

EAORC BULLETIN 1,167 – 26 October 2025

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NOTICES

FORMATTED VERSION OF THIS BULLETIN

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

PUBLICATION ALERTS

If you have had a paper or book published, or you see something which would be of interest to the group, please send me a publication alert so that I can include it in the newsletter. Many thanks to those who have already sent in alerts.

If there is a journal you feel I should be tracking on a regular basis, let me know.

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

EDITORIAL INTERJECTIONS

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

ACADEMIA.EDU – Whole-bone shape of hominoid manual proximal phalanges

The Anatomical Record 1-26 (2025).

DEANNA M. GOLDSTEIN et al – Whole-bone shape of hominoid manual proximal phalanges

Functional morphologists have long noted that skeletal adaptations in primate phalanges reflect locomotor behavior. While most studies have successfully used two-dimensional measurements to quantify general features of phalanx shape, a whole-bone three-dimensional analysis may better capture more subtle aspects of phalanx morphology that have not been quantifiable but are functionally meaningful. Here, we compare linear measurement (LM) and weighted spherical harmonic/sliding semilandmark (SPHARM-sliding) analyses of the manual third proximal phalanx (PP3) in extant hominoids (Homo, Pan, Gorilla, Pongo, Symphalangus, Hylobates; n = 292) and specimens attributed to Australopithecus afarensis (n =

2) and *Homo neanderthalensis* ($n = 2$). Morphological variation was summarized using principal component (PC) analysis. Differences between extant taxa were tested for using non-parametric MANOVAs (LM) and Procrustes distance resampling (SPHARM-sliding). Linear discriminant analyses (LDA) were performed using PC scores to assess whether the SPHARM-sliding or LM analysis better predicts group memberships of extant and fossil specimens. In both analyses, PC1 separates taxa along a locomotor gradient, and all extant genera are significantly different from one another ($p \leq 0.01$) aside from *Pongo* versus *Symphalangus* in the LM analysis ($p = 0.053$). Only the SPHARM-sliding analysis found significant differences between taxa within each genus ($p \leq 0.04$), and differences were even significant among *Gorilla* subspecies ($p < 0.001$). LDAs indicated that accuracy, separation effectiveness, and confidence were greater for the SPHARM-sliding analysis in predicting group membership among extant specimens, as well as fossil memberships to an extant group. Overall, results demonstrate that whole-bone, high-density landmark analyses can highlight nuanced features of PP3 morphology and may serve better for making inferences about fossils.

https://www.academia.edu/144602086/Whole_bone_shape_of_hominoid_manual_proximal_phalanges

ACADEMIA.EDU – Institution Collection of 3D Morphological Data Housed in MorphoSource

Nature Scientific Data 11:1391 (2024).

SERGIO ALMÉCJA et al – Institution Collection of 3D Morphological Data Housed in MorphoSource

The field of phenomics is experiencing unprecedented advances thanks to the rapid growth of morphological quantification based on three-dimensional (3D) imaging, online data repositories, team-oriented collaborations, and open data-sharing policies. In line with these progressions, we present an extensive primate phenotypic dataset comprising >6,000 3D scans (media) representing skeletal morphologies of 386 individual specimens covering all hominoid genera (except humans) and other selected primates. The digitized specimens are housed in physical collections at the American Museum of Natural History, the National Museum of Natural History, the Royal Museum for Central Africa (Belgium), the Cleveland Museum of Natural History, and Stony Brook University. Our technical validation indicates that despite the diverse digitizing devices used to produce the scans, the final 3D models (meshes) can be safely combined to collect comparable morphometric data. The entire dataset (and detailed associated metadata) is freely available through MorphoSource. Hence, these data contribute to empowering the future of primate phenomics and providing a roadmap for future digitization and archiving of digital data from other collections.

https://www.academia.edu/144602161/Primate_Phenotypes_a_Multi_Institution_Collection_of_3D_Morphological_Data_Housed_in_MorphoSource

NEWS

NATURE BRIEFING – The Turing test: refresh or retire?

Passing the Turing test — a thought experiment that asks whether a computer's written conversation can pass as a person's — is a piece of cake for the best artificial intelligence (AI) models. First proposed by mathematician Alan Turing 75 years ago, some researchers want to see an upgraded test to use as a benchmark for progress towards artificial general intelligence — models with the resourcefulness to match human cognitive ability. Others say the test should be scrapped altogether, and that developers should instead focus on evaluating AI safety and building specific capabilities that could be of benefit to the public.

{To be fair to the TT, it was never about whether a computer could behave in a humanlike way, it was a test of whether a human could be fooled into believing a computer was not a computer: could a reactive computer program (app?) be made complex enough to fool a human? It was always a test of human gullibility, not artificial intelligence. As humans live their whole lives being happily fooled in countless ways, the fact that computers can do that trick is unremarkable in terms of both the computer and the humans. As Einstein said, "Two things are infinite: the universe and human stupidity; and I'm not sure about the universe."}

<https://www.nature.com/articles/d41586-025-03386-w>

NATURE BRIEFING – Is AI helping or hindering universities?

The arrival of artificial intelligence (AI) tools onto campuses is sending shockwaves through universities worldwide. Some institutions, such as Ohio State University in Columbus, are weaving AI into their entire curriculum and encouraging students to experiment with AI-powered tools. But concerns that AI will impede learning also loom large. The University of Sydney is mandating in-person tests to ensure that students have learned skills and not outsourced them to AI. Academics are split: some are experimenting with AI in their teaching, whereas critics argue that universities should be cautious about embracing tools dogged by ethical and environmental concerns and with unknown cognitive impacts.

<https://www.nature.com/articles/d41586-025-03340-w>

NATURE BRIEFING – The repatriation of 'Java Man'

The first known fossils of *Homo erectus* — once called 'Java Man' — were excavated by Dutch physician and naturalist, Eugène Dubois, using Javanese forced labourers on the island of Java in Indonesia. He then brought the find back to the

Netherlands, where it remained for 130 years despite several diplomatic efforts. Now it, along with 28,000 more fossils taken by Dubois, is heading home. “The pieces were part of our identity and highlight of our museum collection,” says Bart Braun of the Naturalis Biodiversity Center, where the material has been for more than a century. “But we realize this is a very important moment for Indonesians, as it corrects a past injustice.”

<https://www.nationalgeographic.com/history/article/java-man-repatriated-indonesia-netherlands-homo-erectus>

SAPIENS – The Neanderthal Diet—From Teeth to Guts

Neanderthals’ tooth enamel, torsos, and even fossilized poop reveal that they ate much more than meat.

<https://www.sapiens.org/biology/neanderthal-diet/>

PUBLICATIONS

Current Biology

ARTICLES

SHIGEKI NAKAGOME – Human evolution: Tracing ancient journeys through Denisovan DNA

Variation in Denisovan ancestry across East Asia reflects complex demography and multiple introgression waves. A new study reports that the Jomon population, early diverged ancient hunter-gatherers in the Japanese archipelago, harbors little to no Denisovan ancestry.

[https://www.cell.com/current-biology/abstract/S0960-9822\(25\)01195-9](https://www.cell.com/current-biology/abstract/S0960-9822(25)01195-9)

MELISSA JOHNSTON, DONNA KEAN & ALEX H. TAYLOR – Animal tool use: Capturing tool-expertise development with a deep learning network

Movement tracking using the deep-learning network DeepLabCut has revealed how a species not known for tool use acquires and refines tool skills. This opens the door to detailed cross-species comparisons of the behavioural, cognitive, neural and evolutionary processes that turn naïve actions into expertise.

[https://www.cell.com/current-biology/abstract/S0960-9822\(25\)01202-3](https://www.cell.com/current-biology/abstract/S0960-9822(25)01202-3)

PAPERS

JIAQI YANG et al with JANET KELSO – An early East Asian lineage with unexpectedly low Denisovan ancestry

Denisovan ancestry in present-day humans is heterogeneously distributed and comes from genetically distinct Denisovan groups. Understanding the origin of this heterogeneity could provide insights into the early population history of modern humans in Eurasia. However, population movements and admixture after the initial dispersals of modern humans have obscured the origin of this heterogeneity. To address this, we investigated how Denisovan ancestry in early modern humans relates to that in present-day humans. We found that varying levels of Denisovan ancestry in Eurasians were shaped by admixture between diverse early modern human lineages. In particular, ancient Japanese individuals from the Jomon period have the least Denisovan ancestry among individuals from Eastern Eurasia, providing evidence for an ancient East Asian lineage with little to no Denisovan ancestry. By contrast, the earliest mainland East Asians harbor the most Denisovan ancestry in Eastern Eurasia, including ancestry from multiple divergent Denisovan groups, already before the last glacial maximum. Together with evidence of Denisovan ancestry sharing among ancient and present-day genomes, these patterns show how Denisovan ancestry in Eurasia spread through gene flow from early East Asians. Our study provides the first systematic investigation of Denisovan admixture across time and extends our understanding of human population history in Eurasia.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(25\)01117-0](https://www.cell.com/current-biology/fulltext/S0960-9822(25)01117-0)

PATRICK HAGGARD & MATTHEW R. LONGO – Somatosensation and the sense of self

Our own body is the constant accompaniment of our waking mental life, and the seat of all our sensory experience and responses. Unsurprisingly, therefore, the body is a key component in individual self-consciousness, in addition to other, psychological components such as autobiographical memory and explicit self-construal. The experiences that we have of and through our body are a good way to understand this basic bodily self. All these experiences begin with the excitation of sensory receptors in the body, which send somatosensory afferent signals to the central nervous system (CNS).

[https://www.cell.com/current-biology/fulltext/S0960-9822\(25\)00999-6](https://www.cell.com/current-biology/fulltext/S0960-9822(25)00999-6)

BIN YANG et al – Self-directed tool use by giant pandas

Tool use in animals is often studied from ecological, social, cognitive and evolutionary perspectives. Among mammals, primates are the most frequent tool users, and they appear to use tools for more diverse purposes than other species¹. Ursids, the family to which giant pandas belong, rarely use tools². One old, anecdotal report of zoo-housed giant pandas using their forepaws to rub dirt or turf on their bodies is the only documented example of this species using a tool³. However, their specialized morphology, with a so-called ‘false thumb’, allows giant pandas, uniquely among bears, to grasp

and hold objects in each forepaw or 'hand'⁴, which might favor the emergence of some kinds of tool use. Here, we report new evidence of self-directed tool use in eighteen captive giant pandas.

[https://www.cell.com/current-biology/abstract/S0960-9822\(25\)01173-X](https://www.cell.com/current-biology/abstract/S0960-9822(25)01173-X)

eLife

PAPERS

FELIX SCHNEIDER et al – Confidence over competence: Real-time integration of social information in human continuous perceptual decision-making

Human perceptual decision-making is susceptible to social influences. To determine if and how individuals opportunistically integrate real-time social information about noisy stimuli into their judgment, we tracked perceptual accuracy and confidence in social (dyadic) and non-social (solo) settings using a novel continuous perceptual report (CPR) task with peri-decision wagering. In the dyadic setting, most participants showed a higher degree of perceptual confidence. In contrast, average accuracy did not improve compared to solo performance. Underlying these net effects, partners in a dyad exhibit mutual convergence of accuracy and confidence, benefiting less competent or confident individuals, at the expense of the better-performing partner. In conclusion, real-time social information asymmetrically shapes human perceptual decision-making, with most dyads expressing more confidence without a matching gain in overall competence.

<https://elifesciences.org/reviewed-preprints/101021>

Frontiers in Behavioral Neuroscience

PAPERS

PENELOPE LACOMBE, KLAUS ZUBERBÜHLER & CHRISTOPH D. DAHL – Contextual influences on risk-taking in children and adults

Human risk-taking is well known to be influenced by context-dependent factors. In a previous study, we demonstrated that non-human primates similarly exhibit contextual risk-preference: two species of great apes showed risk-prone or risk-neutral choices depending on the manner in which risk was presented. Here, we applied the same experimental paradigm to human participants across different age groups using a computerized online interface. Consistent with the findings in great apes, we observed shifts in risk preference contingent on the experimental context, with these effects particularly pronounced in children. In a subsequent experiment, we explored potential cognitive mechanisms underlying this preference shift, identifying a general propensity for exploration and framing effects as promising explanatory factors common to both humans and animals.

<https://www.frontiersin.org/journals/behavioral-neuroscience/articles/10.3389/fnbeh.2025.1644777/full>

iScience

PAPERS

URŠA BLENKUŠ et al – Personality Traits In Free-Ranging Dogs: Do Experimental Tests Mirror Natural Behaviour?

While animal personality research is expanding, methods used to assess personality traits of free-ranging animals are often unreliable or report mixed results in the validation process. One potential reason is inadequate implementation of methods used for captive animals to wild populations. In this study we assessed cross-context validity of human- and conspecific-directed sociability, exploration, and aggression in a free-ranging dog population, with measures obtained from experimental testing and naturalistic observations. We found strong agreement between the two methods for human-directed sociability and exploration, supporting their validity. Although conspecific-sociability showed limited associations, initial reactions to other dogs during the test was linked to conspecific proximity during observations. Aggression occurred rarely, hence was not evaluated. Our results show that robust personality assessments are possible in free-ranging dogs, even in challenging field environments, paving the way for future studies, to advance our understanding of the species' behavioural ecology.

[https://www.cell.com/iscience/fulltext/S2589-0042\(25\)02117-0](https://www.cell.com/iscience/fulltext/S2589-0042(25)02117-0)

EDWIN J.C. VAN LEEUWEN et al with ZANNA CLAY – The physics of sociality: Investigating patterns of social resource distribution among the Pan species

Humans invest social resources in predictable “circles of friends,” from intimate ties to acquaintances. Whether these concentric social bonding dynamics (CSBD) are uniquely human or shared with other primates is unclear. We applied the CSBD model to 24 groups of bonobos and chimpanzees (N = 284) to test for evolutionary continuity and potential age-related changes in social selectivity. Results show that both ape species distribute social resources in ways resembling humans, supporting shared socio-cognitive structuring within the hominoid lineage. Yet clear species differences emerged: bonobos distributed resources more evenly across group members, while chimpanzees concentrated them more selectively. Moreover, chimpanzees—but not bonobos—became increasingly selective with age, mirroring human patterns of intensified interactions with fewer partners in later life. These findings suggest that our closest living relatives structure their social networks in ways that parallel humans', while also pursuing species-specific strategies that reveal both shared evolutionary roots and divergent pathways of primate sociality.

[https://www.cell.com/iscience/fulltext/S2589-0042\(25\)01768-7](https://www.cell.com/iscience/fulltext/S2589-0042(25)01768-7)

ANNABELLE MERCHIE et al – Vocal smile is recognized but not embodied in autistic adults

Autism spectrum disorder (ASD) is frequently characterized by atypical responses to emotional prosody, and a lack of response to social smiles. This study examined whether autistic adults show motor resonance to vocal smiles, as reflected in facial muscle activity, when listening to emotional vocal cues. Facial electromyography was recorded while autistic and neurotypical adults listened to sentences spoken with smiling or neutral prosody and judged their emotional content. Both groups accurately recognized smiling prosody, indicating intact perceptual abilities in autism. However, only neurotypical participants showed enhanced zygomaticus activation in response to smiling voices, whereas autistic participants did not modulate facial muscle activity despite correct recognition. This dissociation between identification and motor reactivity suggests that autistic individuals can accurately recognize vocal emotions but these are not embodied. These findings provide insights into the mechanisms that shape social engagement in ASD and may inform therapeutic approaches targeting emotional embodiment.

[https://www.cell.com/iscience/fulltext/S2589-0042\(25\)02119-4](https://www.cell.com/iscience/fulltext/S2589-0042(25)02119-4)

Nature**NEWS****AI language models killed the Turing test: do we even need a replacement?**

Chatbots now ace the mathematician's famous imitation game, but imitation never equalled intelligence.

<https://www.nature.com/articles/d41586-025-03386-w>

Nature Communications**PAPERS****SHAWN A. RHOADS et al – Neurocomputational basis of learning when choices simultaneously affect both oneself and others**

Many prosocial and antisocial behaviors simultaneously impact both ourselves and others, requiring us to learn from their joint outcomes to guide future choices. However, the neurocomputational processes supporting such social learning remain unclear. Across three pre-registered studies, participants learned how choices affected both themselves and others. Computational modeling tested whether people simulate how other people value their choices or integrate self- and other-relevant information to guide choices. An integrated value framework, rather than simulation, characterizes multi-outcome social learning. People update the expected value of choices using different types of prediction errors related to the target (e.g., self, other) and valence (e.g., positive, negative). This asymmetric value update is represented in brain regions that include ventral striatum, subgenual and pregenual anterior cingulate, insula, and amygdala. These results demonstrate that distinct encoding of self- and other-relevant information guides future social behaviors across mutually beneficial, mutually costly, altruistic, and instrumentally harmful scenarios.

<https://www.nature.com/articles/s41467-025-64424-9>

Nature European Journal of Human Genetics**PAPERS****JAISON JEEVAN SEQUEIRA et al – Novel 4400-year-old ancestral component in a tribe speaking a Dravidian language**

Research has shown that the present-day population on the Indian subcontinent derives its ancestry from at least three components identified with pre-Indo-Iranian agriculturalists once inhabiting the Iranian plateau, pastoralists originating from the Pontic-Caspian steppe and ancient hunter-gatherer related to the Andamanese Islanders. The present-day Indian gene pool represents a gradient of mixtures from these three sources. However, with more sequences of ancient and modern genomes and fine structure analyses, we can expect a more complex picture of ancestry to emerge. Focusing on Dravidian linguistic groups, this study proposes a fourth putative source potentially branching from the basal Middle Eastern component that contributed to the Iranian plateau farmer related ancestry. The Elamo-Dravidian theory and the linguistic phylogeny of the Dravidian family tree provide chronological fits for the genetic findings presented here. Our findings show a correlation between the linguistic and genetic lineages in language communities speaking Dravidian languages when they are modelled together. We suggest that this source we identified in the Koraga tribe, which we shall call 'Proto-Dravidian' ancestry, emerged around the dawn of the Indus Valley civilisation. This ancestry is distinct from all other sources described so far, and its plausible origin not later than 4400 years ago on the region between the Iranian plateau and the Indus valley supports a Dravidian heartland before the arrival of Indo-European languages on the Indian subcontinent. Admixture analysis shows that this Proto-Dravidian ancestry is still carried by most modern inhabitants of the Indian subcontinent other than the tribal populations.

<https://www.nature.com/articles/s41431-025-01963-1>

Nature Humanities & Social Sciences Communications

PAPERS

KEREN HUA – Lexical prosodic competence and word reading in adult EFL learners

The relationship between lexical prosodic competence and word reading was explored, taking into consideration of phonemic awareness and morphological awareness. A total of 90 Chinese university freshmen learning English as a foreign language participated in the study. Two measures were administered to examine their English lexical prosodic competence, i.e., word stress perception and stress production in nonneutral derivatives (derived forms with stress-shifting suffixes, e.g., able + ity → ability). Two measures were administered to examine their English word reading ability, i.e., word identification and nonword decoding. A series of hierarchical regression and mediation analyses were conducted. Both lexical prosodic competences predicted word identification and nonword decoding, respectively, after controlling for nonverbal reasoning, oral vocabulary, and other metalinguistic skills. Word stress perception continued to independently explain unique variance in word identification. Despite the different prosodic systems between Mandarin and English, the adult EFL learners possessed a sensitivity to the primary stress in English multisyllabic words and may have implicit awareness of stress shift cued by nonneutral suffixes. Both types of lexical prosodic competence had direct effects on word identification and nonword decoding. Their relationships to word identification were partially mediated by phonemic awareness and morphological awareness, whereas their relationships to nonword decoding were partially mediated by phonemic awareness only. The combined results provide evidence for the important role of lexical prosodic competence in word reading development and also point to the relevance of this role for adult EFL learners.

<https://www.nature.com/articles/s41599-025-06014-0>

Nature Neuropsychopharmacology

PAPERS

VALERIE J. SYDNOR et al – Investigating hierarchical critical periods in human neurodevelopment

Identifying when periods of enhanced neurobiological plasticity occur throughout the human cortex is foundational to understanding when different neural circuits and the psychological processes that they support will be most impacted by adverse and enriching environments. Animal research has identified “critical periods” of plasticity that occur in primary cortices and enable profound environment-dependent sculpting of sensory function early in life. Recent evidence suggests that critical periods may additionally occur in the human brain during childhood and adolescence, where they are hypothesized to unfold hierarchically across sensorimotor and association cortical regions. In this article, we consider neural, environmental, and behavioral evidence for hierarchical critical periods in human development. We review neuroimaging studies that have characterized the development of in vivo correlates of critical period plasticity and synthesize research that has explored when lower-order and higher-order cortical regions exhibit differential environmental sensitivity. We outline how the field is well-positioned to further investigate the precise nature, timing, and consequences of putative critical periods and summarize approaches to making progress in this area. We end by describing the relevance of critical periods for understanding youth psychiatric risk and for informing age-specific environmental enrichment interventions capable of supporting healthy development by fostering resiliency.

<https://www.nature.com/articles/s41386-025-02246-5>

Nature Scientific Data

PAPERS

ANNA KOMISSARENKO et al – SIGNAL: Dataset for Semantic and Inferred Grammar Neurological Analysis of Language

Recently, the idea of brain-model alignment has been the topic of several influential works. However, most of previous studies were based on datasets collected during regular reading tasks where the subjects were not exposed to processing linguistic incongruencies, and stimuli were not controlled for key linguistic properties. Meanwhile, interpretability studies of Large Language Models pay growing attention to thoroughly designed linguistic tasks based on certain acceptability measures. We present a dataset that contains 600 sentences with a combination of congruent and grammatically or/and semantically incongruent sentences coupled with high density 64-channel EEG recordings of 21 participants. The text stimuli were assessed by native speakers and later used in EEG recording and validation and LLM probing. The validation results proved suitability of the data for future research on brain-model alignment in the linguistic context.

<https://www.nature.com/articles/s41597-025-05966-x>

New Scientist

NEWS

Early hominin had human-like dexterity and gorilla strength

The first confirmed fossil hands of *Paranthropus boisei* show that this ancient relative was capable of making tools, but was also much stronger than modern humans.

<https://www.newscientist.com/article/2500037-early-hominin-had-human-like-dexterity-and-gorilla-strength/>

ARTICLES**JAMES WOODFORD – Neanderthal-human hybrids may have been scourged by a genetic mismatch**

When Homo sapiens and Neanderthals interbred, a genetic variation affecting red blood cells may have hindered reproduction in women who were hybrids, and this might have played a part in Neanderthals' demise.

<https://www.newscientist.com/article/2500492-neanderthal-human-hybrids-may-have-been-scourged-by-a-genetic-mismatch/>

ROBERT LAWRENCE KUHN – What 350 different theories of consciousness reveal about reality

There are hundreds of coherent theories attempting to explain the origins of experience. Robert Lawrence Kuhn explores what they reveal about free will, artificial intelligence and life after death.

<https://www.newscientist.com/article/2498968-what-350-different-theories-of-consciousness-reveal-about-reality/>

Philosophical Transactions of the Royal Society B**PAPERS****RUSSELL BARLOW – The notion of the numeral base in linguistics**

This article details how the notion of the numeral base has been used by linguists, both in the description of individual languages and as a broader concept for comparing different linguistic numeral systems. Although common linguistic understandings of 'base' are generally not the same as mathematical definitions of the term, they may help us understand the different ways in which languages encode numbers. In the hopes of supporting efforts in comparative linguistics as well as facilitating interdisciplinary studies of numeral systems, this article presents a typology of the various phenomena that may all be considered to be a 'base'.

<https://royalsocietypublishing.org/doi/10.1098/rstb.2024.0208>

JEAN-CHARLES PELLAND – Compositionality beyond bases

This paper situates bases within a larger family of compositional tools, using a novel conceptual framework centred on numbers used as counting units, which I label anchors. I motivate introducing this framework by showing that existing definitions of bases in linguistics and in the study of notation diverge significantly from each other, making neither suitable for a more general discussion of numeration systems across all representational formats. While notational definitions lump too many systems under the 'not-a-base' label, linguistics-inspired approaches allow too many systems into the base kingdom. I illustrate the broad range of compositional tools that need to be included in a format-independent discussion of numeration systems by showing how perceptual grouping in tallies instantiates shifts in counting units and how place-value can implement a recursive unit-labelling function. I highlight the advantages of an anchor-based framework by applying it to some well-known lexical systems.

<https://royalsocietypublishing.org/doi/10.1098/rstb.2024.0209>

CLAIRE BOWERN – On the grammar of restricted-range numeral systems

Languages lexicalize numerical concepts in many ways. Here I focus on what so-called 'low-limit' or 'restricted-range' numeral systems in Australian languages tell us about the linguistics of number concepts and how they change over time. It is a given in contemporary cognitive science that the types of operations that are available cognitively are human universals. But it is also obvious that languages and cultures differ in what ends up expressed in words and grammar. Numerals are one such area of variation. Australian restricted-range numerals come from the same sources as numerals elsewhere. Semantically, they appear to behave similarly to productive numerals. Australian restricted-range systems do not appear to behave like morphological number, as has sometimes been claimed. Why such systems are restricted is unclear; several hypotheses are investigated.

<https://royalsocietypublishing.org/doi/10.1098/rstb.2024.0213>

PLoS One**PAPERS****JACOB A. FEDER, SHIRLEY C. STRUM & JOAN B. SILK – Social patterns underlying a new group formation in olive baboons**

In group-living animals, social and ecological challenges can push groups to fission into two or more 'daughter' groups. Here, we describe the demographic and social behavioral changes that were associated with the formation of a new group of olive baboons (*Papio anubis*) in Laikipia, Kenya. The process began when a high-ranking natal male transferred into a nearby study group, which coincided with the dispersal of several adult females. The dispersing females had close social ties with this male, and he had sired most of their current offspring. After a stint in the neighboring group, these animals eventually budded off to form a new, separate group. Throughout the fission process, female-female grooming was strongly predicted by eventual fission outcomes. In other words, females groomed most with the females they would remain with after the fission. By contrast, female-male grooming was prevalent in co-resident dyads but less strictly predicted by eventual fission outcomes. Although rates of aggression were elevated during periods when females dispersed, females who moved between

groups were not targeted for eviction. Intergroup grooming remained elevated throughout the fission process, particularly between mixed-sex dyads, suggesting that group boundaries may have remained somewhat blurred. Taken together, the formation of this new group appears to have been a product of social factors including elevated levels of female-female aggression and females' affinity for particular males.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0333541>

ANASTASIA NIKULINA et al with WIL ROEBROEKS – On the ecological impact of prehistoric hunter-gatherers in Europe: Early Holocene (Mesolithic) and Last Interglacial (Neanderthal) foragers compared

Recent studies have highlighted evidence of human impact on landscapes dating back to the Late Pleistocene—long before the advent of agriculture. Quantifying the extent of vegetation transformations by hunter-gatherers remains a major research challenge. We address this challenge by comparing climate-based potential natural vegetation cover with pollen-based vegetation reconstructions for the Last Interglacial and the Early Holocene. Differences between these datasets suggest that climate alone cannot fully explain the pollen-based vegetation patterns in Europe during these periods. To explore this issue, we used an upgraded version of the HUMAN impact on LANDscapes (HUMLAND) agent-based model (ABM), combined with a genetic algorithm, to generate vegetation change scenarios. By comparing ABM outputs with pollen-based reconstructions, we aimed to identify parameter values that yield HUMLAND results closely matching the pollen-based vegetation cover. The updated ABM covers a broad temporal range, and incorporates the effects of hunting on herbivores and their influence on vegetation regeneration. The results show that the combined effects of megafauna, natural fires, and climatic fluctuations alone lead to vegetation cover estimates that are inconsistent with paleoecological reconstructions. Instead, anthropogenic burning played a key role, with modelling results suggesting that European landscapes were already substantially modified by humans by the Early Holocene. In scenarios where human-induced burning was minimal or absent, foragers still shaped landscapes indirectly through hunting, which influenced herbivore densities and their impact on vegetation dynamics. Our study revealed that Neanderthals and Mesolithic humans influenced similar-sized areas around their campsites and shared comparable preferences for vegetation openness. Our results challenge the assumption that pre-agricultural humans had minimal ecological impact. Instead, this study provides strong evidence that both Neanderthals and Mesolithic foragers actively shaped European interglacial ecosystems, influencing vegetation dynamics long before agriculture.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0328218>

CLARA SCHEER et al with W. TECUMSEH FITCH – Work together, move together—Cooperation and rapport promote Interpersonal synchrony

Human movement synchrony is one fundamental driving force for social bonding and yet not all individuals are equally likely to engage in interpersonal synchrony. Movement synchrony increases collaboration and feelings of rapport, but it remains unclear whether cooperative interactions between two individuals also result in greater interpersonal synchrony. The aim of the current study was to investigate whether cooperating in one task increased spontaneous movement synchrony in a subsequent unrelated task. Thirty-four same-gender dyads first worked on a jigsaw puzzle – either collaboratively or individually – and subsequently jumped on trampolines facing each other. Additionally, we investigated the potential effects of the participants' rapport and mood during the experiment. As predicted, dyads who had worked on the puzzle collaboratively displayed greater movement synchrony when later jumping on trampolines than dyads who had worked individually. When we tested for the additional influence of the participants' initial rapport and mood, however, the effect of the collaborative treatment was qualified by a stronger effect of initial rapport. The results of the current study provide evidence that collaborative interactions and initial rapport are important stepping stones towards interpersonal synchrony and add to the growing body of evidence suggesting that human cooperation and interpersonal synchrony are essentially connected.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0333709>

Royal Society Open Science

PAPERS

VICTOR ROSI & CAROLYN MCGETTIGAN – Voice gender diversity: expression, perception and acoustics

The voice is a key marker of gender identity, yet gender non-conforming speakers often diverge from binary vocal norms. This review synthesizes findings from 45 studies published between January 2020 and January 2025 examining how gender is expressed and perceived for the voices of gender-diverse individuals. We report how gender identities and expressions are measured, how gender-diverse voices are perceived, and how acoustic features relate to both self-reported and perceived gender. While binary frameworks still influence the experimental methods used, a shift towards more inclusive models is emerging. Gender-diverse voices are frequently externally perceived or acoustically represented as falling between binary categories or as misaligned with affirmed gender identity. Similar to binary voice gender, fundamental frequency and formants are key components of expressed and perceived gender. However, these findings may be biased owing to the binary understanding of gender in the methods used, a general focus on transfeminine voices, and few investigations on the impact of listeners' identity. A few studies reported that gender non-conforming listeners tend to have a distinct

understanding of voice gender compared with cisgender listeners. To move forward, future research should adopt inclusive perceptual tasks, account for listener demographics, and further explore self-perception of voice gender.

<https://royalsocietypublishing.org/doi/10.1098/rsos.251193>

Science

PAPERS

JOSÉ E. ROMERO-GONZÁLEZ et al – Positive affective contagion in bumble bees

Affective contagion, a core component of empathy, has been widely characterized in social vertebrates but its existence in any invertebrate is unknown. Using a cognitive bias paradigm we demonstrate positive affective contagion in bumble bees. After being trained on colored flowers with different reinforcements, bees that interacted with a conspecific in a positive affective state were quicker and more likely than controls to land on ambiguous colored flowers, indicating the transfer of a positive judgment bias between bees. Additional observations and experiments showed that affect could be transmitted between bees without physical contact, i.e., through visual modality alone. Our findings suggest that affective contagion may be an evolutionarily widespread mechanism present in both social vertebrates and social insects.

<https://www.science.org/doi/10.1126/science.adr0216>

Science Advances

PAPERS

DAVID B. MADSEN et al – Characterizing the American Upper Paleolithic

In North America, there are enough sites with relatively large tool assemblages predating ~13,500 calibrated years before the present (cal yr B.P.) to allow assessment of the underlying characteristics of their shared lithic tradition. Their shared technological features involve the use of dual core-and-blade and biface technologies similar to those in the Northeast Asian Late Upper Paleolithic. These dual approaches were often merged to produce small projectile points, including stemmed point forms using an elliptical cross-sectional ogive design. Similar dual lithic technologies are found in assemblages in northern Japan dating to ~20,000 cal yr B.P. We suggest a group with a similar lithic technology became isolated somewhere in the vicinity of the Paleo-Sakhalin-Hokkaido-Kuril region, developing genetically into ancestral American populations. Between ~22,000 and ~18,000 cal yr B.P., a subset of this population migrated along the southern Beringian and Northwest coasts into the Americas. By ~16,000 to ~15,000 cal yr B.P., they had become widely dispersed across North America.

<https://www.science.org/doi/10.1126/sciadv.ady9545>

Trends in Cognitive Sciences

PAPERS

CINDEL J.M. WHITE – Belief in karma: how beliefs about moral causality shape social behavior

Billions of people around the world believe that the events in their lives are determined by the law of karma: good deeds lead to good outcomes, whereas bad deeds lead to bad outcomes, because of supernatural forces that transcend the boundaries of human justice. This belief is increasingly recognized in psychological research as an important dimension of religious diversity across the world, and has unique impacts on the psychology and social behavior of believers. This review highlights the distinctive cognitive profile of karma beliefs and summarizes recent empirical research showing that belief in karma can lead to both positive outcomes (e.g., optimism, generosity) and negative outcomes (e.g., depression, victim blaming) which impact on individual well-being and social dynamics.

[https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613\(25\)00252-9](https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00252-9)

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