EAORC BULLETIN 1,149 – 22 June 2025

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 – On the Cognitive Development of Hominids

Journal of Interdisciplinary Studies in History and Archaeology 1:1, 30-38 (2004).

ROBERT G. BEDNARIK – On the Cognitive Development of Hominids

The issue of the cognitive evolution of hominid species, much neglected or misinterpreted by archaeology, is considered in a philosophical and scientific perspective. Human constructs of reality, it is proposed, have been created since self-referential consciousness began governing human thought. The most promising potential sources of information about the intellectual advances heralding human consciousness are very early intentional markings and other manifestations of human awareness. Beads, especially, are key markers of human constructs of the self. This paper presents a short account of the currently available hard evidence of this nature, which must be the basis of any speculation about the origins of human cognition as we define it today.

https://www.academia.edu/47822015/On_the_cognitive_development_of_hominids

NEWS

NATURE BRIEFING – 'Dragon Man' was a Denisovan

Ancient proteins and mitochondrial DNA extracted from the 'Dragon Man' fossil — a cranium found in northeastern China that is at least 146,000 years old — have confirmed that it belonged to a Denisovan, an archaic human group. The fossil is the first skull to be definitively linked to the group, which sheds light on what the ancient people looked like, putting an end to decade-long speculation.

https://www.nature.com/articles/d41586-025-01899-y

NEWS FROM SCIENCE – 'Dragon Man' skull belongs to mysterious human relative

At long last, scientists have a nearly complete cranium from hominins known as Denisovans.

https://www.science.org/content/article/dragon-man-skull-belongs-mysterious-human-relative

SCIENCEADVISER – Shapes on the brain

The brain's squiggly mess of bumps and grooves is essential for our complex cognitive skills. As neuroscientists slowly add to what we know about brain function, it also helps to understand its form—and how the two are related. Previous research has explored the volume and surface area of brain structures, but not their shape. A new study tackles the complex geometry of different parts to understand how it might alter their function.

The researchers mapped the shape of 22 subcortical brain structures in nearly 20,000 healthy people who had contributed to the U.K. Biobank. They used the Laplace-Beltrami spectrum, which describes a shape by providing a unique series of numbers known as eigenvalues, to create a "fingerprint" of each region's shape. After performing genome-wide association studies, they found 80 genetic variations associated with the shapes of the structures, mainly in the brain stem and cerebellum. Some of these variants are also associated with disorders such as high blood pressure and neurodegeneration, indicating that changes in brain shape could be a tool for early detection of these disorders. "In the long term, they could be used to help develop early diagnostic methods for neurodegenerative and mental disorders," said lead author Kaustubh Patil in a statement.

https://www.science.org/doi/10.1126/sciadv.adr1644

SCIENCEADVISER – Dragon Denisovan

The famous "Dragon Man" fossil is a Denisovan, an analysis of tooth plaque reveals. "This is a pin in the map we can use to say, 'This is what Denisovans looked like,'" one expert said.

https://www.science.org/doi/10.1126/science.adu9677

SCIENCENEWS – 'Dragon Man' skull may be the first from an enigmatic human cousin

The 146,000-year-old Chinese find is the most complete Denisovan fossil, two studies claim.

https://www.sciencenews.org/article/skull-first-denisovan-human-cousin

PUBLICATIONS

Cell

ARTICLES

QIAOMEI FU et al with SVANTE PÄÄBO – Denisovan mitochondrial DNA from dental calculus of the >146,000-year-old Harbin cranium

Denisovans have yet to be directly associated with a hominin cranium, limiting our understanding of their morphology and geographical distribution. We have attempted to retrieve DNA from a nearly complete Middle Pleistocene cranium from Harbin (>146 ka), northeastern China. Although no DNA could be retrieved from a tooth or the petrous bone, mitochondrial DNA (mtDNA) could be isolated from dental calculus. The mtDNA falls within Denisovan mtDNA variation and is related to an mtDNA branch carried by early Denisovan individuals in southern Siberia, previously observed in Denisova Cave. This suggests that Denisovans inhabited a large geographical range in Asia in the Middle Pleistocene. The association of Denisovan mtDNA with the Harbin cranium allows a better understanding of the morphological relationships between Denisovans and other East Asian Middle Pleistocene fossils. Furthermore, the retrieval of host DNA from dental calculus opens new possibilities for genetic research on Middle Pleistocene hominins.
https://www.cell.com/cell/fulltext/S0092-8674(25)00627-0

CORRECTIONS

ATREYO PAL et al – Resolving the three-dimensional interactome of human accelerated regions during human and chimpanzee neurodevelopment

(Cell 188, 1504–1523.e1-e10; March 20, 2025) [EAORC BULLETIN 1,129 – 2 February 2025]

In the originally published version of this article, one of the human iPSC lines used in the study was incorrectly identified as H28126 in both the Key Resources Table and Table S1, subtable 1.1. The correct cell line ID is H23555. This error does not affect any of the results or conclusions of the paper. The article has now been corrected online. The authors regret the error.
https://www.cell.com/cell/fulltext/S0092-8674(25)00688-9

eLife

PAPERS

PRANAV MAHAJAN et al – Balancing safety and efficiency in human decision making

The safety-efficiency dilemma describes the problem of maintaining safety during efficient exploration and is a special case of the exploration-exploitation dilemma in the face of potential dangers. Conventional exploration-exploitation solutions collapse punishment and reward into a single feedback signal, whereby early losses can be overcome by later gains. However, the brain has a separate system for Pavlovian fear learning, suggesting a possible computational advantage to maintaining a specific fear memory during exploratory decision-making. In a series of simulations, we show this promotes safe but efficient learning and is optimised by arbitrating Pavlovian avoidance of instrumental decision-making according to uncertainty. We provide a basic test of this model in a simple human approach-withdrawal experiment in virtual reality, and show that this flexible avoidance model captures choice and reaction times. These results show that the Pavlovian fear system has a more sophisticated role in decision-making than previously thought, by shaping flexible exploratory behaviour in a computationally precise manner.
https://elifesciences.org/reviewed-preprints/101371

JOSEPH M BARNBY et al with LONDON PERSONALITY AND MOOD DISORDERS CONSORTIUM – Self-Other Generalisation Shapes Social Interaction and Is Disrupted in Borderline Personality Disorder

Generalising information from ourselves to others, and others to ourselves allows for both a dependable source of navigation and adaptability in interpersonal exchange. Disturbances to social development in sensitive periods can cause enduring and distressing damage to lasting healthy relationships. However, identifying the mechanisms of healthy exchange has been difficult. We introduce a theory of self-other generalisation tested with data from a three-phase social value orientation task – the Intentions Game. We involved individuals with (n=50) and without (n=53) a diagnosis of borderline personality disorder and assessed whether infractions to self-other generalisation may explain prior findings of disrupted social learning and instability. Healthy controls initially used their preferences to predict others and were influenced by their partners, leading to self-other convergence. In contrast, individuals with borderline personality disorder maintained distinct self-other representations when learning about others. This allowed for equal predictive performance compared to controls despite reduced updating sensitivity. Furthermore, we explored theory-driven individual differences underpinning contagion. Overall, the findings provide a clear explanation of how self-other generalisation constrains and assists learning and how childhood adversity is associated with separation of internalised beliefs. Our model makes clear predictions about the mechanisms of social information generalisation concerning both joint and individual reward.
https://elifesciences.org/reviewed-preprints/104008

Frontiers in Computational Neuroscience

PAPERS

PEGAH RAMEZANI, ACHIM SCHILLING & PATRICK KRAUSS – Analysis of argument structure constructions in a deep recurrent language model

Understanding how language and linguistic constructions are processed in the brain is a fundamental question in cognitive computational neuroscience. This study builds directly on our previous work analyzing Argument Structure Constructions (ASCs) in the BERT language model, extending the investigation to a simpler, brain-constrained architecture: a recurrent neural language model. Specifically, we explore the representation and processing of four ASCs–transitive, ditransitive, caused-motion, and resultative–in a Long Short-Term Memory (LSTM) network. We trained the LSTM on a custom GPT-4-generated dataset of 2,000 syntactically balanced sentences. We then analyzed the internal hidden layer activations using Multidimensional Scaling (MDS) and t-Distributed Stochastic Neighbor Embedding (t-SNE) to visualize sentence representations. The Generalized Discrimination Value (GDV) was calculated to quantify cluster separation. Our results show distinct clusters for the four ASCs across all hidden layers, with the strongest separation observed in the final layer. These findings are consistent with our earlier study based on a large language model and demonstrate that even relatively simple RNNs can form abstract, construction-level representations. This supports the hypothesis that hierarchical linguistic structure can emerge through prediction-based learning. In future work, we plan to compare these model-derived representations with neuroimaging data from continuous speech perception, further bridging computational and biological perspectives on language processing.

https://www.frontiersin.org/journals/computational-neuroscience/articles/10.3389/fncom.2025.1474860/full

Frontiers in Environmental Archaeology

PAPERS

JACOPO CREZZINI et al – Neanderthal had a "crush" on fats. Macronutrient estimation in Middle Paleolithic (Late Mousterian) hunter-gatherers of southern Italy

During the Late Mousterian period Apulia (southeastern Italy) was characterized by frequent and prolonged aridity that could have caused the scarcity of vegetable foods and, consequently, a lack of important nutritional compounds. Zooarchaeological studies from several Mousterian contexts show that Apulian Neanderthals may have responded to this crisis by increasing the exploitation of ungulates. In particular, bone grease rendering was likely one of the dominant activities conducted on-site. Anthropologists and nutritionists have long recognized that the diets of modern-day hunter-gatherers may represent a reference standard for human nutrition in the past and a model for their adaptation to specific environmental conditions. In addition, evaluating of certain qualitative and quantitative aspects of the animal/plant nutrient intake and absorption may provide important information regarding the nutritional needs and the physiology of these human groups. In this analysis, we combine ethnographic data related to animal economic subsistence patterns of hunter-gatherers, zooarchaeological data from Late Mousterian assemblages located in Apulia, the physiology of medium-large ungulates, as well as new paleo genomic analyses of Neanderthals and modern humans. Analyzing and displaying multiple sources of information allowed us to quantify a low daily energy intake from carbohydrates for Late Mousterian populations in southern Italy, in contrast to a surplus of animal protein and fats, obtained from the specific treatment of carcasses inferred from the zooarchaeological data.

https://www.frontiersin.org/journals/environmental-archaeology/articles/10.3389/fearc.2025.1558698/full

Frontiers in Political Science

PAPERS

MARCO VERWEIJ – A cultural theory of populist leadership: fatalism, authoritarianism and the first Trump presidency

This article asks whether a unified framework can integrate established traits of populist leadership, propose novel ones, and link populist leaders to their social support. To do so, it uses Mary Douglas's cultural theory, and especially its typology of four "ways of life" (hierarchy, egalitarianism, individualism and fatalism), in combination with Jan-Werner Müller's definition of populism (as movements with leaders who claim to be the sole representatives of a homogenous people). This theoretical approach is illustrated through a congruence analysis of Donald J. Trump's first presidency using secondary data. The analysis finds that the fatalistic way of life encapsulates populist leadership. All features of populist rule identified in the literature—such as corruption, nepotism, and protectionism—are consistent with fatalism. The framework also highlights additional traits (for instance, secretiveness, vengeance, and conspiracy-proneness) implied by fatalism. The Trump case exemplifies these arguments: his administration's conspiratorial rhetoric, punitive governance style and zero-sum outlook reflect a fatalistic ethos. Crucially, cultural theory bridges leaders and followers: fatalism links the supply side of populism to its demand size. Overall, Douglas's cultural theory unifies scattered populist traits under a coherent logic and provides a bridge between populist leadership and people's support of such leadership. This integrated approach advances theoretical understanding of populist leadership while suggesting new avenues for empirical research.

https://www.frontiersin.org/journals/political-science/articles/10.3389/fpos.2025.1579906/full

iScience

PAPERS

LOGAN S. JAMES, OLIVIA RUGE & JON T. SAKATA – Temporal organization of song modulates vocal learning

Species-typical behaviors are organized into species-typical patterns, and stimuli that deviate from these patterns often lead to diminished responses. Zebra finches produce songs that are learned during development and that consist of acoustic elements (syllables) arranged into stereotyped sequences with stereotyped timing. However, how deviations away from species-typical stereotypy in sequencing and timing modulate vocal learning remains unknown. Starting at different ages in development, we tutored 123 zebra finches with stimuli that varied in the stereotypy of syllable sequencing and timing. Juveniles tutored with temporally variable stimuli imitated the acoustic structure of syllables as well as juveniles tutored with temporally stereotyped songs. Additionally, while the acquisition of song decreased over development, we found some evidence that variability in sequencing and timing attenuated developmental declines in learning. These data motivate future investigations into the degree to which temporal patterning modulate the learning of other behaviors, even highly stereotyped behaviors.

https://www.cell.com/iscience/fulltext/S2589-0042(25)01050-8

Mind & Language

PAPERS

MICHAEL DEVITT & BRIAN PORTER – Reference borrowing: The case of implement terms

The article reports experiments testing the theory of reference for implement terms, using “fax machine” and “abacus” as examples. We found strong evidence against the description theory that the reference of these terms is determined by the descriptions that participants associate with them. This supports the causal theory of reference borrowing for these terms. We emphasize that our findings do not support a causal theory of the initial reference fixing by the “experts” who introduce an implement term. Indeed, we think it highly plausible that reference is initially fixed by a description of the implement's function and defining physical characteristics.

https://onlinelibrary.wiley.com/doi/abs/10.1111/mila.12547

Nature

NEWS

First ever skull from ‘Denisovan’ reveals what ancient people looked like

Ancient proteins and calcified dental plaque identify heavy-browed fossil from China as a Denisovan.

https://www.nature.com/articles/d41586-025-01899-y

How the brain separates real images from those it imagines

Neuroscientists have found the regions that keep them apart.

https://www.nature.com/articles/d41586-025-01752-2

ARTICLES

CHAO NING & HAI ZHANG – Neolithic matrilineal society in ancient China

Studies of ancient DNA have generally found that societies in Neolithic and Bronze Age Eurasia were organized around the male line. However, investigation of the Fujia archaeological site in eastern China reveals a Neolithic community organized around two maternal clans — suggesting that this prehistoric society traced its ancestry through the maternal line.

https://www.nature.com/articles/d41586-025-01870-x

WILLIAM E. BANKS – Homo sapiens adapted to diverse habitats before successfully populating Eurasia

Ecological modelling reveals that the range of habitats humans occupied in Africa increased before our species established a lasting presence outside the continent.

https://www.nature.com/articles/d41586-025-01710-y

PAPERS

EMILY Y. HALLETT et al – Major expansion in the human niche preceded out of Africa dispersal

All contemporary Eurasians trace most of their ancestry to a small population that dispersed out of Africa about 50,000 years ago (ka). By contrast, fossil evidence attests to earlier migrations out of Africa. These lines of evidence can only be reconciled if early dispersals made little to no genetic contribution to the later, major wave. A key question therefore concerns what factors facilitated the successful later dispersal that led to long-term settlement beyond Africa. Here we show that a notable expansion in human niche breadth within Africa precedes this later dispersal. We assembled a pan-African database of chronometrically dated archaeological sites and used species distribution models (SDMs) to quantify changes in the bioclimatic niche over the past 120,000 years. We found that the human niche began to expand substantially from 70 ka and that this expansion was driven by humans increasing their use of diverse habitat types, from forests to arid deserts. Thus,

humans dispersing out of Africa after 50 ka were equipped with a distinctive ecological flexibility among hominins as they encountered climatically challenging habitats, providing a key mechanism for their adaptive success.
https://www.nature.com/articles/s41586-025-09154-0

Nature Communications Medicine

PAPERS

DALIA ELLEUCH et al – Relationship between grammar and schizophrenia: a systematic review and meta-analysis

Schizophrenia significantly impairs everyday communication, affecting education and employment. Such communication difficulties may arise from deficits in syntax—understanding and generating grammatical structures. Research on syntactic impairments in schizophrenia is underpowered, with inconsistent findings, and it is unclear if deficits are specific to certain patient subgroups, regardless of symptom profiles, age, sex, or illness severity.
https://www.nature.com/articles/s43856-025-00944-1

Nature Human Behaviour

PAPERS

ERIC FELTHAM, LAURA FORASTIERE & NICHOLAS A. CHRISTAKIS – Cognitive representations of social networks in isolated villages

People not only form social networks, they construct mental maps of them. We develop a sampling strategy to evaluate network cognition in 10,072 adults across 82 Honduras villages and systematically map the underlying village networks. In 17 villages, we also discern the genetic relatedness of all 1,333 residents. Observers overestimate the social interactions among kin and are 33.38 percentage points (J) more accurate in judgements of ties between non-kin (95% confidence interval: 31.27–35.49). Counterintuitively, observers had more accurate beliefs about non-kin pairs, especially when the observers were popular, middle-aged, or educated. Observers were less able to accurately judge ties across different religions or wealth. Individuals in villages that cultivate coffee, requiring coordinated effort, demonstrated greater bias to view networks as connected. Finally, more accurate respondents had better access to information that we experimentally introduced to their peers. Overall, people inflate the number of connections in their networks and exhibit varying accuracy and bias, with implications for how people affect and are affected by the social world.
https://www.nature.com/articles/s41562-025-02221-6

Nature Humanities & Social Sciences Communications

PAPERS

DENISE DE RIDDER – Community nudges: why we need tools for turning on the we-mode to tackle problems that concern all of us

Nudges are behavioral interventions to subtly steer citizen choices by making desirable options easier or more attractive. More than 15 years of research and practice have revealed that such gentle encouragements are effective policy instruments in directing personal decisions without violating the principles of good governance. However, with a focus on individual behavior, there has been less attention to nudges as a policy device for promoting decisions that are good for all of us and tackle societal challenges that require collective effort. In the present review, I address this knowledge gap by introducing the novel concept of community nudges. I discuss a new outlook that seeks to understand how nudges may support communities in making decisions to shape desirable outcomes for the benefit of all. I suggest two avenues for designing community nudges that support people in committing to a common cause. One way is the creation of nudges that call for considering other people's concerns by speaking to their ability to empathize. Another way is to facilitate people to act together as a group to contribute to a common cause, resonating with recent calls for collective action in addressing critical societal problems. I present initial evidence that community nudges have the potential to increase collective commitment by avoiding an excessive focus on individual responsibility for problems that demand collaborative action. In the final section, I describe the opportunities and challenges for the implementation of community nudges in public policy by connecting the emerging evidence on community nudges with the literature on collaborative governance as an alternative for attempts to secure acceptance of top-down generated solutions for important problems that affect us all.
https://www.nature.com/articles/s41599-025-05244-6

Nature NPJ Heritage Science

PAPERS

HONG CHEN et al – Exploring the role of grinding stones in Neolithic economic practices: insights from the Xicaodun site in Southeastern China

During the Neolithic period, ground stone tools were essential for both social production and daily life, serving as one of the most significant indicators of prehistoric human activities. Among these tools, grinding stones are particularly noteworthy, facilitating the production of other ground stone artifacts. Based on the ground stone tools unearthed from a Liangzhu culture site at Xicaodun, this study employs a combination of hierarchical dynamic typology, design theory, use-wear analysis, and microeconomic concept to provide a comprehensive understanding of the ground stone artifacts. The study

further explores the design and use strategies of grinding stones to reveal the underlying economic practice. The findings suggest that the Xicaodun site may have functioned as a specialized workshop for the production of ground stone tools. Moreover, the design and use patterns of the grinding stones reflect a strategic effort to optimize material use for the continued operation of the workshop.
https://www.nature.com/articles/s40494-025-01824-6

Nature Reviews Psychology

PAPERS

BRIDGET M. WALLER et al – Facial expression production and perception in non-human primates
Facial expressions are ubiquitous among primates and many clear similarities across species suggest a shared evolutionary history for these behaviours. Investigations of non-human primate facial expressions are therefore vital to enable us to understand the form and function of human facial behaviour. Methodological developments over the past two decades enable fine-grained quantitative comparisons across species and have demonstrated that similar processes underpin facial expressions in non-human and human primates. However, there is a tendency to focus on facial expression as a repertoire of discrete, prototypical expressions that does not always reflect naturalistic behaviour. In this Review, we review the production and perception of non-human primate facial expressions, focusing on methodological approaches and how to address the challenges of studying dynamic facial expressions. Moving forwards, methods that enable the study of dynamic and variable communicative exchange within social interaction might provide a better understanding of how facial expressions function and what (if anything) about facial expression is unique to humans.
https://www.nature.com/articles/s44159-025-00462-w

Nature Scientific Data

PAPERS

ARMANDO FALCUCCI et al – The Open Aurignacian Project: 3D scanning and the digital preservation of the Italian Paleolithic record
Here, we introduce an open-access database of 3D models of stone tools (n = 2,016) from four Early Upper Paleolithic sequences excavated south of the Alps and along Peninsular Italy, including Grotta della Cala, Grotta di Castelcivita, Grotta di Fumane, and Riparo Bombrini. Available through four self-standing Zenodo repositories, these models enable in-depth analysis of core reduction procedures, reduction intensity, and shape variability. Unlike other repositories, this database has been actively used to address archaeological questions, providing a comprehensive demonstration of the use of 3D models in lithic analysis. The Open Aurignacian Project utilizes various scanning devices, including the Artec Spider, Artec Micro, and micro-computed tomography, with a focus on enhancing the reproducibility and accessibility of archaeological data. This paper presents the scanning methodology, dataset organization, and technical validation of the project, while also discussing the scientific potential of these data to foster cross-continental research collaboration. Our open-sharing initiative is designed to stimulate inter-regional studies of human behavioral evolution, offering new opportunities to address questions in Paleolithic studies through the FAIR principles.
https://www.nature.com/articles/s41597-025-05330-z

Nature Scientific Reports

PAPERS

ANNE-SOPHIE VAN HERWIJNEN, LAURA TERESA HERNÁNDEZ SALAZAR & MATTHIAS LASKA – The ability of captive spider monkeys, Ateles geoffroyi, to visually discriminate between different sizes of food and of non-edible objects
Field studies suggest that the size of potential food items plays an important role in the food selection behavior of nonhuman primates. However, there is only limited knowledge about how good primates are at visually discriminating between the size of three-dimensional objects of the same kind and shape. We therefore conducted two experiments on ten adult spider monkeys: a two-choice test based on spontaneous preferences with differently-sized pieces of food of the same kind and shape, and a two-choice test based on an operant conditioning procedure in which the animals were trained to choose the larger one of two cube-shaped wooden blocks. We found that the spider monkeys displayed a robust and spontaneous preference for the larger one of two simultaneously presented pieces of food of the same kind when the size difference was 11% or larger. This was true with cube-shaped food pieces as well as with ball-shaped and hemisphere-shaped food pieces. Considering that the normal size variation among fully ripe fruits of a given plant species is at least 10% this suggests that spider monkeys are as picky as necessary to make size-based food choices in line with optimal foraging theory. We also found that the spider monkeys successfully discriminated between two simultaneously presented wooden cubes when their edge length differed by only 2 mm which was the smallest size difference tested. Thus, they displayed a well-developed ability to visually discriminate between three-dimensional non-edible objects of the same kind and shape which is at least as good as that of other nonhuman primate species tested previously on similar tasks. Our findings support the notion that frugivory may have favored the evolution of cognitive abilities in the physical domain which may, possibly, include the ability to perform fine visual size discriminations.
https://www.nature.com/articles/s41598-025-06479-8

FATIH SIVRIDAG et al – Children's cortical speech tracking in face-to-face and online video communication
In today's digital age, online video communication has become an important way for children to interact with their social partners, especially given the increased use of such tools during the pandemic. While previous studies suggest that children can learn and engage well in virtual settings, there is limited evidence examining the neural mechanisms supporting speech processing in face-to-face and video interactions. This study examines 5-year-old German speaking children's cortical speech tracking (n = 29), a measure of how their brains process speech, in both scenarios. Our findings indicate comparable levels of cortical speech tracking in both conditions, albeit with subtle differences. This implies that children exhibit similar neural responses to speech in both situations and may adopt different strategies to overcome potential challenges in video communication. These neural results align with previous behavioural findings, supporting the notion that live online video interactions can serve as an effective communication medium for children.
https://www.nature.com/articles/s41598-025-04778-8

New Scientist

NEWS

We finally know what the face of a Denisovan looked like
A skull from China has been identified as Denisovan using molecular evidence – so ancient humans once known solely from their DNA finally have a face.
https://www.newscientist.com/article/2484822-we-finally-know-what-the-face-of-a-denisovan-looked-like/

PLoS One

PAPERS

DOROTA KATARZYNA GASKINS & GABRIELLA RUNDBLAD – Budding metaphors: Input-output effects in metaphor production
This paper presents a longitudinal analysis of input-output effects in the production of metaphoric expressions by children aged two to five. The group case-study design adopted in this project involved longitudinally sampled corpora of naturalistic conversations between six English- and five Polish-speaking children and their primary caregivers, analysed by means of a usage-based approach to metaphor identification in child speech (UBAMICS) recently developed for English and adapted for Polish. Overall, 146,103 expressions were traced back to underlying metaphorical mappings in the densely sampled English corpora, and 22,909 in the less densely sampled Polish corpora. The data demonstrate clear input-output effects in the acquisition of conventional metaphoric expressions, both for primary conceptual metaphors that bring abstract domains closer to our embodied experience (e.g., Your gran is such a warm person) and for resemblance metaphors that map properties of familiar concepts onto those of less familiar ones based on their physical or behavioral resemblance (e.g., You're my treasure). They are discussed in the context of two leading theories: Conceptual Metaphor Theory and Pragmatic Theory, highlighting to what extent they can account for our findings. A novel Usage-Based account is proposed to explain those findings which are problematic or when viewed through the lens of the current accounts of metaphor acquisition.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0323420

Royal Society Open Science

PAPERS

MARCEL BOUMANS et al – Fostering trustworthy information: countering disinformation when there are no bare facts
At a time when the dissemination of online information is synonymous with an abundance of disinformation and misinformation, it is important to extend our reflection beyond debunking and fact-checking. In this article, we consider the cases of (dis-, mis- and mal-)information regarding scientific results. We argue that countering misinformation requires a better understanding of the root cause of the problem. We believe the root cause is trust rather than truth. We argue that trust should be approached from a distinct social epistemological perspective that recognizes differences between data and facts and that treats trust as part of the scientific process and as part of the way publics interpret and use scientific information.
https://royalsocietypublishing.org/doi/10.1098/rsos.250654

Science

PAPERS

QIAOMEI FU et al – The proteome of the late Middle Pleistocene Harbin individual
Denisovans are a hominin group primarily known through genomes or proteins, but the precise morphological features of Denisovans remain elusive due to the fragmentary nature of discovered fossils. Here we report ninety-five endogenous proteins retrieved from a nearly complete cranium from Harbin, China, dating to at least 146,000 years ago and previous assigned to a new species, Homo longi. This individual has three Denisovan derived amino acid variants and clusters with Denisova 3, suggesting the Harbin individual belongs to a Denisovan population. This study fills the gap between

morphological and molecular evidence, enhancing our understanding of Denisovans' spatiotemporal dispersal and evolutionary history.
https://www.science.org/doi/10.1126/science.adu9677

Science Advances

PAPERS

SABRINA A. PRIMUS et al – Beyond volume: Unraveling the genetics of human brain geometry
Brain geometry affects brain function. A quantitative encoding of form is provided by the Laplace-Beltrami operator's spectrum of eigenvalues (LBS). We examined LBS genetics of 22 subcortical brain structures and cerebellum in 19,862 healthy White-British UK Biobank participants by multivariate genome-wide association study on the first 49 eigenvalues each. Controlling for surface and volume, we identified 80 unique variants influencing the shapes of one or several structures, with the highest yield (37 variants) for brain stem. The previously known influence of several of these loci on basic morphology, such as volume, is thus shown to also influence complex shape. Known associations of observed loci with blood pressure, neurodegeneration, alcohol consumption, and mental disorders hint at preclinical stages of these conditions potentially mediating the genetic effect on brain morphology. Significant correlations between LBS of several brain structures and the polygenic risks of hypertension, ischemic stroke, and schizophrenia evince brain shapes as early biomarkers.
https://www.science.org/doi/10.1126/sciadv.adr1644

Trends in Cognitive Sciences

PAPERS

REBECCA TREIMAN & BRETT KESSLER – Statistical learning in spelling and reading
The statistical learning view of word reading and spelling is based on the ideas that writing systems have a rich statistical structure and that people implicitly pick up this structure as they learn to read and write. Whereas laboratory studies stress the speed and power of statistical learning, the evidence we review shows that adults with years of reading and writing experience do not always mirror the statistics of their writing system in their behavior. We consider possible reasons for these discrepancies, including the complexity of the statistical relationships, ease of production, and satisficing. The findings suggest that literacy instruction should address the probabilistic patterns in writing systems and the role of context in selecting appropriate pronunciations and spellings.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(25)00115-9

ANTONIA F. LANGENHOFF et al – Disagreement drives metacognitive development
Metacognition improves significantly over childhood, but the mechanisms underlying this development are poorly understood. We first review recent research demonstrating that disagreement prompts competent responses by young children across several metacognitive domains (confidence monitoring, information search, and source monitoring). We then propose a mechanistic model of how disagreement facilitates metacognition. We localize one main source of children's metacognitive limitations in their still-developing capacities to reason about alternative possibilities, which manifest in an overly narrow focus on one hypothesis. Disagreement increases the child's likelihood of representing alternative hypotheses, thereby promoting improved metacognitive reasoning. The broader proposal is that, through repeated experiences of disagreement, children become better at representing alternative possibilities even when reasoning on their own, leading to metacognitive development.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00139-1

YNGWIE A. NIELSEN & MORTEN H. CHRISTIANSEN – Context, not grammar, is key to structural priming
Structural priming – a change in processing after repeated exposure to a syntactic structure – has been put forward as evidence for the psychological reality of constituent structures derived from grammar. However, converging evidence from memory research, large language models (LLMs), and structural priming itself challenges the validity of mapping structural representations onto grammatical constituents and demonstrates structural priming in the absence of such structure. Instead of autonomous representations specified by grammar, we propose that contextual representations emerging from multiple constraints (e.g., words, prosody, gesture) underlie structural priming. This perspective accounts for existing anomalous findings, is supported by the strong dependence on lexical cues observed in structural priming, and suggests that future research should prioritize studying linguistic representations in more naturalistic contexts.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00143-3

Trends in Genetics

ARTICLES

ROSA S. GISLADOTTIR – Advancing GWAS of human communication
The last decade has seen an explosion in genome-wide association studies (GWAS) on almost any imaginable phenotype. Unfortunately, humanity's most distinctive trait – communication, broadly construed – has been underserved. In this forum

article I review recent advances and promising avenues that may help us understand the genetics and evolution of human communication.
https://www.cell.com/trends/genetics/fulltext/S0168-9525(25)00129-5

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