EAORC BULLETIN 1,143 – 11 May 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.

CONFERENCE ALERT – ICLC17 Buenos Aires (July 14-18, 2025) – https://iclc17.com/

The conference organizing committee, led by Claudia Borzi, will announce the preliminary program later this month. For now, we offer important updates on conference registration, membership renewal, conference venue, emerging researcher scholarship adjudication, and planning for the 2025 general assembly to be held during the conference.

ICLC17 Conference Registration and Membership Renewal

Please see the conference website for the newly released schedule of conference registration fees: https://iclc17.com/registration-and-fees/. Please note the registration deadline and rate differences for early-bird vs. late registration. Be sure to register by June 20 for reduced rates. Also note that renewing or joining as a member of the International Cognitive Linguistic Association qualifies you for a substantial discount ($30-$60 USD) on conference registration. You can join or renew as a member of the association here: https://www.cognitivelinguistics.org/en/membership/payment. The ICLC17 organizing committee is working to provide additional instructions and fee payment options in the coming weeks; so stay tuned for updates via the conference registration page mentioned above.

ICLC17 Conference Venue Change

Please note that the ICLC17 Committee has found it necessary to shift the conference venue from the Universidad Católica Argentina to a more suitable venue, due to unforeseen circumstances. The conference will now be held in Regente Palace Hotel, Suipacha 964: https://maps.app.goo.gl/gmhWi8qDcNvHXBEE9. While both venues are located in the downtown core, they are three kilometers apart; so please note this change and adjust accordingly. The new venue is well appointed and well connected, offering a fully consolidated location for lodging, receptions, and presentations, including plenary sessions, parallel sessions, and the General Assembly. For more information on venue and accommodation, please see the conference website: https://iclc17.com/venue/

Scholarship Adjudication Timeline for Emerging Researchers

The ICLA board received 30 applications for funding to support emerging researchers with accepted abstracts for presentation to ICLC17. The adjudication committee will make funding decisions based on multiple criteria including financial need, career stage, and quality of contribution to the field. Decision letters will be sent out between May 15-31.

Preparations for the 2025 ICLA General Assembly

Every ICLA conference allows the global community of cognitive linguists an opportunity to participate in a General Assembly, coming together in the same room to review the past two years and make key decisions related to the future of the association, including leadership transitions, changes to the ICLA constitution, decisions related to hosting the biennial conference, and to discuss other decisions and ideas related to the future of the association. In preparation for the ICLC17 General Assembly, we invite all members and affiliates of the ICLA to consider taking part in the leadership of the association by running for vacant positions on the governing board of the association and by participating in the voting process to elect the new ICLA board for the 2025-2027 cycle. The current board will send an Elections Notice message with instructions for announcing candidatures one month before the conference. Voting will then open online for one week one week prior to the general assembly, where the new governing board of the association will be introduced. The current board will also announce its recommendation for the next venue and hosting committee for the biennial International Cognitive Linguistics Conference to be held in 2027; so please plan to participate in the 2025 General Assembly in Buenos Aires to join us in welcoming the association's new leadership team and ratifying the new hosting institution for ICLC18.

NEWS

JOHN TEMPLETON FOUNDATION – On Seeing Divinity in The World: Ultrasounds and The Canals of Mars

Is it possible to 'see' the divine in nature? Many think so. It's suggested that, perhaps after long immersion in religious practice, some are able to detect meaning and significance, and even the divine, in the world we observe around us. While I might look out of the window and see a sunset, others, looking at that same view, are overwhelmed by the glory of God. There are those who believe they can see divinity in the sweep of the starry heavens and the petals of a wildflower, and hear it in morning birdsong. Do such experiences involve the detection of meaning, significance and divinity that's really there, or is it a matter of our projecting meaning and significance on to a reality that, objectively speaking, it entirely lacks? And how can we tell which of these two things is going on?

https://www.templeton.org/news/on-seeing-divinity-in-the-world-ultrasound-scans-and-the-canals-of-mars

SAPIENS – Monogamy. Grandmas. Milk. The Evolution of Childhood Is Very Strange.

In a new book, Growing Up Human, a bioarchaeologist chronicles some of the most surprising evolutionary adaptations of babies, parents, and grandparents.

https://www.sapiens.org/biology/strangest-things-evolution-childhood/

SCIENCE DAILY – Gorilla study reveals complex pros and cons of friendship

Friendship comes with complex pros and cons -- possibly explaining why some individuals are less sociable, according to a new study of gorillas.
https://www.sciencedaily.com/releases/2025/05/250505170816.htm

SCIENCE DAILY – Children as young as five can navigate a 'tiny town'

Neuroscientists are developing methods to map the brain systems that allow us to recognize and get around our world.
https://www.sciencedaily.com/releases/2025/05/250505170644.htm

SCIENCE DAILY – Our ability to recognize objects depends on prior experience

New findings suggest neurons have much more functional dexterity than scientists previously realized.
https://www.sciencedaily.com/releases/2025/05/250502102717.htm

SCIENCE DAILY – Study suggests dance and lullabies aren't universal human behaviors

Social singing and dance are often assumed to be hard-wired into the human condition; studies have supported the conclusion that these are common across cultures. But new research from an anthropologist challenges the idea that dance and lullabies are universal among humans. The study draws on 43 years of research with an Indigenous population in Paraguay.
https://www.sciencedaily.com/releases/2025/04/250429112828.htm

SCIENCE DAILY – Using humor in communication helps scientists connect, build trust

Scientists aren't comedians, but it turns out a joke or two can go a long way. That's according to a new study that found when researchers use humor in their communication -- particularly online -- audiences are more likely to find them trustworthy and credible.
https://www.sciencedaily.com/releases/2025/04/250428221710.htm

SCIENCE DAILY – Personality traits shape our prosocial behavior

Why do some people do more for the community than others? A new study now shows that personality traits such as extraversion and agreeableness correlate with volunteering and charitable giving.
https://www.sciencedaily.com/releases/2025/04/250428220924.htm

PUBLICATIONS

Biology Letters

PAPERS

SEM VAN LOON et al – Stone-assisted drumming in Western chimpanzees and its implications for communication and cultural transmission

Chimpanzees (Pan troglodytes) communicate in complex ways, including sounds produced by hand and foot drumming on trees, often combined with loud vocalizations. Recently, a puzzling stone throwing behaviour at trees was observed, resulting in stone piles at tree buttresses. It is a rare case of tool used for communication in animals and suggested to function like buttress drumming in long-distance communication and male displays. We tested this hypothesis by determining the behavioural dynamics in comparison to hand and foot tree buttress drumming in Western chimpanzees in Boé, Guinea Bissau. Using camera traps, we show that in 78% of cases, stones were picked up at trees, not leading to further stone accumulation beyond the already existing stone piles. Stone-assisted and hand and foot drumming occurred separately or were combined in similar behavioural contexts in apparent long-distance communication and highly aroused behavioural contexts. Yet, immediately before stone drumming, chimpanzees swayed less and pant-hooted more while afterwards pant-hooting less compared to the other contexts, suggesting a separate motivation and/or function for stone-assisted drumming. It suggests this unique stone-based activity has its own signal value, separate from hand/foot buttress drumming and, considering the spatial variation, might be culturally transmitted.
https://royalsocietypublishing.org/doi/full/10.1098/rsbl.2025.0053

Cell Reports

PAPERS

LEYAO YU et al – A left-lateralized dorsolateral prefrontal network for naming

The ability to connect the form and meaning of a concept, known as word retrieval, is fundamental to human communication. While various input modalities could lead to identical word retrieval, the exact neural dynamics supporting this process relevant to daily auditory discourse remain poorly understood. Here, we recorded neurosurgical electrocorticography (ECoG) data from 48 patients and dissociated two key language networks that highly overlap in time

and space, critical for word retrieval. Using unsupervised temporal clustering techniques, we found a semantic processing network located in the middle and inferior frontal gyri. This network was distinct from an articulatory planning network in the inferior frontal and precentral gyri, which was invariant to input modalities. Functionally, we confirmed that the semantic processing network encodes word surprisal during sentence perception. These findings elucidate neurophysiological mechanisms underlying the processing of semantic auditory inputs ranging from passive language comprehension to conversational speech.
https://www.cell.com/cell-reports/fulltext/S2211-1247(25)00448-6

Cell Reports Methods

PAPERS

JACK T. SCOTT et al – CalliCog is an open-source cognitive neuroscience toolkit for freely behaving nonhuman primates
Nonhuman primates (NHPs) are pivotal for unlocking the complexities of human cognition, yet traditional cognitive studies remain constrained to specialized laboratories. To address this gap, we present CalliCog: an open-source, scalable in-cage platform tailored for experiments in small freely behaving primate species such as the common marmoset (Callithrix jacchus). CalliCog includes modular operant chambers that operate autonomously and integrate seamlessly with home cages, eliminating human intervention. Our results showcase the power of CalliCog to train experimentally naive marmosets in touchscreen-based cognitive tasks. Across two independent facilities, marmosets achieved touchscreen proficiency within 2 weeks and successfully completed tasks probing behavioral flexibility and working memory. Moreover, CalliCog enabled precise synchronization of behavioral data with electrocorticography (ECoG) recordings from freely moving animals, opening new frontiers for neurobehavioral research. By making CalliCog openly accessible, we aim to democratize cognitive experimentation with small NHPs, narrowing the translational gap between preclinical models and human cognition.
https://www.cell.com/cell-reports-methods/fulltext/S2667-2375(25)00070-0

Current Biology

PAPERS

VESTA ELEUTERI et al with CATHERINE HOBAITER & KLAUS ZUBERBÜHLER – Chimpanzee drumming shows rhythmicity and subspecies variation
Rhythmic percussion is present across human cultures and has been proposed as one of the earliest evolved forms of musical expression. Key features of human rhythmic percussion include individual and regional variation, as well as structural features widespread across musical cultures, such as the use of non-random timing and isochrony (i.e., evenly spaced note onsets). Comparative studies of drumming in our ape relatives contribute to understanding the evolutionary origins of human rhythmic percussion. In this context, large, diverse datasets allow testing for species-level universals and regional variation. Chimpanzees and bonobos, like humans, drum on instrumental substrates. Wild chimpanzees drum on resonant tree buttresses, showing individual variation during traveling and resting contexts, and often integrate drumming into their long-distance pant-hoot vocalizations. But whether wild chimpanzee drumming shows structural musical features and regional variation in rhythm or in its integration within pant-hoots remains unknown. We show that wild chimpanzees drum with non-random timing and isochrony, providing evidence that rhythmic drumming on instrumental substrates may have been present in our last common ancestor. Furthermore, we found subspecies-level regional rhythmic variation, showing that western chimpanzees drum isochronously, while eastern chimpanzees drum by alternating shorter and longer inter-hit intervals. Western chimpanzees also produce more drumming hits, drum at a faster tempo, and integrate drumming earlier in the pant-hoot vocalization, typically during the rhythmic build-up phase. Chimpanzee buttress drumming shows both species-level structural features of human musicality and stable subspecies regional differences across diverse ecologies.
https://www.cell.com/current-biology/fulltext/S0960-9822(25)00448-8

Human Nature

PAPERS

AXEL G. EKSTRÖM et al with PETER GÄRDENFORS – Correlates of Vocal Tract Evolution in Late Pliocene and Pleistocene Hominins
Despite decades of research on the emergence of human speech capacities, an integrative account consistent with hominin evolution remains lacking. We review paleoanthropological and archaeological findings in search of a timeline for the emergence of modern human articulatory morphological features. Our synthesis shows that several behavioral innovations coincide with morphological changes to the would-be speech articulators. We find that significant reductions of the mandible and masticatory muscles and vocal tract anatomy coincide in the hominin fossil record with the incorporation of processed and (ultimately) cooked food, the appearance and development of rudimentary stone tools, increases in brain size, and likely changes to social life and organization. Many changes are likely mutually reinforcing; for example, gracilization of the hominin mandible may have been maintainable in the lineage because food processing had already been outsourced to the hands and stone tools, reducing selection pressures for robust mandibles in the process. We highlight correlates of the evolution of craniofacial and vocal tract features in the hominin lineage and outline a timeline by which our ancestors became ‘pre-adapted’ for the evolution of fully modern human speech.

https://link.springer.com/article/10.1007/s12110-025-09487-9

IVAN NORSCIA et al – Is it a Match? Yawn Contagion and Smile Mimicry in Toddlers

Automatic behavioral matching includes Rapid Facial Mimicry (RFM) and Yawn Contagion (YC) that occur when the facial expression of an individual acts as a 'mirror social releaser' and induces the same facial expression in the observer (within 1 s for RFM, and minutes for YC). Motor replication has been linked to coordination and emotional contagion, a basic form of empathy. We investigated the presence and modulating factors of Rapid Smile Mimicry (RSM) and YC in infants/toddlers from 10 to 36 months at the nursery 'Melis' (Turin, Italy). In February-May 2022, we gathered audio and/or video of all occurrences data on affiliative behaviors, smiling during play, and yawning during everyday activities. Both RSM and YC were present, as toddlers were most likely to smile (within 1 s) or yawn (within three-min) after perceiving a smile/yawn from another toddler. Sex, age, and parents' country of origin did not influence RSM and YC occurrence, probably because gonadal maturation was long to come, the age range was skewed towards the early developmental phase, and toddlers had been in the same social group for months. RSM and YC showed social modulation, thus possibly implying more than just motor resonance. Both phenomena were inversely related to affiliation levels (a social bond proxy). Because literature reports that in adults RSM and YC may increase with familiarity, our reversed result suggests that in certain toddler cohorts the same phenomena may help increase socio-emotional coordination and that the function of motoric resonance may be experience- and context-dependent.
https://link.springer.com/article/10.1007/s12110-025-09488-8

LUCA SURIAN, EUGENIO PARISE & ALESSANDRA GERACI – Core Moral Concepts and the Sense of Fairness in Human Infants

We review recent experimental studies relevant to assess the proposal that human infants possess a sense of fairness that relies on sociomoral knowledge. We propose that this knowledge may include a core concept of justice with four foundational aspects: impartiality, agency, obligatoriness and conflicting claims. Infants' and toddlers' looking times, manual preferences and spontaneous actions provide some evidence for the first three features. Very early-emerging sociomoral evaluations and expectations about resource distributions show that infants process morally relevant information about distributors and recipients, suggesting that they are sensitive to the agency and impartiality constraints. Early evaluations appear to be linked to third-party expressions of praise or admonishment and to the deliverance of rewards and punishment, providing initial support for the obligatoriness constraint. More work is needed to investigate the sensitivity to conflicting claims, to assess the universality of early emerging evaluation skills and to show how core concepts relate to the development of explicit judgments and beliefs about duties and rights.
https://link.springer.com/article/10.1007/s12110-025-09490-0

iScience

PAPERS

MARCEL R. SCHREINER et al – Goals Rather than Predictions Determine the Sense of Agency

The sense of agency (SoA) denotes an agent's impression of controlling environmental outcomes through acting. Most theoretical approaches assume that matching predicted and actual perceptual feedback from actions creates SoA (comparator model). We propose, however, a simpler ideomotor mechanism which proposes SoA to emerge from matching perceptual feedback to action goals. In two experiments, participants aimed at target areas on a screen and received manipulated visual feedback. The two models predict different SoA magnitudes based on the appropriateness of the executed motor activity for achieving the goal and the intendedness of the obtained feedback. In line with the ideomotor model, but contrary to the comparator model, SoA was determined solely by the match of feedback to the goal, regardless of motor activity appropriateness. This suggests that assumptions of the comparator model should be reconsidered, specifically, that predictions do not have to be assumed to explain the emergence of SoA.
https://www.cell.com/iscience/fulltext/S2589-0042(25)00844-2

Journal of the Royal Society Interface

PAPERS

NEIL G. MACLAREN, KAZUYUKI AIHARA & NAOKI MASUDA – Applicability of spatial early warning signals to complex network dynamics

Early warning signals (EWSs) for complex dynamical systems aim to anticipate tipping points before they occur. While signals computed from time-series data, such as temporal variance, are useful for this task, they are costly to obtain in practice because they need many samples over time to calculate. Spatial EWSs use just a single sample per spatial location and aggregate the samples over space rather than time to try to mitigate this limitation. However, although many complex systems in nature and society form diverse networks, the performance of spatial EWSs is mostly unknown for general networks because the vast majority of studies of spatial EWSs have been on regular lattice networks. Therefore, we have carried out a comprehensive investigation of six major spatial EWSs on various networks. We find that the winning EWS depends on tipping scenarios, although the coefficient of variation and spatial skewness tend to outperform alternative

EWSs. We also find that spatial EWSs behave in a drastically different manner between the square lattice and complex networks and tend to be more reliable for the latter than the former. The present results encourage further studies of spatial EWSs on complex networks.
https://royalsocietypublishing.org/doi/full/10.1098/rsif.2024.0696

Nature

ARTICLES

LUKAS KUDERNA – Complete ape genomes offer a close-up view of human evolution
Apes, the group of primates that includes humans, are our closest evolutionary relatives. Comparisons between the genomes of humans and those of other apes have been crucial for understanding the function of the human genome and our own evolutionary history. But, because ape genomes are large and contain repetitive sequences, many genomic regions have been difficult to sequence and reconstruct accurately, which has so far resulted in incomplete representations that preclude full comparisons. Writing in Nature, Yoo et al. report essentially complete genome sequences for six ape species that represent all of the main ape lineages: chimpanzee (Pan troglodytes), bonobo (Pan paniscus), gorilla (Gorilla gorilla), Bornean orangutan (Pongo pygmaeus), Sumatran orangutan (Pongo abelii) and siamang (Symphalangus syndactylus).
https://www.nature.com/articles/d41586-025-00912-8?WT.ec_id=NATURE-20250508

DUSTIN R. RUBENSTEIN & GERALD G. CARTER – Superb starlings swap helper and breeder roles with kin and non-kin
A 20-year field study of the African superb starling (Lamprotornis superbus) found striking evidence that birds often switch breeding roles from year to year by taking turns as 'breeders' or each other's 'helpers'. This reciprocal assistance was not explained by genetic relatedness (kinship) and required decades of observation to be detected.
https://www.nature.com/articles/d41586-025-01374-8

PAPERS

DONGAHN YOO et mul – Complete sequencing of ape genomes
The most dynamic and repetitive regions of great ape genomes have traditionally been excluded from comparative studies. Consequently, our understanding of the evolution of our species is incomplete. Here we present haplotype-resolved reference genomes and comparative analyses of six ape species: chimpanzee, bonobo, gorilla, Bornean orangutan, Sumatran orangutan and siamang. We achieve chromosome-level contiguity with substantial sequence accuracy (<1 error in 2.7 megabases) and completely sequence 215 gapless chromosomes telomere-to-telomere. We resolve challenging regions, such as the major histocompatibility complex and immunoglobulin loci, to provide in-depth evolutionary insights. Comparative analyses enabled investigations of the evolution and diversity of regions previously uncharacterized or incompletely studied without bias from mapping to the human reference genome. Such regions include newly minted gene families in lineage-specific segmental duplications, centromeric DNA, acrocentric chromosomes and subterminal heterochromatin. This resource serves as a comprehensive baseline for future evolutionary studies of humans and our closest living ape relatives.
https://www.nature.com/articles/s41586-025-08816-3

ALEXIS D. EARL et al – A cryptic role for reciprocal helping in a cooperatively breeding bird
Identifying the mechanisms that underlie cooperation is fundamental to biology. The most complex form of cooperation in vertebrates occurs in cooperative breeders, in which helpers forego reproduction and assist in raising the young of others, typically relatives. Not all cooperative societies, however, are kin-based—nearly half of all avian and mammalian cooperative breeders form mixed-kin societies, much like those of humans. Kin selection in mixed-kin societies occurs when individuals gain indirect fitness from the preferential helping of relatives, but helpers also frequently assist non-kin, highlighting a potential role for direct fitness in stabilizing cooperative societies. Here, using a 20-year study of superb starlings (Lamprotornis superbus), we examined how direct and indirect fitness jointly influence helping behaviour. Although we detected kin-biased helping (demonstrating kin selection), non-kin helping was common despite opportunities to aid kin. Unexpectedly, specific pairs maintained long-term reciprocal helping relationships by swapping social roles across their lifetimes—a subtle pattern of reciprocity requiring decades of observation to detect. Given the frequency of non-kin helping and the occurrence of reciprocal helping among both kin and non-kin, helping behaviour in superb starlings seems to be greatly influenced by direct fitness. However, the relative importance of direct and indirect fitness varied with helpers' sex and dispersal history. By uncovering a cryptic yet crucial role of long-term reciprocal helping, we suggest that reciprocity may be an underappreciated mechanism promoting the stability of cooperatively breeding societies.
https://www.nature.com/articles/s41586-025-08958-4

Nature NPJ Science of Learning

PAPERS

MARIYA ANTONOSYAN et al – Species identification of osseous museum artefacts through peptide mass fingerprinting illustrated by a study on objects from Neolithic to Iron Age Armenia

Identifying animal species used in osseous industry production is crucial for reconstructing human-animal interactions in ancient societies. However, bone artefact manufacture often involves intensive modifications to raw materials that hamper taxonomic identifications. Here, for the first time in central Eurasia, we taxonomically assess bone objects stored in museum collections, recovered from Late Neolithic to Iron Age contexts in Armenia, using a minimally invasive peptide mass fingerprinting technique, also known as Zooarchaeology by Mass Spectrometry (ZooMS). Our pilot study shows remarkable collagen preservation in the bone artefacts, demonstrating the rich potential of ZooMS for examining legacy collections. The successful ZooMS screening provided taxonomic identification for 86% of the artefacts, offering insights into species selection for bone manufacturing, as well as broader socioeconomic developments and interregional links. Our study underscores the utility of minimally invasive proteomic techniques, enabling the preservation of cultural and historical artefacts while addressing limitations of studying museum collections.
https://www.nature.com/articles/s40494-025-01763-2

Nature Reviews Psychology

PAPERS

YANNICK BECKER – Studying language evolution through comparative tractography

Language defines the human species. Thus, it is no wonder that the question of how language evolved captivates scientists across fields and resonates with people beyond the scientific community. It surely captivates me! The evolution of language-brain connectivity has been my personal research passion ever since investigations in the research group I worked with revealed exciting results about the importance of gestures in evolution. Specifically, this research showed that areas of the baboon brain that correspond to language areas in humans were linked to gestural communication and led to questions of how these areas are connected.
https://www.nature.com/articles/s44159-025-00453-x

Nature Scientific Reports

PAPERS

GIADA CORDONI et al – Rapid mimicry of trunk and head movements during play in African Savanna elephants (Loxodonta africana)

The basic forms of motor and possibly emotion replication include behavioral contagion and rapid motor mimicry (RMM). RMM—mainly demonstrated during play—occurs when an individual perceives and rapidly (< 1 s) replicates the exact motor sequence of another individual. We collected data on an African Savanna Elephant (Loxodonta africana; N = 15) group housed at the Parque de la Naturaleza de Cabárceno (Spain) on play target movements of both trunk and head. We demonstrated the presence of RMM. Elephants that were more prone in mimicking others' target movements were also more prone to play after observing others playing. RMM—as behavioral contagion—can enhance action coordination between players. As RMM was associated with more offensive play patterns than unreplicated target movements, RMM may allow competitive play sessions to occur, possibly replacing agonistic interactions. Neither individual (age, sex) nor social (affiliation levels) factors modulated the RMM. These findings can be related to the elephant high tolerance levels and the wide presence of play across age (including adults) and sex. Concluding, African elephants have the potential to share their affective states (emotional contagion) via RMM which is relevant to the investigation of the evolution of empathy in mammals including humans.
https://www.nature.com/articles/s41598-025-01067-2

New Scientist

NEWS

Ireland's iconic megalithic tombs may have had an unexpected function

Tombs that are scattered across Ireland may have helped bring ancient societies together for feasting and remembering their ancestors.
https://www.newscientist.com/article/2478889-irelands-iconic-megalithic-tombs-may-have-had-an-unexpected-function/

Our wounds heal slower than the cuts and scrapes of other primates

Human wounds take almost three times as long to heal as those of other primates, which may come down to our lack of fur.
https://www.newscientist.com/article/2478414-our-wounds-heal-slower-than-the-cuts-and-scrapes-of-other-primates/

ARTICLES

HELEN THOMSON – Bitter argument breaks out over controversial theory of consciousness
Research aiming to answer the great mystery of how consciousness arises is continuing to spark debate, with arguments over whether one leading idea – integrated information theory – even counts as science.
https://www.newscientist.com/article/2478564-bitter-argument-breaks-out-over-controversial-theory-of-consciousness/

CHRIS SIMMS – Best evidence yet that dolphin whistles are like a shared language
While dolphins are known to transmit information in their whistles, until now it hasn't been clear whether the marine mammals used the same sounds to indicate a shared understanding of a concept
https://www.newscientist.com/article/2478894-best-evidence-yet-that-dolphin-whistles-are-like-a-shared-language/

DAVID ROBSON – Can we get better at spotting when someone is lying?
A reader wonders if they can become less gullible. Our science-based advice columnist has some surprising answers.
https://www.newscientist.com/article/mg26635421-100-can-we-get-better-at-spotting-when-someone-is-lying/

PLoS One

PAPERS

SOFÍA MORENO-GATA et al – 'It's not just immoral!': The role of moral disengagement and incivility in dehumanising the transgressor of immoral behaviour
People who engage in immoral behaviour are often dehumanised. However, they also tend to justify their actions to convince themselves or others that their misconduct is morally acceptable. In this paper, we examine whether moral disengagement mechanisms influence the extent to which a transgressor is perceived as fully human. Further, we assess whether this perception varies based on specific characteristics of the immoral behaviour, such as incivility. To answer these research questions, we conducted two studies with online participants from Spain. In Study 1, participants (N = 302) evaluated a set of 63 behaviours. For every behaviour, they assessed the extent to which it violated each moral foundation from moral foundations theory, its level of incivility, and its potential to elicit dehumanisation. A correlation analysis showed that only the care and purity foundations, along with incivility, were associated with dehumanisation. These results allowed us to select behaviours that varied in incivility for Study 2. In Study 2 (N = 402), we tested the effectiveness of moral disengagement mechanisms employed by the transgressor depending on the level of incivility of the immoral behaviour. To this end, we employed a 3 (moral disengagement mechanisms: moral justification vs. displacement of responsibility vs. distortion of consequences) x 2 (incivility: high vs. low) between-subjects experimental design. The variance analyses showed that using moral justification or displacement of responsibility led to the least amount of dehumanisation, while distortion of consequences resulted in the highest level of dehumanisation. Additionally, immoral behaviours that were high in incivility led to greater dehumanisation than those that were low in incivility, regardless of the moral disengagement mechanism. Overall, our research highlights the significance of different moral disengagement mechanisms and civility as key factors that affect how bystanders perceive the humanness of moral transgressors.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0322212

VLADA ALEKSEEVNA REPEYKOVA et al – Unravelling the tapestry: Cross-cultural insights into intelligence and creativity
Literature suggests multiple relationships between creativity and intelligence, each supported and contradicted by empirical evidence. The current study investigated cultural variations in the relationship between divergent thinking (DT) and fluid intelligence (Gf). Study participants were students from the most reputable universities in Russia (N = 53) and the United Arab Emirates (UAE; N = 53). The DT test measured their creative potential, the Abbreviated Torrance Test for Adults (ATTA), from which five indicators were extracted for further analyses: composite Creativity Index (CI), fluency, originality, elaboration, and flexibility. The Culture Fair Intelligence Test (CFIT) assessed participants' Gf. We found a significant negative relationship between Gf score and CI, fluency, elaboration, and flexibility. The results suggest a non-linear trend, which was addressed accordingly. Adding a cultural component into the model explained substantial variance in DT and Gf scores. The Russian sample outperformed the UAE sample on all DT components, while the UAE sample outperformed the Russian sample on the Gf. Samples were different, predominantly on the fluency component, and were more similar in originality. Overall, results suggest the complex interplay between DT and Gf in cross-cultural settings.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0320942

LAURA LONGO et al with ANNA BELFER-COHEN – Direct evidence for processing Isatis tinctoria L., a non-nutritional plant, 32–34,000 years ago
Recovering evidence for the intentional use of plants in the Palaeolithic is challenging due to their perishable nature as, unlike chipped stone or bone artefacts, plant remains are rarely preserved. This has created a paradigm for the Palaeolithic in which plants seldom feature, resulting in a partial and skewed perspective; in fact, plants were as essential to human life then as they are today. Here, we combine morphological and spectroscopic analyses (μ-Raman, μ-FTIR) to provide robust multiscale physical and biomolecular evidence for the deliberate pounding and grinding of Isatis tinctoria L. leaves 34–32,000

years ago. The leaf epidermis fragments were found entrapped in the topography of the used surface of unmodified pebbles, in association with use-wear traces. Although their bitter taste renders them essentially inedible, the leaves have well-recognised medicinal properties and contain indigotin precursors, the chromophore responsible for the blue colour of woad, a plant-based dye that is insoluble in water. We used a stringent approach to contamination control and biomolecular analysis to provide evidence for a new perspective on human behaviour, and the applied technical and ecological knowledge that is likely to have prevailed in the Upper Palaeolithic. Whether this plant was used as a colourant, as medicine, or indeed for both remains unknown, but offers a new perspective on the fascinating possibilities of non-edible plant use.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0321262

Proceedings of the Royal Society A

PAPERS

TOBIAS REINHART & GEMMA DE LES COVES – The grammar of the Ising model: a new complexity hierarchy
How complex is an Ising model? Usually, this is measured by the computational complexity of its ground state energy problem. Yet, this complexity measure only distinguishes between planar and non-planar interaction graphs, and thus fails to capture properties such as the average node degree, the number of long range interactions or the dimensionality of the lattice. Herein, we introduce a new complexity measure for Ising models and thoroughly classify Ising models with respect to it. Specifically, given an Ising model we consider the decision problem corresponding to the function graph of its Hamiltonian, and classify this problem in the Chomsky hierarchy. We prove that the language of this decision problem is (i) regular if and only if the Ising model is finite, (ii) constructive context free if and only if the Ising model is linear and its edge language is regular, (iii) constructive context sensitive if and only if the edge language of the Ising model is context sensitive, and (iv) decidable if and only if the edge language of the Ising model is decidable. We apply this theorem to show that the one-dimensional Ising model, the Ising model on generalized ladder graphs and the Ising model on layerwise complete graphs are constructive context free, while the two-dimensional Ising model, the all-to-all Ising model, and the Ising model on perfect binary trees are constructive context sensitive. This work is a first step in the characterization of physical interactions in terms of grammars.
{I have no idea whether this is of interest to anyone. Validating models of ferromagnetic phase transitions using linguistics? Sounds weird science to me; but then, I'm just a bucolic old Cognitivist Anthropologist…}
https://royalsocietypublishing.org/doi/10.1098/rspa.2024.0579

Royal Society Open Science

PAPERS

SIMEON Q. SMEELE et al – The effect of social structure on vocal flexibility in monk parakeets
The social complexity hypothesis argues that communicative complexity arises as a result of social complexity, with this occurring through mechanisms including plasticity and selection. Most research to date has focused on ultimate drivers of repertoire size, for example finding that cooperative breeding species exhibit larger repertoires. Until this date, to our knowledge, no study has focused on individual-level drivers of vocal diversity. Here, we examine social networks and vocalizations in wild colonial-nesting monk parakeets (Myiopsitta monachus). We recorded social networks for 337 individuals, relatedness for 100 individuals and matched these with 5599 vocalizations from 229 individuals over 2 years. Overall, we found that all individuals exhibited high contact-call diversity; however, individual-level diversity increased with age in 2020 and with number of nest mates in 2021. Call similarity was not predicted by relatedness, but individuals with stronger affiliative bonds had more dissimilar calls, suggesting an active process to sound unique among close associates. Finally, females had more diverse repertoires, producing relatively fewer contact calls across years and individuals living in larger groups had more diverse repertoires in 2021. Our results demonstrate a multi-faceted social influence on call content, diversity and repertoire diversity, exhibiting how fine-scale variation in social structure can influence expressed vocal complexity.
https://royalsocietypublishing.org/doi/full/10.1098/rsos.241717

LEE T. GETTLER et al – Longitudinal evidence linking childhood energetics, maturation, skeletal muscle mass and adult human male sociosexuality
Humans exhibit variation in their strategic expression of longer-term versus shorter-term mating strategies, including sociosexuality, which is defined as their interest and engagement in sexual activity outside of committed partnerships. There is substantial interest in the factors that drive variation in these strategies between individuals. Early life energetic conditions and psychosocial adversity may play key roles in shaping the expression of shorter-term mating strategies, particularly for males, given male–male mating competition. Drawing on a multi-decade study in the Philippines, we tested for links between males' early life growth/maturation, adult skeletal muscle mass and childhood experiences of adversity with age at sexual debut (n = 965) and adult sociosexuality (n = 1594 obs.). Males who experienced more favourable childhood energetics had sex earlier and had more unrestricted sociosexuality, but these patterns were explained by males' adult skeletal muscle mass. Males who were more maturationally advanced in adolescence also had younger ages at sexual debut and more unrestricted sociosexuality. We did not find evidence supporting the hypothesis that males exposed to early life adversity (family

instability and sibling death) and favourable energetic conditions would show 'faster' life history strategies. Our findings point to the importance of developmental growth and maturation trajectories in energetically challenging ecologies to males' later-life mating strategies.
https://royalsocietypublishing.org/doi/full/10.1098/rsos.241713

REBECCA KOOMEN et al – Does promising facilitate children's delay of gratification in interdependent contexts?
For cooperation to succeed, individuals must often 'delay gratification' and forego an immediate reward for a larger delayed reward that is co-produced through the cooperative act. This experiment asked whether a promise to wait increased children's propensity to coordinate with their partner by waiting to eat their own treat. In this first cooperative marshmallow test conducted online, 5- to 6-year-old UK-based children (n = 66) interacted from their homes via video call with a confederate child who either promised not to eat his treat (promise condition) or expressed the possibility that he might eat his treat (social risk condition). Across the full dataset and a reduced dataset in which participants were not accidentally interrupted during the task (n = 48), children in the promise condition waited longer to eat their treat than children in the social risk condition. Younger children, but not older children, also successfully delayed gratification more often in the promise condition than in the social risk condition. Thus, even when communication is one-sided in an interdependent marshmallow task, explicit promises can support children's motivation to delay gratification relative to explicit uncertainty.
https://royalsocietypublishing.org/doi/10.1098/rsos.250392

Science Advances

PAPERS

JAROD M. HUTSON et al – Revised age for Schöningen hunting spears indicates intensification of Neanderthal cooperative behavior around 200,000 years ago
The Schöningen 13II-4 archaeological site in Germany holds title to the most complete Paleolithic wooden hunting spears ever discovered, yet its age has never been properly settled. Initial estimates placed the site at around 400,000 years; this age was later revised to roughly 300,000 years. Here, we report age estimates for the "Spear Horizon" based on amino acid geochronology of fossils obtained directly from the find-bearing deposits. Together with a reassessment of regional Middle Pleistocene chronostratigraphy, these data place the Schöningen spears at ~200,000 years. This revised age positions the Spear Horizon alongside other sites that collectively record a shift toward communal hunting strategies. The Schöningen archaeological record exemplifies this behavioral transformation that arose within the increasingly complex social environments of Middle Paleolithic Neanderthals.
https://www.science.org/doi/10.1126/sciadv.adv0752

DAN C. BACIU – Human touch? Acoustical analysis of ancient music reconstructs tuning and intonation, elucidating aspects of human behavior
Did you ever travel to Greece and wonder what ancient Greek or Roman music sounded like? A mathematical analysis of all compositions that have survived from antiquity now allows us to reconstruct the exact tuning and intonation. According to this analysis, ancient musicians preferred pure intonation. However, they had a keen sense of its combinatorial limitations on instruments with strings of fixed length, such as lyres, and they recognized the necessity of slight deviations from pure intonation during vocal performance to allow for more tonal complexity. This spirit is paralleled in ancient atomic philosophy, which posited that atoms sometimes swerved to allow for more combinatorial complexity and unexpected effects.
https://www.science.org/doi/10.1126/sciadv.adv3101

CÉDRIC GIRARD-BUTTOZ et al with ANGELA D. FRIEDERICI, ROMAN M. WITTIG & CATHERINE CROCKFORD – Versatile use of chimpanzee call combinations promotes meaning expansion
Language is a combinatorial communication system able to generate an infinite number of meanings. Nonhuman animals use several combinatorial mechanisms to expand meanings, but maximum one mechanism is reported per species, suggesting an evolutionary leap to human language. We tested whether chimpanzees use several meaning-expanding mechanisms. We recorded 4323 utterances in 53 wild chimpanzees and compared the events in which chimpanzees emitted two-call vocal combinations (bigrams) with those eliciting the component calls. Examining 16 bigrams, we found four combinatorial mechanisms whereby bigram meanings were or were not derived from the meaning of their parts—compositional or noncompositional combinations, respectively. Chimpanzees used each mechanism in several bigrams across a wide range of daily events. This combinatorial system allows encoding many more meanings than there are call types. Such a system in nonhuman animals has never been documented and may be transitional between rudimentary systems and open-ended systems like human language.
https://www.science.org/doi/10.1126/sciadv.adq2879

Trends in Cognitive Sciences

ARTICLES

WEI GAO – A hierarchical model of early brain functional network development

Functional brain networks emerge prenatally, grow interactively during the first years of life, and optimize both within-network topology and between-network interactions as individuals age. This review summarizes research that has characterized this process over the past two decades, and aims to link functional network growth with emerging behaviors, thereby developing a more holistic understanding of the developing brain and behavior from a functional network perspective. This synthesis suggests that the development of the brain's functional networks follows an overlapping hierarchy, progressing from primary sensory/motor to socioemotional-centered development and finally to higher-order cognitive/executive control networks. Risk-related alterations, resilience factors, treatment effects, and novel therapeutic opportunities are also discussed to encourage the consideration of future imaging-assisted methods for identifying risks and interventions.

https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(25)00080-4

PAPERS

JUDITH HOLLER – Facial clues to conversational intentions

It has long been known that we use words to perform speech acts foundational to everyday conversation, such as requesting, informing, proposing, or complaining. However, the natural environment of human language is face-to-face interaction where we use words and an abundance of visual signals to communicate. The multimodal nature of human language is increasingly recognised in the language and cognitive sciences. In line with this turn of the tide, findings demonstrate that facial signals significantly contribute to communicating intentions and that they may facilitate pragmatically appropriate responding in the fast-paced environment of conversation. In light of this, the notion of speech acts no longer seems appropriate, highlighting the need for a modality-neutral conception, such as social action.

https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(25)00079-8

COMMENTARIES

MARTIN ZETTERSTEN, RUTHE FOUSHEE & MARIEL K. GODDU – 'Helpless' infants are active, goal-directed agents: response to Cusack et al.

Why are humans born 'helpless'? In their recent article in TiCS, Cusack et al. propose an explanation for the limited behavioral repertoires of human infants compared with those of other animals. The proposal builds a compelling argument from comparative neuroimaging research that human neural development and sensory processing are relatively mature at birth, undermining the idea that infants are helpless because their brains are immature. Instead, the authors propose that infants' helplessness has learning benefits analogous to training foundation models in machine learning. They argue that the infant's 'limited repertoire of adaptive behavior' affords a period of self-supervised learning in which representations are 'not yet connected to outputs and are therefore not acted upon'. This 'pretraining' stage of sensory data crunching makes the acquisition of later abilities more efficient.

https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00022-1

ORIGINAL PAPER: RHODRI CUSACK, MARC'AURELIO RANZATO & CHRISTINE J. CHARVET – Helpless infants are learning a foundation model

https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(24)00114-1

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