable or unpredictable sanctions. In a 25-round public goods experiment with peer punishment, participants repeatedly selected between a certain punishment institution, where punishment had a fixed effect, and an uncertain institution, where punishment outcomes varied randomly but had the same expected severity. Although participants initially favoured the uncertain institution, they gradually shifted toward the certain institution over time. Consistent with pre-registered hypotheses, the certain institution produced higher contributions, lower punishment expenditures, less antisocial punishment and higher pay-offs. More prosocial, risk-averse and older participants were more likely to choose the certain institution. Exploratory post-experiment analyses further suggested that weaker contribution norms and non-specific punishment motives were associated with less effective sanctioning behaviour. Furthermore, exploratory subgroup analyses suggest that the main advantage of sanction certainty is broadly robust across the major demographic groups represented in

the sample, although effect sizes vary. These findings indicate that sanction reliability plays an important role in sustaining cooperative norms and shaping institutional selection.

<https://royalsocietypublishing.org/rsos/article/13/8/252081/482729/Risk-and-retribution-how-punishment-uncertainty>

Science Advances

PAPERS

YUSUKE WATANABE et al with NCBN CONTROLS WGS CONSORTIUM – Jomon genomics reveal cold adaptation in Upper Paleolithic hunter-gatherers of eastern Eurasia

How did Homo sapiens thrive in extreme environments during their dispersal across Eurasia? Unraveling adaptations that enabled human survival during the Last Glacial Maximum (LGM) remains critical. Here, we analyze 42 genomes from Holocene hunter-gatherers (Jomon) in the Japanese archipelago, revealing their deep ancestry from an isolated Upper Paleolithic (UP) East Eurasian lineage. We detect gene flow from northern UP Siberians into Jomon, reconciling long-standing debates between bioanthropology and archaeology regarding East Asian peopling. We find no Jomon-specific Denisovan ancestry, suggesting shared introgression before their LGM divergence from mainlanders. Furthermore, we find evidence consistent with cold adaptation in Jomon UP ancestry, highlighting diverse physiological pathways. Our study provides one of the first paleogenomic frameworks for investigating ancient adaptations in UP East Eurasians, revealing an evolutionary legacy from a colder past in present-day humans.

<https://www.science.org/doi/10.1126/sciadv.aea7469>

Trends in Cognitive Sciences

PAPERS

ALEXANDER SCHAKOWSKI et al – Toward a psychology of real-life decision-making

Understanding human decision-making processes in everyday life is a central, yet rarely addressed, challenge in psychology. Either real-life complexity is reduced by isolating specific aspects of decision-making in highly constrained experimental settings, yielding insights into specific cognitive mechanisms under idealized conditions, or decision-making is studied in real-life contexts, using high-level descriptions of behavior that do not afford fine-grained, process-level insights. Bridging this gap poses a challenge of both measurement and inference. Recent advances in high-resolution tracking technologies provide novel solutions to many measurement challenges but are rarely integrated with formal psychological theory. In this article, we review tracking technologies and statistical tools, proposing a cognitive–computational framework that uses high-resolution spatiotemporal data to investigate the mechanisms of real-life decision-making in a theory-driven manner.

[https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613\(26\)00161-0](https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(26)00161-0)

Trends in Neurosciences

ARTICLES

KARRI LAMSA & VIKTOR SZEGEDI – A large brain adds new types of neurons: Molecular and functional signatures of spindle neurons in the human neocortex

Although mammalian brains share a common structural plan, expanded neocortices contain specialized neuron types absent from smaller brains. Using human neurosurgical tissue, Ke and colleagues combined multimodal analyses to establish spindle neurons as a molecularly distinct and functionally specialized cortical cell population. Their findings highlight how brain evolution increases circuit complexity beyond simply adding neurons.

[https://www.cell.com/trends/neurosciences/abstract/S0166-2236\(26\)00119-0](https://www.cell.com/trends/neurosciences/abstract/S0166-2236(26)00119-0)

Trends Open

PAPERS

KATHERINE M. SODERBERG et al – Systematic sampling of emotional experience is needed to model human brain function

Neuroscience has traditionally studied brain function using controlled experiments that narrowly sample stimuli, raising concerns about generalizability. To bridge this gap, recent work has studied sensory processing more naturalistically, using artificial neural networks to model how humans detect and represent the environment. Although this approach has revealed much about how the brain processes scenes, faces, and event sequences, recent efforts to study human perception may fail to generalize because they undersample emotional experiences encountered in everyday life. Because predictive models of brain activity generalize only when trained on broadly sampled data, we argue that systematically sampling emotional experiences is required to reveal how the human brain perceives the environment and gives rise to emotional behavior.

[https://www.cell.com/trends-open/fulltext/S3117-3470\(26\)00084-2](https://www.cell.com/trends-open/fulltext/S3117-3470(26)00084-2)

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