EAORC BULLETIN 1,189 – 29 March 2026

CONTENTS

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 – Archaeological ostrich eggshell structure as taxonomic & paleoenvironmental indicator

Palaeogeography, Palaeoclimatology, Palaeoecology 691 (2026) 113723.

ELLA TSAHAR et al with ANNA BELFER-COHEN & ERELLA HOVERS – Archaeological ostrich eggshell structure as a taxonomic and paleoenvironmental indicator

We investigated the macrostructure and pore morphology of ostrich eggshells to evaluate their potential as indicators of past ostrich taxonomy and paleoenvironmental conditions in the southern Levant. We compared pore patterns of all extant ostrich species with those observed on eggshell fragments recovered from 20 archaeological sites in Israel, dating from the late Middle Pleistocene to the late Holocene. Our analysis revealed a shift from a clustered pore pattern—resembling that of the extant Somali ostrich—to a scattered pattern characteristic of the now-extinct Syrian ostrich. This transition, which

occurred approximately between 100 and 70 ka, is tentatively interpreted as evidence of a species turnover, an interpretation supported by ecological niche models, which suggest that suitable habitats for the Somali ostrich existed in the southern Levant prior to ~100 ka, with peaks of particularly high habitat suitability around 240 ka and 120 ka. We propose that the presence of the Somali ostrich in the southern Levant possibly coincided with interglacial conditions that facilitated faunal movement through an open biogeographic corridor connecting Africa and the Levant. The entry of the Syrian ostrich into the region was associated with more arid condition. Our fndings demonstrate the value of ostrich eggshells as a taxonomic biomarker and for reconstructing past environments and faunal distributions in the southern Levant and other regions.
https://www.academia.edu/165278564/Tsahar_E_Hovers_E_Marom_N_2026_Archaeological_ostrich_eggshell_structure_as_a_taxonomic_and_paleoenvironmental_indicator_Palaeogeography_Palaeoclimatology_Palaeoecology_113723_https_doi_org_10_1016_j_palaeo_2026_113723

ACADEMIA.EDU – Earliest evidence for intentional cremation of human remains in Africa

Science Advances 12, eadz9554 (2026).

JESSICA I. CEREZO-ROMÁN et al – Earliest evidence for intentional cremation of human remains in Africa

Human cremation on an open pyre demands intensive labor, communal resources, and sensory exposures. We report the earliest evidence for intentional cremation in Africa, the oldest in situ adult pyre in the world, and one of only a few associated with hunter-gatherers. A large cremation feature at Hora 1 in Malawi dates to ~9500 years ago and contains the remains of a small, gracile adult with evidence for perimortem defleshing and postcremation manipulation. Subsequent revisiting of the site to build fires in the same place provided additional pyrotechnological spectacles. High-resolution, multiproxy reconstruction of the ritual associated with cremation and its subsequent deposition demonstrates complex mortuary practices among ancient African foraging groups with substantial social investment and use of natural landscape features as persistent mortuary monuments.
https://www.academia.edu/145836780/Earliest_evidence_for_intentional_cremation_of_human_remains_in_Africa

NEWS

CELLPRESS NEWS – Austrian cow shows first case of flexible, multi-purpose tool use in cattle

In 1982, cartoonist Gary Larson published a now-iconic Far Side comic entitled Cow Tools. In it, a cow stands proudly beside a jumble of bizarre, useless objects that are “tools” in name only. The joke hinged on a simple assumption: cows are not intelligent enough to make or use tools. Now, this assumption is being challenged by a real cow named Veronika, according to a study published in the Cell Press journal Current Biology on January 19, 2026. This study, talked about in The New York Times, The Guardian, National Geographic, and more, is the first to describe tool use in a pet cow, suggesting that the cognitive abilities of cattle have been underestimated.
https://www.cell.com/news-do/pr-cow-tool-use

NATURE BRIEFING – Don’t believe the hype of ‘AI intelligence’

In The AI Illusion, computer scientist Luc Julia argues that the hype and fear surrounding the intelligence and creative abilities of artificial intelligence models are overblown. “Just as a magician uses sleight of hand to create the illusion of magic, the terminology around AI creates the illusion of human-like intelligence,” he tells Nature. AI ‘intelligence’ often refers to a system’s information-processing abilities, rather than any real cognitive ability, he says. “The reality is that AI is a tool created by humans, for humans, and its capabilities are defined by the parameters we set.”
{“I Can’t Believe it’s not Butter” is not butter regardless of whether I can’t believe it’s not butter or not.}
https://www.nature.com/articles/d41586-026-00882-5

NATURE BRIEFING – Fetus tells story of Neanderthal decline

DNA from the remains of ten Neanderthals, including 17 tiny bones from a fetus, have revealed the genetic bottleneck that might have contributed to the downfall of the species. The DNA shows that the population shrunk about 65,000 years ago, when most Neanderthals sheltered in a relatively ice-free ‘glacial refugium’ in what is now southwestern France. Those who later spread out across Europe emerged from that genetically similar group. Their homogeneity might have been a fatal weakness when later climatic changes and other factors drove the species to extinction around 40,000 years ago, researchers suggest.
https://www.nationalgeographic.com/history/article/neanderthal-fetus-bottleneck

NATURE BRIEFING – The eroding human–animal divide

In Animate, science writer Michael Bond explores how human relationships with other animals have changed over time. The relatively modern belief that humans are set apart from animals — partly by the possession of a soul — helped people to ease anxieties about our mortality, and legitimize the widespread use of animals for labour, warfare and entertainment,

Bond argues. His mix of storytelling, case studies and research shows how long-standing cultural assumptions "are beginning to shift towards a more inclusive and less human-centric world view", writes social psychologist Brock Bastian in his review.
https://www.nature.com/articles/d41586-026-00881-6

NATURE BRIEFING – Dogs were early humans' best friends

Researchers have identified the earliest known dog genomes, which push the genetic record for dogs back by more than 5,000 years. They recovered these genomes from remains of between 14,000 and 16,000 years old found at archaeological sites that span Europe and the Middle East. The team also identified an early domestic dog population (Canis lupus familiaris) that spanned Western Eurasia and was kept by diverse human hunter-gatherer groups. The findings show that dogs were exported and exchanged by various human groups, underlying dogs' importance to early communities with different ways of living.
https://www.nature.com/articles/d41586-026-00900-6

NATURE BRIEFING – Brain atlas maps chatter between regions

Scientists have created the first atlas of key patterns of 'chatter' between different areas of the brain over the entire human lifespan. Drawing on brain scans from 3,600 people — ranging from infants to centenarians — the guide maps a property called functional connectivity, which describes the level of coordination between separate brain regions. Such a guide could be useful for understanding when developmental issues and neurodegenerative conditions emerge, says neuroscientist Jakob Seidlitz. But it can't capture how functional connectivity might differ between individuals.
https://www.nature.com/articles/d41586-026-00975-1

NATURE BRIEFING – 'Grade inflation' hits master's and PhDs

The grades attained by master's and PhD students at one large public university in the United States have crept up over the past two decades, without a demonstrable improvement in the quality of students' work in that period. The spike likely amounts to what researchers call 'grade inflation', a phenomenon that has scarcely been documented at graduate level. The reasons behind such inflation aren't clear, but university professors might be incentivized to give higher grades to receive better student evaluations or to boost enrolment, says psychologist and study co-author Vivien Lee.
https://www.nature.com/articles/d41586-026-00952-8

NATURE BRIEFING – For sperm whales, it takes a village

Researchers studying sperm whale sounds were in the right place at the right time when they happened to observe a calf being born. With underwater microphones and drone cameras running, the team observed related and unrelated females working together to support the labour and keep the newborn safely at the surface. Whale births are very rarely seen, and this is the first time that such 'assisted births' have ever been seen in a non-primate species.
https://www.npr.org/2026/03/27/nx-s1-5762978/sperm-whale-birth-cooperation-coordination-marine-mammals-science

NEWS FROM SCIENCE – Dueling AI agents could reveal keys to restoring consciousness

A new study probes consciousness with models that simulate and classify brain activity. A neuroscientist behind the work explains its ambitions.
https://www.science.org/content/article/dueling-ai-agents-could-reveal-keys-restoring-consciousness

NEWS FROM SCIENCE – Neanderthals survived on a knife's edge for 350,000 years

A pair of studies illuminates these humans' long, hardscrabble existence.
https://www.science.org/content/article/neanderthals-survived-knife-s-edge-350-000-years

NEWS FROM SCIENCE – World's oldest dog identified at ancient hunter-gatherer site

Bones of 15,800-year-old puppy push confirmed origin of our canine companions back nearly 5000 years.
https://www.science.org/content/article/world-s-oldest-dog-identified-ancient-hunter-gatherer-site

NEWS FROM SCIENCE – Unprecedented footage shows sperm whales joining forces to help newborn calf

Cetaceans from different families take turns lifting baby whale to surface to breathe.
https://www.science.org/content/article/unprecedented-footage-shows-sperm-whales-joining-forces-help-newborn-calf

SCIENCEADVISER – Neanderthals lived their whole existence on a knife's edge

Between 400,000 and 45,000 years ago, Neanderthals living across Eurasia hunted large game, harvested plants, expertly knapped stone tools, and fashioned clothing from animal skins. In many ways, they were well-suited to their environment. Yet their existence was always precarious. Two new studies show many Neanderthals lived in small, far-flung groups, likely

experienced significant inbreeding, and survived a close brush with extinction about 75,000 years ago before bouncing back to repopulate the continent—and then finally winking out.

These latest studies both rely on ancient DNA to tell their tales. In one, researchers found that Neanderthals accumulated a lot of genetic variation over relatively short spans of time —a pattern usually seen in heavily inbred populations. Even so, the genetic impact of such inbreeding appears to have been small for hundreds of thousands of years, provided the climate proved relatively stable. But once they encountered a major climate shift, that lack of genetic diversity may have proved a fatal hindrance, researchers speculate.

The second study details a near-extinction event for Neanderthals some 75,000 years ago. Ancient DNA and archaeological patterns suggest that at that time, Neanderthal populations plummeted to maybe a few thousand individuals total, again perhaps due to a shifting climate. The survivors holed up in the valleys of southern France, while abandoning or dying out in the rest of the continent. Then, they bounced back, at least for a while.

It's unclear what exactly allowed our lineage to prevail while Neanderthals ultimately went extinct, but these studies offer clues that could one day help solve that mystery.

https://www.science.org/content/article/neanderthals-survived-knife-s-edge-350-000-years

SCIENCEADVISER – World's oldest dog identified at ancient hunter-gatherer site

Despite decades of study, dogs remain one of the greatest mysteries in archaeology. Scientists know that they descend from gray wolves, but exactly when this happened—and whether it happened more than once —has been unclear. Archaeologists have unearthed suspected dogs—animals whose shorter and wider skulls, for example, are a hallmark of changes that took place as wolves became domesticated—that are much older than the reigning 11,000-year-old genetically confirmed record. But they did not have the detailed genetic information needed to close the case—until now.

Ancient DNA analyses of suspected dogs revealed that the animals were indeed dogs and that our canine pals were widespread across Europe by 14,000 years ago. The oldest dog in the samples dates to about 15,800 years ago, making it the oldest genetically confirmed dog to date and pushing back the definitive origins of dogs nearly 5000 years.

The genomes of the animals are strikingly similar to one another, despite the vast geographical distances separating the sites—from the UK to Switzerland to Italy. As such, they may represent Europe's ur-dogs, an ancient lineage that had yet to become specialized , said Greger Larson, an evolutionary biologist and co-author on both studies. Whereas later dogs were bred to perform a wide variety of tasks, these early dogs were more of a "Swiss Army knife," explained Larson. "It's almost as if this is a new, super-cool thing that everyone wants."

Neither study answers the age-old question of exactly where and when dogs arose. More digging should help clarify that story, said Natalie Munro, an archaezoologist who was not involved with either study. "There's a chance they will find more dogs," she told ScienceAdviser. "And that's super exciting."

https://www.science.org/content/article/world-s-oldest-dog-identified-ancient-hunter-gatherer-site

SCIENCEADVISER – Whale done teamwork

In July 2023, researchers on a whale watching expedition in the Caribbean encountered an unusual scene: 11 sperm whales clustered tightly at the water's surface. The animals began inching closer and closer together in the waters off the island of Dominica, with their attention turned to one individual, until a burst of blood tinted the water. At first, the scientists—part of Project CETI, a nonprofit that studies how sperm whales interact—thought the animal had been attacked. But then they saw a tiny tail pop out of the water.

The researchers quickly realized they had in fact observed a group of whales helping a calf take its first breath. Even more fortuitous, they had videoed it from a drone—overhead footage that allowed the scientists to meticulously analyze the individual whales' behavior before, during, and after the delivery. Those analyses revealed whales from different family branches can work together to support a newborn calf . "This observation confirms the suspected social complexity of whales and suggests that modern observational tools are likely to continue to reveal the secrets of other species that are difficult to study," Science Editor Sacha Vignieri wrote in her editor's summary.

The findings "are incredibly exciting," said physiologist Jeremy Goldbogen, who was not involved in the work. "They represent just the tip of the iceberg."

https://www.science.org/doi/10.1126/science.ady9280

SCIENCENEWS – When were dogs domesticated? The oldest dog DNA offers clues

Two new studies suggest that genetically stable dogs were living among humans in Europe by about 14,000 years ago.

https://www.sciencenews.org/article/oldest-dog-dna-domestication

PUBLICATIONS

American Journal of Biological Anthropology

PAPERS

BÁRBARA MAZZA, DANIEL LOPONTE & ALEJANDRO ACOSTA – Sex Differences in Bilateral Asymmetry Among Hunter-Gatherers From the Lower Paraná River Wetlands (Argentina)

This study assesses sex differences in subsistence strategies through bilateral asymmetry in the upper and lower limbs of Late Holocene hunter-gatherers from the lower Paraná River wetlands (Argentina).

The sample comprises 55 adult individuals of both sexes. Entheseal changes, linear external measurements, and diaphyseal shape were analyzed to quantify absolute and directional asymmetries. Bivariate and bootstrap analyses were applied to identify sex differences, and Spearman correlations were used to explore relationships between asymmetries across skeletal elements. Comparative data from global hunter-gatherer populations were also considered to contextualize the findings.

Bilateral asymmetry ranged from 0% to nearly 30%, especially in upper limb midshafts. Males showed significantly greater asymmetry than females, particularly in the upper limbs. Right-side dominance was common in both sexes, though left-side dominance also appeared, especially in males. Positive correlations between asymmetries of different bones were more frequent in females, whereas males also displayed negative correlations.

High percentages of bilateral asymmetry are consistent with uni- and bimanual hunting techniques and food processing, possibly beginning in adolescence. Sex differences suggest a division of labor, with males likely performing high-intensity, unilateral tasks and rowing, while females engage in more balanced, bimanual activities. Comparisons with global hunter-gatherers reveal similar asymmetry patterns, though local deviations may reflect adaptations to specific environmental and economic contexts.

https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.70224

DAVID J. DAEGLING et al – Phylogenetic Influence on Bone Material Stiffness in the Mandibles of Cercopithecid Primates

Variation in the material properties of bone has been linked to functional activity in mammals, including primates. This coheres to the paradigm that skeletal morphology, in general, provides insight into species-specific physical activity patterns. The role of phylogenetic history in conditioning bone material properties, however, is largely unexplored, despite consensus that patterns of morphological variation should be sensitive to degrees of relatedness among sampled taxa.

We collected microindentation hardness data (a measure of bone material stiffness) from the mandibles of five sympatric primate species from Taï Forest, Côte d'Ivoire to test the hypothesis that degree of relatedness, rather than species differences in diet and feeding behavior, is more strongly associated with bone material variation. This hypothesis is tested using a generalized linear mixed model with Bayesian inference.

Phylogenetic distance has a significant association with bone stiffness, with colobines exhibiting more compliant bone than cercopithecines. The alternative hypothesis, that differences in dietary mechanical demands are reflected in bone stiffness variation, is not supported.

While these findings suggest a role for phylogeny in constraining skeletal adaptation, a functional explanation is not necessarily precluded. Ingestive behavioral differences between subfamily members may provide a biomechanical framework for explaining what is, at present, a nebulous invocation of phylogenetic “baggage.”

https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.70223

Cell

PAPERS

MICHAEL V. WESTBURY et al – Four centuries of commercial whaling eroded 11,000 years of population stability in bowhead whales

Bowhead whales were heavily exploited during commercial whaling between the 16th and 20th centuries. Current and near-future climate warming poses a new threat. Assessing bowhead vulnerability to climatic change remains challenging due to insufficient knowledge regarding responses to past climates and pre-whaling population dynamics. We integrate paleogenomics and stable isotopes (δ13C and δ15N) from 206 bowhead fossils from the Atlantic Arctic with paleoclimate and ecological modeling based on 823 radiocarbon-dated fossils, including 140 from this study. We find long-term resilience of bowheads to Holocene environmental perturbations, with no detectable changes in genetic diversity or population structure. Simulated commercial-whaling-driven genetic and fitness changes indicate that population subdivision and loss of genetic diversity are unlikely to be fully realized, despite nearly a century since whaling ceased. Furthermore, even in simulated complete population recovery scenarios, overall fitness did not return to pre-whaling levels, potentially compromising the future resilience of bowhead whales.

https://www.cell.com/cell/fulltext/S0092-8674(26)00229-1

eLife

PAPERS

YA ZHENG & RUMENG TANG – Dissociable after-effects of prosocial acts: Effort is costly for others but valued for self
Reviewed Preprint
Engaging in prosocial behavior requires effort, yet people are often averse to exerting effort for others' benefit. However, it remains unclear how effort exertion affects subsequent reward evaluation during prosocial acts. Here, we combined high-temporal-resolution electroencephalography with a paradigm that independently manipulated effort and reward for self and others to elucidate the neural mechanisms underlying the reward after-effect of prosocial effort expenditure. We found dissociable reward after-effects for self-benefiting and other-benefiting effort. For self-benefiting rewards, the reward positivity (RewP) increased with effort demand, suggesting an effort-enhancement effect. In contrast, for other-benefiting rewards, the RewP decreased as effort increased, demonstrating an effort-discounting effect. Critically, this dissociation was contingent upon high reward magnitude and modulated by individual differences in effort discounting, yet remained distinct from performance evaluation. Our findings reveal distinct neural computations for self- and other-benefiting efforts, offering new insights into how prior effort expenditure shapes reward evaluation during prosocial behavior.
https://elifesciences.org/reviewed-preprints/103566

MARIA GÄDEKE et al – Contributions of insula and superior temporal sulcus to interpersonal guilt and responsibility in social decisions
This study investigated the neural mechanisms involved in feelings of interpersonal guilt and responsibility evoked by social decisions in humans. In two studies (one during fMRI), participants repeatedly chose between safe and risky monetary outcomes in social contexts. Across conditions, each participant chose for both themself and a partner (Social condition), or the partner chose for both themself and the participant (Partner condition), or the participant chose just for themselves (Solo condition, control). If the risky option was chosen in the Social or Partner condition, participant and partner could each receive either the high or the low outcome of a lottery with 50% probability, independently of each other. Participants were shown the outcomes for themselves and for their partner on each trial and reported their momentary happiness every few trials. As expected, participant happiness decreased following both low lottery outcomes for themselves and for the partner. Crucially, happiness decreases following low outcomes for the partner were larger when the participant rather than their partner had made the choice, which fits an operational definition of guilt. This guilt effect was associated with BOLD signal increase in the left anterior insula. Connectivity between this region and the right inferior frontal gyrus varied depending on choice and experimental condition, suggesting that this part of prefrontal cortex is sensitive to guilt-related information during social choices. Variations in happiness were well explained by computational models based on participants' and partners' rewards and reward prediction errors. A model-based analysis revealed a left superior temporal sulcus cluster that tracked partner reward prediction errors that followed participant choices. Our findings identify neural mechanisms of guilt and social responsibility during social decisions under risk.
https://elifesciences.org/articles/105391

Evolutionary Anthropology

PAPERS

CERI SHIPTON – Lithic Miniaturization Provides a Signature of an MIS4-3 Southern Dispersal of Homo sapiens
Fossil and artefactual evidence shows Homo sapiens in Eurasia well before 75 ka. However, genetic evidence suggests all extant non-African populations derive almost all of their ancestry from a dispersal that only diverged in the last 60–50 ka. In northern Eurasia, the Upper Paleolithic with its laminar blade knapping provides an archeological signature of this dispersal, but no equivalent is yet established for southern Asia, Wallacea, and Sahul. This paper suggests that lithic miniaturization may provide such a signature as it appears across these southern regions from around 50 ka. It can be traced back to the southwestern edge of Asia at 55 ka, and then coastal east Africa at 68 ka. In both these cases it is also associated with laminar blade technology. Lithic miniaturization is implicated in behaviors including bow-and-arrow hunting, compound tools, hair-shaving, and scarification. The ecological and social implications of these behaviors may have given later Homo sapiens a competitive advantage over both other hominins and earlier dispersals of our own species.
https://onlinelibrary.wiley.com/doi/full/10.1002/evan.70027

Frontiers in Human Neuroscience

PAPERS

ANNA MERIN MATHEW et al – Processing ergativity in compound light verb constructions: electrophysiological evidence from Hindi
Ergativity marks subject arguments as agents of a transitive event and thereby signals verbal transitivity and influences language comprehension.
We report here on an event-related brain potentials (ERP) study in Hindi, in which we investigated this interconnection to ascertain whether the ergative case as a processing cue and its ERP correlates can be generalized across and within ergative

languages. The case marking on the subject argument (ergative or nominative case) in our study either matched or mismatched with the transitivity of the light verb (transitive or intransitive) in compound light verb constructions.
Ergative case violations due to an intransitive light verb evoked an N400 effect, whereas nominative case violations due to a transitive light verb elicited a P600 effect.
The results reveal neurophysiological differences in the processing of ergative and nominative case alignment modulated by the transitivity of the light verbs. The findings highlight the need for cross-linguistic research to aim beyond universality and elucidate the mechanism underlying the processing of language-specific structural variations.
https://www.frontiersin.org/journals/human-neuroscience/articles/10.3389/fnhum.2026.1593289/full

Frontiers in Neural Circuits

PAPERS

TAIHEI NINOMIYA et al – Clarifying the neural circuit mechanisms of spontaneous social behavior in macaques
Research using nonhuman primates has investigated how the brain processes and represents a wide range of socially relevant information, such as others' faces, actions and rewards. While our understanding has expanded considerably in recent years, much of the research has been conducted under highly controlled task conditions, leaving the neural underpinnings of naturally occurring social behaviors largely unexplored. In this Perspective, we first highlight recent efforts utilizing freely behaving primates to overcome these challenges. We then detail our own experiments, demonstrating how the combined use of behavioral analysis and neural manipulation techniques in freely moving macaques enabled us to identify a specific neural circuit critical for the spontaneous expression of mounting behavior. These strategies offer novel opportunities to validate and extend established knowledge concerning the neural basis of social behavior in experimental settings that more closely resemble those occurring in a real world.
https://www.frontiersin.org/journals/neural-circuits/articles/10.3389/fncir.2026.1783133/full

Frontiers in Psychology

PAPERS

RAMAZAN ARSLANBOGA et al – The mediating role of altruistic leadership perception in the relationship between psychological wellbeing and job performance among coaches
The mediating role of altruistic leadership perception in the relationship between psychological wellbeing and job performance has not yet been sufficiently investigated in samples of coaches.
This study aimed to examine the mediating role of altruistic leadership perception in the relationship between psychological wellbeing and job performance among coaches.
The research sample consisted of 491 coaches actively working in the Eastern Anatolia region who participated voluntarily and was selected using a simple random sampling method. The participants were between 18 and 44 years old, with a mean age of 26.6 ± 7.37 years. As data collection instruments, the Short Form of the Psychological WellBeing Scale developed by Telef, the Altruistic Leadership Scale originally developed by Barbuto and Wheeler and adapted into Turkish by Çakmak et al., and the Job Performance Scale developed by Çalişkan and Köroglu were administered. Data were analyzed using SPSS and Jamovi software. The scales used in the study were validated, and their construct validity was confirmed.
The findings revealed statistically significant positive associations among psychological wellbeing, altruistic leadership, and job performance, with the strongest association observed between psychological wellbeing and job performance.
Mediation analysis indicated that coaches' psychological wellbeing showed a strong direct association with job performance, while altruistic leadership demonstrated a small but statistically significant indirect effect within this relationship. From a theoretical perspective, this study contributes to the sports management and organizational psychology literature by empirically demonstrating that altruistic leadership may function as a meaningful relational pathway linking psychological wellbeing and job performance in coaching contexts.
https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2026.1781192/full

YUEMEI ZHANG, MINGWEI BU & HAITAO LIU – Moral elevation and prosocial behavior in college students: the mediating role of gratitude and the moderating role of empathy
With growing attention to moral development in society, the moral cognition and behavior of college students have become important topics of interest. Moral elevation may influence individuals' sense of obligation toward others and is thought to relate to prosocial conduct through affective pathways, including but not limited to gratitude. Grounded in the Social Intuitionist Model and the Empathy–Altruism Hypothesis, this study proposes a moderated mediation model to explore the relationship between moral elevation and prosocial behavior, with gratitude as a mediator and empathy as a moderator. Using standardized questionnaires, data were collected from 1,261 college students on moral elevation, gratitude, empathy, and prosocial behavior. Among the participants, 54.08% were male (n = 682), and the majority were between 18 and 22 years old (97.46%). This study used the Bootstrap method with SPSS PROCESS macro 4.2 to test the model.
The results suggest that moral elevation is positively associated with prosocial behavior, and that gratitude may play a mediating role in this association. Furthermore, empathy appears to moderate the relationship between moral elevation and prosocial behavior, with the effect being more pronounced among individuals with lower levels of empathy.

This study explores the role of gratitude and empathy in connecting moral elevation with prosocial behavior in college students. These findings yield important implications for theory development and practical applications within educational and psychological domains, particularly in promoting gratitude, enhancing empathy, and fostering prosocial behavior.
https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2026.1784102/full

YANCHUN YU & TIANHUA WANG – Grammatical metaphor studies: historical review and outlook
Grammatical metaphor, a significant theoretical innovation within Systemic Functional Linguistics (SFL), extends meaning realization from the lexical to the grammatical stratum, providing a powerful framework for analyzing abstraction and technicality in academic and scientific discourse. Adopting a methodology of combining systematic retrieval with thematic analysis, this article reviews 293 primary studies on grammatical metaphor within SFL since Halliday initial proposal. We first trace Halliday's three-stage theoretical development of grammatical metaphor. Subsequently, our thematic synthesis reveals predominant sub-themes within two major streams: theoretical development (encompassing semantic and characteristic discussion, interdisciplinary dialogues with Cognitive Linguistics and educational sociology, and typological debates) and practical application (covering language teaching, textual analysis, and translation studies). Based on the synthesis, we propose four key directions for future research: expanding the linguistic scope, broadening the population of second language learners, establishing identification criteria for grammatical metaphor in non-English languages, and delineating demetaphorization. The findings of this review offer valuable theoretical references for linguists seeking to refine grammatical metaphor theory, as well as practical guidance for language teachers and curriculum developers aiming to foster learners' academic literacy. Moreover, the proposed future directions are intended to inspire researchers to explore cross-linguistic and interdisciplinary dimensions, ultimately facilitating a more inclusive and methodologically robust field of grammatical metaphor studies.
https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2026.1774523/full

National Geographic

ARTICLES

DAVID STUART – What Happened to the Maya?
National Geographic Explorer David Stuart has been critical to unraveling the mysteries of the Maya. As part of our Ask an Expert Anything series, he expounds on everything from the lasting impact of the Maya calendar to his own big chocolate discovery.
https://www.nationalgeographic.com/history/article/david-stuart-maya-reader-questions

Nature

NEWS

How DNA in dirt is shaking up the study of human origins
Researchers are pulling clues from genetic material in ice age soils and rewriting chapters of human history.
https://www.nature.com/articles/d41586-026-00879-0

ARTICLES

SARAH MATHEW & ROBERT BOYD – Forty-five years of progress after a key paper about the evolution of cooperation
A 1981 publication showed how cooperators can prevail over defectors, laying the foundation for how the evolution of cooperation between unrelated individuals is studied.
https://www.nature.com/articles/d41586-026-00802-7

LAUREN M. HENNELLY & MIKKEL-HOLGER S. SINDING – Dogs have deep genetic roots in ice-age Europe
Two studies report the oldest dog genomes ever to be sequenced, representing leaps in scientists' understanding of the animal's origins.
https://www.nature.com/articles/d41586-026-00378-2

PAPERS

ANDERS BERGSTRÖM et mul with JOHANNES KRAUSE & PONTUS SKOGLUND – Genomic history of early dogs in Europe
The earliest morphologically identifiable dogs are from Europe and date to at least 14,000 years ago, although early remains are also found in other regions. The origin of early dogs in Europe, and their relationships to other dogs, has remained elusive in the absence of genome-wide data. Similarly, although dogs were the only domestic animal to predate agriculture, little is known about how the arrival of Neolithic farmers from Southwest Asia affected the dogs living with European Mesolithic hunter-gatherers. Here we analysed 216 canid remains, including 181 from Palaeolithic and Mesolithic Europe. We developed a genome-wide capture approach that enriched endogenous DNA by 10–100-fold and could distinguish dog from wolf ancestry for 141 of 216 remains. The oldest dog data that we recovered are from a 14,200-year-old dog from the Kesslerloch site in Switzerland, and we find that it shares ancestry with later worldwide dogs—inconsistent with the

hypothesis that European Upper Palaeolithic dogs derived wholly from a separate domestication process. The Kesslerloch dog already displays more affinity to Mesolithic, Neolithic and present-day European dogs than to Asian dogs, demonstrating that dog genetic diversification had started well before 14,200 years ago. We find a Neolithic influx of Southwest Asian ancestry into Europe, but this seems to have been of smaller magnitude than in humans, suggesting that Mesolithic dogs contributed substantially to Neolithic, and, ultimately, probably also modern, European dogs.
https://www.nature.com/articles/s41586-026-10112-7

WILLIAM A. MARSH et mul with PONTUS SKOGLUND & CHRIS STRINGER – Dogs were widely distributed across western Eurasia during the Palaeolithic
Archaeological evidence suggests that dogs diverged from wolves during the Palaeolithic, more than 15,000 years ago. The earliest unequivocal genetic evidence, however, is associated with dog remains from Mesolithic archaeological contexts approximately 10,900 years ago. Here we generate both nuclear and mitochondrial genomes from canid remains at Pınarbaşı in Türkiye (15,800 years ago) and Gough's Cave in the UK (14,300 years ago), as well as from dogs excavated from two Mesolithic sites in Serbia (Padina between 11,500–7,900 years ago and Vlasac 8,900 years ago). Our analyses indicate that a genetically homogeneous dog population was already widely distributed across Europe and Anatolia during the Late Upper Palaeolithic (by at least 14,300 years ago). This finding suggests that dogs were exchanged among genetically and culturally distinct western Eurasian Late Palaeolithic human populations, namely the Magdalenian, Epigravettian and Anatolian hunter-gatherers. Last, we identify a major influx of eastern Eurasian dog ancestry during the Mesolithic, concomitant with the movement of eastern hunter-gatherer populations into Europe, which led to the establishment of the primary ancestry characteristics that define European dog populations today.
https://www.nature.com/articles/s41586-026-10170-x

REVIEWS

BROCK BASTIAN – How the idea of human superiority over nature was invented
Scientific discoveries are increasingly eroding the human–animal divide and challenging long-standing assumptions about human exceptionalism.
Review of 'Animate: How Animals Shape the Human Mind' by Michael Bond, Picador (2026).
https://www.nature.com/articles/d41586-026-00881-6

Nature Communications

PAPERS

K. BRETZKE et al – Evidence from Buhais Rockshelter for human settlement in Arabia between 60,000 and 16,000 years ago
Several significant milestones in human evolution date to the period between 70,000 and 12,000 years ago, including the replacement of archaic humans, the global dispersal of Homo sapiens and the introduction of Upper Palaeolithic traditions. The Arabian Peninsula provides only sparse records illuminating this period. We introduce here the Buhais Rockshelter archaeological sequence and paleoenvironmental records from the Faya Palaeolandscape in the Emirate of Sharjah (UAE). Buhais Rockshelter provides stratified stone artifact assemblages reflecting habitation phases around 125,000, 59,000, 35,000 and 16,000 years ago. Palaeoenvironmental fieldwork further shows that settlement at Buhais Rockshelter is contemporaneous with increased water availability in the landscape at these times. Our results contradict the prevailing view of human absence in Arabia at the end of the Pleistocene and call for reassessing the inhabitability of southern Arabia during the last glacial period. Results from Buhais Rockshelter extend known records from Jebel Faya and demonstrate repeated occupation of the region between 210,000 and 16,000 years ago. Together, this contributes data for a critical timeframe in human evolution providing an empirical foundation for testing anthropological models about human adaptation to and dispersal through the desert landscapes of southern Arabia.
https://www.nature.com/articles/s41467-026-70681-z

Nature Humanities & Social Sciences Communications

PAPERS

DANYANG LI et al – Linguistic dynamics of online scam conversations: a multi-stage analysis based on the COLD framework
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.
The global rise of online scams poses escalating social risks, yet the underlying linguistic dynamics remain underexplored. Grounded in the Contextual Organization of Language in Deception (COLD) framework, this study applies a multi-stage analysis of 276,762 messages from 49 authentic scam cases, revealing how language is strategically adapted across five sequential phases—Trust Cultivation, Risk Fabrication, Persuasive Pitching, Compliance Induction, and Repeated Exploitation. Results indicate that linguistic patterns in online scams are shaped by both communicative roles and interactional stages.

Scammers consistently employed more cognitive mechanism terms, discrepancy markers, social process words, and affiliation language. They deployed persuasive tactics by strategically increasing achievement-, power-, and money-related terms to project control and success, while suppressing risk-related language. Stage-based analyses indicated that scammers maintained stable linguistic patterns with strategic peaks aligned with manipulation goals, whereas victims exhibited greater emotional and cognitive variability. Victims' negative emotions and cognitive shifts peaked at critical moments, reflecting resistance and internal conflict. Notably, victims expressed significantly more positive emotion words than scammers, a counterintuitive pattern suggestive of affect-regulation strategies. The findings substantiate a dynamic, multi-stage description of language-based manipulation in online scams and advance the contextual application of the COLD framework. The study also offers practical implications for the development of psycholinguistic risk indicators, automated detection tools, and public education strategies aimed at enhancing resilience against online scams.
https://www.nature.com/articles/s41599-026-07052-y

Nature Neuroscience

PAPERS

DANIEL TOKER et al – Adversarial AI reveals mechanisms and treatments for disorders of consciousness

Understanding disorders of consciousness (DOC) remains one of the most challenging problems in neuroscience, hindered by the lack of experimental models for probing mechanisms or testing interventions. Here, to address this, we introduce a generative adversarial artificial intelligence (AI) framework that pits deep neural networks—trained to detect consciousness across more than 680,000 ten-second neuroelectrophysiology samples and validated on 565 patients, healthy volunteers and animals—against interpretable, machine learning-driven neural field models. This adversarial architecture produces biologically realistic simulations of both conscious and comatose brains that recapitulate empirical neurophysiological features across humans, monkeys, rats and bats. Without explicit programming, the AI model retrodicts known DOC responses to brain stimulation and generates testable predictions about the mechanisms of unconsciousness. Two such predictions are validated here: selective disruption of the basal ganglia indirect pathway, supported by diffusion magnetic resonance imaging in 51 patients with DOC, and increased cortical inhibitory-to-inhibitory synaptic coupling, supported by RNA sequencing of resected brain tissue from 6 human patients with coma and a rat stroke model. The model also identifies high-frequency stimulation of the subthalamic nucleus as a promising intervention for DOC, supported by electrophysiological data from human patients. This work introduces an AI framework for causal inference and therapeutic discovery in consciousness research, as well as in complex systems more broadly.
https://www.nature.com/articles/s41593-026-02220-4

Nature Scientific Reports

PAPERS

JING ZHANG & YANFENG MA – Grammar error diagnosis using graph convolutional networks with knowledge graph integration

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.

Automated grammar error diagnosis remains challenging due to the complexity of syntactic structures and semantic dependencies in natural language. This study proposes a novel framework that integrates Graph Convolutional Networks (GCNs) with domain-specific knowledge graphs for enhanced English grammar error detection and correction. The approach constructs sentence-level dependency graphs to explicitly model syntactic relationships, while a multi-layered grammar knowledge graph systematically organizes grammatical concepts, error taxonomies, and correction strategies. Multi-layer graph convolutions propagate contextual information across syntactic dependencies, and attention mechanisms dynamically weight node representations for diagnostic relevance. Knowledge graph integration enriches neural representations with structured linguistic knowledge, enabling both accurate error detection and interpretable feedback generation. Experimental evaluation on CoNLL-2014, JFLEG, and BEA-2019 benchmark datasets demonstrates marked improvements, achieving F1-scores of 0.6484, 0.6719, and 0.6367 respectively, outperforming the strongest baseline BERT+BiLSTM by approximately 8.8% on CoNLL-2014 and the competitive GECToR sequence-tagging system by 4.4%, with all gains confirmed as statistically significant through bootstrap resampling. The framework proves especially effective at identifying syntactic errors such as verb tense inconsistencies and subject-verb agreement violations. We believe this research pushes graph-based natural language processing forward by connecting data-driven learning with explicit grammatical knowledge, offering diagnostic tools with promising pedagogical potential for language education—though further user studies are needed to fully validate their educational effectiveness.
https://www.nature.com/articles/s41598-026-45622-x

MIGUEL GARETA GARCÍA et al – A lethal incident during an intergroup encounter in bonobos

Although neighbouring bonobo communities often display tolerance and cooperation when associating together, aggression is also commonly observed during intergroup encounters. Here, we describe an observation at the Kokolopori research site

(DRC) in which a coalition of individuals from the neighbouring Kokoalongo community aggressed an adult female from the Ekalakala community. This happened during an ongoing intergroup encounter that had begun earlier as the two communities travelled and foraged together. Shortly after the attack, the 52-day-old infant of the attacked female was carried by two immatures of Kokoalongo. The infant showed signs of distress before being taken by an adult Kokoalongo female, the mother of the immatures. The infant died the following day, and the adult female continued to carry the corpse for two additional days. This unique case of infant acquisition by unrelated out-group individuals immediately following aggression against the mother underscores that bonobo intergroup encounters can have lethal outcomes. These events highlight the complexity and unpredictability of intergroup dynamics in this species.
https://www.nature.com/articles/s41598-026-40297-w

IVO VERHEIJEN et al – Faunal exploitation at the elephant hunting site of Lehringen, Germany, 125,000 years ago
The site of Lehringen (Germany) has played a pivotal role in the study of the hunting behavior of Neanderthals. The finding of a 2.38 m long wooden thrusting spear was at the time of discovery in 1948 the only complete Palaeolithic hunting tool, dating back to the last interglacial, approximately 125 ka. The interrelation of the thrusting spear with the skeleton of a straight-tusked elephant has both been interpreted as direct evidence of hunting, or as a coincidental association. Here we report on results of the first systematic analysis of the faunal assemblage of the site including the remains of the straight-tusked elephant. Cut marks on several ribs and vertebrae of the elephant show that the animal was defleshed and probably eviscerated in a rather fresh state, indicating early access to the carcass by Neanderthals. Additionally, remains of aurochs, brown bear, and beaver show signs of butchery. It demonstrates that Neanderthals of the last interglacial at the northern limits of their known distribution were exploiting a wide range of animals on different occasions, including the largest prey of that time. In conclusion, Lehringen represents the most convincing Neanderthal site with evidence of a successful elephant hunt with a thrusting spear and demonstrates opportunistic hunting behavior during the Eemian.
https://www.nature.com/articles/s41598-026-42538-4

New Scientist

ARTICLES

GEORGE MUSSER – The periodic table of experience
Do we all see the same red? Or feel joy and sadness alike? Mapping how our inner experiences relate to one another could finally cut a path from mind to matter — and tell us what consciousness really is.
https://www.newscientist.com/article/2519288-the-simple-questions-cracking-the-hard-problem-of-consciousness/

MICHAEL MARSHALL – Genetic clues tell the story of Neanderthals' decline
The Neanderthal population shrank during a cold spell around 75,000 years ago, and the loss of genetic diversity may have contributed to their eventual extinction.
https://www.newscientist.com/article/2520319-genetic-clues-tell-the-story-of-neanderthals-decline/

MICHAEL MARSHALL – Neanderthals may have treated wounds with antibiotic sticky tar
Tar made from birch tree bark is commonly found at Neanderthal sites, and experiments show that it kills some bacteria that cause skin infections.
https://www.newscientist.com/article/2519668-neanderthals-may-have-treated-wounds-with-antibiotic-sticky-tar/

ANNALEE NEWITZ – Social media is a defective product
Two lawsuits are being brought against giant tech firms for the dangers their apps pose to young people. Columnist Annalee Newitz says the outcome of those cases could dramatically change social media for the better.
https://www.newscientist.com/article/2519708-social-media-is-a-defective-product/

REVIEWS

ROWAN HOOPER – The Selfish Gene: Still one of the most thrilling evolution books ever
Fifty years ago, Richard Dawkins shared an irresistible scientific metaphor with the world that modernised and democratised evolutionary biology. Half a century on, The Selfish Gene remains powerfully insightful, finds Rowan Hooper.
Somewhat delayed review of 'The Selfish Gene: 50th anniversary edition' by Richard Dawkins, Oxford Landmark Science (2026 [1976]).
https://www.newscientist.com/article/2519896-the-selfish-gene-still-one-of-the-most-thrilling-evolution-books-ever/

NPJ Heritage Science

PAPERS

YATING SONG et al – Evaluation of archaeological heritage comprehensive utilization potential in Henan section of the Yellow River Basin

The evaluation of archeological heritage comprehensive utilization potential (CUP) is essential for heritage value recognition, conservation, and sustainable regional development. This study examines 125 archeological heritages in Henan section of the Yellow River basin and develops a CUP evaluation system across three dimensions: core value, existing conditions, and regional context. Spatial distribution of CUP is analyzed at watershed and administrative scales. Results show that: (1) overall CUP is generally low with significant differentiation, only 8% classified as high-potential; (2) driving mechanisms vary by potential type: high-potential heritages are primarily driven by core value, medium-potential heritages by existing conditions, and low-potential heritages benefit from regional context advantages; (3) CUP spatially clusters along watersheds and exhibits notable administrative gradient differences. The proposed multidimensional evaluation framework provides a scientific basis for differentiated heritage management and supports systematic integration and high-quality development of cultural heritage in the Henan section of the Yellow River basin.
https://www.nature.com/articles/s40494-026-02459-x

PLoS Biology

PAPERS

JÖRN DIEDRICHSEN & SAMUEL D. MCDOUGLE – How does the cerebellum contribute to cognitive functions?

Over the past 70 years, neuroscience has gained a deep understanding of how the cerebellum supports basic motor functions. Anatomical, clinical, and neuroimaging studies, however, have also firmly established that the cerebellum holds an important role in cognition. Even though this topic has received considerable attention, we still do not know the exact nature of this contribution. This Unsolved Mystery reviews known facts about how the cerebellum contributes to cognition and identifies roadblocks that have prevented the development of a unified theory. Addressing these key questions should help the field develop the testable, falsifiable hypotheses that are needed to solve this intriguing question.
https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3003688

SIHUI ZHANG et al – Self-allocation bias in performance-based cooperative decisions is driven by self-interest rather than distorted performance encoding

Human cooperation often involves performing joint tasks, where success relies on how collective rewards are allocated among cooperating parties based on their individual performance and contribution to task outcomes. However, it remains unclear whether and how individual performance and contribution give rise to self-related biases in such allocation decisions. Here, we developed a novel performance-based social allocation task that manipulated how individual performance contributed to joint outcomes. Across two experiments, participants exhibited a robust self-allocation bias: they allocated more rewards to themselves and disproportionately disregarded their own performance, particularly when their performance did not causally contribute to the joint outcome. This self-allocation bias was amplified in individuals with stronger individualistic social preferences, as measured by social value orientation. At the neural level, self-relevant (versus self-irrelevant) allocation decisions were associated with increased activity in the medial prefrontal cortex extending into the anterior cingulate cortex, insula, and temporoparietal junction (TPJ). Moreover, the dorsomedial prefrontal cortex, lateral orbitofrontal cortex, and TPJ tracked trial-by-trial variations in relative performance as a function of contribution structure, independent of self-relevance. Together, these findings suggest that self-allocation bias in performance-based decisions is unlikely to arise from distorted neural encodings of performance. Instead, self-interest may shape how contribution-structured performance information is used in social-allocation choices, providing a more precise account of how self-serving behavior emerges in cooperative contexts.
https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3003694

PLoS Genetics

PAPERS

MADDY COMERFORD et al – Mapping the gene regulatory landscape of archaic hominin introgression in modern Papuans

Interbreeding between anatomically modern humans and archaic hominins has contributed to the genomes of present-day human populations. However, our understanding of the specific gene regulatory consequences of Neanderthal, and particularly, Denisovan introgression is limited. Here, we used a massively parallel reporter assay to investigate the regulatory effects of 25,869 high-confidence introgressed SNPs segregating in present-day individuals of Papuan genetic ancestry in immune cell types. Overall, 8.22% of Denisovan and 8.58% of Neanderthal sequences showed active regulatory activity, and 9.22% of these displayed differential activity between archaic and modern alleles. We found no association between introgressed allele frequency on activity regardless of introgression source, but introgressed Denisovan alleles at higher frequencies were less likely to be differentially active than expected, suggesting introgression is under some degree of selective constraint. Both activity and differentially activity were associated with distance to the nearest transcription start

site, while differential activity was additionally associated with differential transcription factor binding. Genes predicted to be regulated by differentially active sequences included IFIH1 and TNFAIP3, key immune genes and known examples of archaic introgression. Overall, this work provides experimental validation of regulatory activity for thousands of archaic variants in populations with the highest levels of Denisovan ancestry worldwide, revealing how human evolutionary history actively shapes present-day genetic diversity and immune function.
https://journals.plos.org/plosgenetics/article?id=10.1371/journal.pgen.1012067

PLoS One

PAPERS

TIMOTHY CANESSA & PALOMA DE LA PEÑA – Unpacking lithic assemblage variability in the Early Upper Palaeolithic: A multivariate approach to the structure of the Iberian Aurignacian

The Aurignacian technocomplex of the Early Upper Palaeolithic remains a long-standing focal point for understanding the expansion of modern humans across Europe. Diagnostic assemblages occur across vast swathes of the continent, suggesting the existence of broadly connected groups and traditions around 43–32 ka cal BP. However, while its extensive distribution is often regarded as proxy evidence for the spread of modern human groups, artefact assemblages are known to be synchronically and diachronically variable in ways that reveal an inconsistent representation of diagnostic traits. In the Iberian Peninsula, this variability is exemplified by an idiosyncratic material record in which diverse Aurignacian assemblages occur alongside undiagnostic or 'culturally indeterminate' ones, leading many Aurignacian occupations to be disputed. In this paper, we assimilate this regional record through quantitative analyses of techno-typological attributes from all sufficiently published and chronologically relevant assemblages of the Early Upper Palaeolithic. Using two multivariate techniques, we first explore associations between assemblages and thereafter test whether inter-assemblage variability is related to spatial and temporal distances. Our results cast light on the spatial structure of variability by revealing that inter-assemblage differences increase with spatial distance but show no linear relationship to temporal distance. This spatial finding challenges the cross-regional applicability of the Aquitaine model of techno-typological change, whilst the absence of temporally structured variability suggests a heterogeneous representation of diagnostic traits across and within temporal classes of assemblages.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0345202

ZAHRA AHANI et al – Social support detection from social media texts

Social support, conveyed through a multitude of interactions and platforms such as social media, plays a pivotal role in fostering a sense of belonging, aiding resilience in the face of challenges, and enhancing overall well-being. This paper introduces Social Support Detection (SSD) as a Natural Language Processing (NLP) task aimed at identifying supportive interactions within online communities. We define SSD through three subtasks: (1) binary classification of whether a comment expresses social support or not social support, (2) binary classification of the intended support target (individual or group), and (3) multiclass classification of the specific group being supported, including Nation, Other, LGBTQ, Black Community, Religion, and Women. We conducted experiments on a manually annotated dataset of 9,998 YouTube comments. Traditional machine learning models were employed using various combinations of linguistic, psycholinguistic, emotional, and sentiment-based features. Additionally, neural network-based models incorporating word embeddings were evaluated to enhance performance across the subtasks. The results indicate a prevalence of group-oriented support in online discourse, highlighting broader societal dynamics. The findings show that integrating psycholinguistic and affective features with unigram representations improves classification performance. The best macro F1-scores achieved across the subtasks range from 0.72 to 0.82.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0337476

EMILIE CAMPMAS et al – Aterian shell beads from the coastal site of El Mnasra Cave (Rabat-Témara, Morocco): Specificities of the north African MSA personal ornaments

The use of Nassariidea shells as personal ornaments is attested to an increasing number of Middle Stone Age (MSA) archaeological sites in northern and southern Africa. The chronological extent of this behavior is constantly moving back in time; currently, the oldest evidence has been identified at the Bizmoune cave site in Morocco back to the MIS 6. Although these evidences make it possible to refine the spatial and temporal distribution of this behavior, shell beads remain rare in Middle Stone Age assemblages and are generally composed of several beads, or at best dozens, for each of these sites. This restricts our understanding of the behaviors specifically related to the collection, selection and preparation phases of shells, and potentially limits our understanding of their use. In this article, we studied shell beads from MSA layer US 8 from the coastal archaeological site of El Mnasra Cave (Rabat-Témara, Morocco). This collection corresponds to the largest MSA shell bead assemblage in Africa (272 Tritia cf. gibbosula, 6 Tritia corniculum and 3 Columbella rustica in US 8 with 154 of them showing smoothing of the perforation edge, facet of abrasion, or traces of pigment). The shell bead assemblage of El Mnasra presents features previously observed at other MSA sites, connecting it to a North African cultural context; however, the size of the El Mnasra shell bead assemblage, and the presence of shell sources near the site, allows us to identify specific features that could be related to particular modes of use as ornaments. These specific features include the prevalence of un-perforated shells, some of which show use-wear, that could have been fixed on items without having been perforated. These

results provide new insights into the wide range of variants and originalities of shell bead uses over a relatively "short" chronological phase, between 115 and 94 ka and can be correlated with the multistep evolutionary scenario proposed for South Africa. The archaeological documentation presented here shows that El Mnasra Cave provides a significant contribution to the study of culturing the Palaeolithic body in North Africa.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0338785

SALIH KAVAK et al – Archaeometric analysis of Early Bronze Age bread from Küllüoba Höyük
Bread is a fundamental foodstuff that has driven social and technological development for millennia, with the earliest evidence dating to pre-agricultural societies. While archaeological sites from the Neolithic period show systematic grain processing, well-preserved bread from the subsequent Early Bronze Age, particularly in a clear ritual context, is exceedingly rare. Here we report the discovery and comprehensive archaeometric analysis; employing Scanning Electron Microscopy (SEM) coupled with Energy Dispersive X-ray (EDX) spectroscopy, Vibrational Spectroscopy (FTIR and Raman), and Thermal Analysis (TGA-DSC) of a 5,000-year-old carbonized bread from the Küllüoba settlement in Anatolia, dated 3200–3000 BC. Microscopic examinations reveal that it is made from coarsely ground emmer wheat (Triticum dicoccum) and a small amount of lentils (Lens culinaris). The presence of air voids suggests kneaded dough, possibly leavened. The detection of rachis fragments indicates the use of unsieved flour. Intentionally deposited and subsequently carbonized, the bread was sealed beneath a layer of sterile soil and appears to have been an offering connected with the ritual abandonment of the structure. This finding offers unique evidence of advanced food technology and highlights the symbolic importance of bread in Early Bronze Age societies, directly linking food production to cultural and ritual practices.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0344705

PNAS

PAPERS

CHAROULA M. FOTIADOU et al – Archaeogenetic insights into the demographic history of Late Neanderthals
The demographic history of Neanderthals is only partially understood. In Europe, some degree of genetic continuity has been shown from 120 thousand years ago (ka) onward despite the occurrence of multiple subsequent diversification events. While it has been proposed that a population turnover preceded the emergence of Late Neanderthals in Europe, the extent, timing, and geographic location of this event are currently unknown. Here, we report ten mitochondrial DNA sequences (mtDNAs) of Neanderthal individuals from six archaeological sites in Belgium, France, Germany and Serbia, and analyze them alongside 49 published mtDNAs. The integration of phylogenetic and molecular dating analyses with an extensive archaeological dataset enabled us to reconstruct temporal and spatial patterns in Neanderthal distribution. Remarkably, nearly all Late Neanderthal individuals across Europe belong to a single mtDNA lineage that diversified recently, confirming a large-scale genetic replacement. Our analyses date this diversification event to approximately 65 ka and suggest that it likely originated from a population refugium in southwestern France from which Neanderthals appear to have undergone a major range dispersal across Europe. In addition, we detect a sharp decline in the Neanderthal mtDNA effective population size beginning ~45 ka and reaching a minimum ~42 ka, shortly before their extinction. This study demonstrates that integrating molecular and archaeological datasets provides a more detailed understanding of the Late Neanderthal population's history, and highlights the critical role of climate-driven refugia and subsequent range expansions in shaping the genetic landscape of Neanderthals through time.
https://www.pnas.org/doi/10.1073/pnas.2520565123

Proceedings of the Royal Society B

PAPERS

LIRAN SAMUNI et al with STEPHANIE L. KING – What can we learn from bonobos and bottlenose dolphins about the evolution of between-group cooperation?
Cooperation between unrelated individuals across social groups is a hallmark of human societies, underpinning our species' unique capacity for cultural transmission and large-scale cooperation. Although long considered rare among non-human animals, recent findings from bonobos and Indo-Pacific bottlenose dolphins demonstrate that members of both species will provide costly help to unrelated out-group conspecifics with no immediate return, revealing that such cooperation can also arise outside the human lineage. In this review, we synthesize current knowledge on the occurrence, mechanisms and drivers of between-group cooperation in these two species. Despite differences in evolutionary history and social structure, both species share convergent traits—such as protracted development, social flexibility, advanced socio-cognitive abilities and absence of range defence—probably fundamental for the emergence of costly cooperation across groups. We highlight future research priorities, including the ontogeny and stability of between-group relationships, behavioural and cognitive mechanisms supporting partner choice across groups and resilience of these relationships to demographic and ecological change. By integrating insights from these two model systems and placing them within a broader phylogenetic perspective, we outline emerging evolutionary and mechanistic frameworks for understanding the origins, maintenance and function of between-group cooperation, providing comparative perspectives on the evolutionary roots of human ultrasociality.

https://royalsocietypublishing.org/rspb/article/293/2067/20252812/481093/What-can-we-learn-from-bonobos-and-bottlenose

Royal Society Open Science

PAPERS

JUDIT FIEDLER & ALESSANDRO TREVES – When moving in a sphere, gender gaps may disappear

Sex differences in spatial cognition often show males outperforming females, especially in familiar, landmark-rich environments. This study examined whether such differences persist when subjects encounter a novel spatial paradigm. We designed a sparse, spherical virtual reality space lacking traditional landmarks and orientation cues. In such a non-Euclidean and unusual space, recall performance shows a surprising bimodal distribution, and males and females exhibit similar performance with no clear preference for a particular strategy. Moving to more familiar environments, we observed a shift from bimodal to trimodal to roughly normal distributions, which may reflect the increased spatial plausibility of the environment making available a multiplicity of cues. Still, this does not translate into an overall improvement in performance. Differences in familiarity were also associated with sex differences. Already in the spherical environment, but rich in traditional landmarks, males exhibit a significant strategy preference, while in a flat (Euclidean) setting, they outperform females in sequential recall. These results indicate that when males and females experience an equally novel spatial paradigm, sex differences tend to vanish, suggesting that the male advantage in spatial cognition may require environmental familiarity and the activation of culturally honed schemata.
https://royalsocietypublishing.org/rsos/article/13/3/252089/481084/When-moving-in-a-sphere-gender-gaps-may-disappear

MERLE JOHANNA MAREK et al – Typical self-regulation and white-matter brain fibre properties in preterm adolescents from the Adolescent Brain Cognitive Development cohort

Preterm birth is associated with impairments in self-regulation and altered white-matter fibre properties of brain areas linked to self-regulation in childhood, which may extend into adolescence. As self-regulation can be effectively targeted by interventions, it is important to understand such potential disadvantages and their neural sources in vulnerable groups. We examined associations between gestational age (GA) at birth, white-matter fibre properties (e.g. fractional anisotropy (FA)) and self-regulation, as well as brain–behaviour associations at the onset of adolescence. We hypothesized that lower GA relates to poorer self-regulation ability and reduced FA in brain fibres connecting self-regulation hubs, and that self-regulation correlates positively with FA. Participants were drawn from the Adolescent Brain Cognitive Development (ABCD) study: 1695 preterm and 1693 term-born adolescents for behavioural analyses and 1304 preterm and 1379 term-born adolescents for neural analyses. Associations between GA, self-regulation and fibre properties were tested using local structural equation modelling (SEM), and brain–behaviour associations were estimated via regularized SEM. None of the hypotheses was supported by the data. We suspect a sampling bias in the ABCD preterm cohort towards better adapted individuals, highlighting the importance of considering cohort characteristics when generalizing results from this cohort to the broader preterm population.
https://royalsocietypublishing.org/rsos/article/13/3/231980/481108/Typical-self-regulation-and-white-matter-brain

Science

NEWS

Neanderthals survived on a knife's edge for 350,000 years

A pair of studies illuminates these humans' long, hardscrabble existence.
https://www.science.org/content/article/neanderthals-survived-knife-s-edge-350-000-years

World's oldest dog identified at ancient hunter-gatherer site

Bones of 15,800-year-old puppy push confirmed origin of our canine companions back nearly 5000 years.
https://www.science.org/content/article/world-s-oldest-dog-identified-ancient-hunter-gatherer-site

ARTICLES

ANAT PERRY – In defense of social friction: Sycophantic AI distorts social judgments and behaviors

As artificial intelligence (AI) systems become increasingly embedded in society, they are beginning to shape not only what people know, but how individuals evaluate themselves and others. On page 1348 of this issue, Cheng et al. show that large language models systematically exhibit social sycophancy—affirming users' moral and interpersonal positions even when those stances are widely judged as harmful or unethical. The findings raise a broader concern: When AI systems are optimized to please, they may erode the very social friction through which accountability, perspective-taking, and moral growth ordinarily unfold.
https://www.science.org/doi/10.1126/science.aeg3145

DAVID M. ALBA & JÚLIA ARIAS-MARTORELL – The dawn of modern apes: An Egyptian fossil places the origin of modern apes in northeastern Afro-Arabia
Research on the closest extinct relatives of humans (such as australopiths) can only explain the most recent evolutionary history of the human lineage. Older apes are essential to reconstructing the last common ancestor of chimpanzees and humans—that is, the starting point of human evolution. The ape and human lineage (hominoids) diverged from Old World monkeys in Afro-Arabia more than 25 million years ago (Ma). In the Miocene epoch (23 to 5 Ma), apes were much more diverse and widespread than they are today. Various lineages of African archaic (stem) hominoids evolved before the origin of modern (crown) hominoids and their eventual dispersal into Eurasia. However, the origins of crown hominoids are still unclear. On page 1383 of this issue, Al-Ashqar et al. describe a previously unknown Miocene ape from North Africa and discuss its relevance for crown-hominoid origins.
https://www.science.org/doi/10.1126/science.aeg3100

PAPERS

MYRA CHENG et al – Sycophantic AI decreases prosocial intentions and promotes dependence
As artificial intelligence (AI) systems are increasingly used for everyday advice and guidance, concerns have emerged about sycophancy: the tendency of AI-based large language models to excessively agree with, flatter, or validate users. Although prior work has shown that sycophancy carries risks for groups who are already vulnerable to manipulation or delusion, syncophancy's effects on the general population's judgments and behaviors remain unknown. Here, we show that sycophancy is widespread in leading AI systems and has harmful effects on users' social judgments.
https://www.science.org/doi/10.1126/science.aec8352

SHOROUQ F. AL-ASHQAR et al – An Early Miocene ape from the biogeographic crossroads of African and Eurasian Hominoidea
The Early Miocene fossil record documenting hominoid evolution has long been restricted primarily to sites in East Africa, whereas contemporaneous North African sites have only yielded remains of cercopithecoid monkeys. Here, we describe a fossil ape from North Africa, a new genus (Masripithecus) from the Early Miocene (~17 million to 18 million years) of northern Egypt, on the basis of mandibular remains. A combined molecular-morphological Bayesian tip-dating analysis positions Masripithecus closer to crown hominoids than coeval fossil apes from East Africa, thereby filling a phylogenetic and biogeographic gap in the evolution of stem hominoids. This evidence suggests that crown Hominoidea might have originated during the Early Miocene in the underexplored northeastern part of Afro-Arabia, rather than in eastern Africa or Eurasia.
https://www.science.org/doi/10.1126/science.adz4102

ALAA MAALOUF et al – Cooperation by non-kin during birth underpins sperm whale social complexity
We quantitatively document a sperm whale birth event, revealing collective support behaviors across kinship lines. Using high-resolution drone footage, computer vision, and multiscale network analysis, we studied the interactions within a Caribbean sperm whale unit comprising two matrilines. Our results suggest that a female family member led birth assistance and that after delivery, all individuals oriented toward and helped lift the newborn, taking turns in a coordinated, cross-kin effort. Despite historically observed foraging segregation, kinship barriers dissolved as all unit members contributed. These analyses provide evidence of birth attendance, or assistance, in a nonprimate species, a behavior long considered characteristic only of humans and their close relatives.
https://www.science.org/doi/10.1126/science.ady9280

Trends in Cognitive Sciences

PAPERS

LUCA S. RINALDI & VITTORIO GALLESE – How the mouth became symbolic
Before we name, we touch. We propose that the roots of language lie not in abstract, amodal symbols but in early bodily experience. Early haptic and oral interactions ground conceptual knowledge through active exploration. The mouth, acting as a cognitive organ, functions not only as a site of articulation but also as a locus of tactile perception and intersubjective exchange. We suggest that language may have evolved through the neural reuse of circuits originally dedicated to ingestion and action understanding. These circuits were progressively shaped by affordances, embodied simulation, and sound symbolism. From sensorimotor patterns to iconic vocal forms, we trace a pathway linking bodily experience to symbolic reference, through which language acquisition could arise.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(26)00049-5

IRIS B. MAUSS & BRETT Q. FORD – The pursuit of happiness: pitfalls and promises
All humans strive to be happy in some form. Yet the pursuit of happiness is sometimes successful and sometimes self-defeating. This review aims to resolve when and why pursuing happiness is successful or self-defeating by showing that its consequences depend on how people pursue happiness. Building on process models of goal pursuit, we consider five aspects of pursuing happiness: the happiness goals people have, affect regulation, monitoring of one's happiness, responses to one's happiness, and the broader context. Each of these aspects entails not only pitfalls but also promises, and we review recent

empirical work on them. Taken together, this review offers a theoretically and empirically informed understanding of the pursuit of happiness. While there are pitfalls, attaining greater happiness is possible.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(26)00051-3

CHARLY LAMOTHE et al with PASCAL BELIN – Voice information processing by the primate brain
Voices are among the most socially informative sounds in our auditory landscape, but only recently has a coherent picture of the neural machinery supporting their perception begun to emerge. New evidence from intracranial recordings, fMRI, and comparative primate research reveals specialized voice patches and neural pathways for rapid parallel extraction of identity, emotion, and social cues. These findings point to an evolutionarily conserved system with striking parallels to face processing. Emerging computational models further show how the brain may transform complex acoustic signals into abstract, low-dimensional representations. These advances raise key outstanding questions about the organisation, causal role, and computational principles of voice-selective circuits across primates.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(26)00030-6

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