

## EAORC BULLETIN 1,146 – 1 June 2025

## CONTENTS

<b>NOTICES.....</b>	<b>2</b>
FORMATTED VERSION OF THIS BULLETIN .....	2
PUBLICATION ALERTS .....	2
EDITORIAL INTERJECTIONS .....	2
OTHER PUBLICATIONS – The Lives and Legacies of the British Gay Liberation Front Badge, 1970–2024 .....	2
PHILIPPA FLETCHER & NOAH PETTS – The Lives and Legacies of the British Gay Liberation Front Badge, 1970–2024 .....	2
<b>NEWS.....</b>	<b>3</b>
SCIENCE DAILY – Asian elephants have larger brains than their African relatives.....	3
SCIENCE DAILY – Overimitation begins in infancy but is not yet linked to in-group preference .....	3
THE CONVERSATION – What the hidden rhythms of orangutan calls can tell us about language .....	3
<b>PUBLICATIONS.....</b>	<b>3</b>
Academia Biology.....	3
<b>PAPERS.....</b>	<b>3</b>
MICHELANGELO BISCONTI & GIANDONATO TARTARELLI – Morphological evolution of the hominid brain .....	3
Animal Behaviour.....	3
<b>PAPERS.....</b>	<b>3</b>
JACK L. RICHARDSON, SHANNON C. MCFARLIN & MARTHA M. ROBBINS – Biological, social and ecological correlates of social play in immature Bwindi mountain gorillas, <i>Gorilla beringei beringei</i> .....	3
Frontiers in Education .....	4
<b>PAPERS.....</b>	<b>4</b>
ANNAGUL ANNAMYRADOVA – A contrastive study of pragmatic and semantic features in typical and atypical comparative constructions across English, Chinese, Russian, and Turkmen: cognitive interpretations explored .....	4
Frontiers in Language Sciences.....	4
<b>PAPERS.....</b>	<b>4</b>
ANNE RENZEL, GUNTHER DE VOGELAER & JENS BÖLTE – Varying strategies for processing “loose” argument structure in West Germanic languages.....	4
Frontiers in Neural Circuits.....	4
<b>PAPERS.....</b>	<b>4</b>
SHO TSUJI et al – Facial affect and arousal as a complement to gaze measures in infant speech sound perception studies .....	4
Frontiers in Psychiatry.....	5
<b>PAPERS.....</b>	<b>5</b>
AMIT KUMAR – Unique models of embodied cognition and eco-social niches proposed to validate hypothesis of social attunement and mis-attunement with a focus on autism .....	5
iScience.....	5
<b>PAPERS.....</b>	<b>5</b>
TATIA BUIDZE, YUAN-WEI YAO & JAN GLÄSCHER – Expectation Violations as an Effective Alternative to Complex Mentalizing in Novel Communication .....	5
VINAY S. RAGHAVAN & LUCAS C. PARRA – Neural encoding of linguistic features during natural sentence reading .....	5
Mind & Language.....	5
<b>PAPERS.....</b>	<b>5</b>
SPENCER PAULSON – A social model of cognitive integration.....	5
Nature Archaeological and Anthropological Sciences .....	6
<b>PAPERS.....</b>	<b>6</b>
DAVID ÁLVAREZ-ALONSO et al – More than a fingerprint on a pebble: A pigment-marked object from San Lázaro rock-shelter in the context of Neanderthal symbolic behavior .....	6
Nature Communications .....	6
<b>PAPERS.....</b>	<b>6</b>
KRISTA MCGRATH et al – Late Paleolithic whale bone tools reveal human and whale ecology in the Bay of Biscay .....	6
Nature Humanities & Social Sciences Communications .....	6
<b>PAPERS.....</b>	<b>6</b>
RUOXI LIU, PING XIN & KEN CHEN – The construction of authorial voice in thesis writing: a multidimensional comparative perspective.....	6
Nature Scientific Reports.....	6

PAPERS.....	6
MARIA GABRIELLA RUFINO & JOÃO PEDRO SOUZA-ALVES – The basal area explains the abundance of stone tool sites reused by blonde capuchin monkeys .....	6
New Scientist .....	7
NEWS .....	7
We assume women are morally superior to men – and that's a bad thing .....	7
ARTICLES.....	7
ADAM ZEMAN – The four types of imagination and how they create our worlds .....	7
PLoS One.....	7
PAPERS.....	7
ASYA ACHIMOVA, MICHAEL FRANKE & MARTIN V. BUTZ – The alignment model of indirect communication .....	7
WEIRUI XIONG, JIAXIN WANG & JIAYI LI – Small means immoral? The impact of spatial size metaphor on moral judgment.....	7
PNAS .....	7
COMMENTARIES.....	7
TIBOR TAUZIN – Communicative mentalization is limited in nonhuman great apes.....	7
LUKE A. TOWNROW & CHRISTOPHER KRUPENYE – Reply to Tauzin: How to implement novelty in theory of mind tasks .....	8
Science.....	8
NEWS .....	8
Research may be increasingly incremental—but studies making lasting paradigm shifts are on the rise .....	8
PAPERS.....	8
PALESA P. MADUPE et al – Enamel proteins reveal biological sex and genetic variability in southern African Paranthropus.....	8
SUBSCRIBE to the EAORC Bulletin .....	8
UNSUBSCRIBE from the EAORC Bulletin .....	8
PRODUCED BY AND FOR THE EAORC EMAIL GROUP.....	8

---

## 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](https://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.

---

## OTHER PUBLICATIONS – The Lives and Legacies of the British Gay Liberation Front Badge, 1970–2024

*The Historical Journal*, 2025, 1-23 (2025)

### PHILIPPA FLETCHER & NOAH PETTS – The Lives and Legacies of the British Gay Liberation Front Badge, 1970–2024

The original and most commonly worn British Gay Liberation Front (GLF) badge often features in archives holding material on GLF, yet there is limited scholarship on why and with what effect this badge was worn. By combining archival research and oral histories, this article uses this badge to explore the experience and identity of GLF members both during GLF's formal existence and in its afterlife. During GLF's initial existence, between 1970 and 1973, the badge was a means of coming out to oneself and others. In turn, wearing the badge helped to construct and reinforce a new and distinct gay community. After the breakup of GLF, the badge continued to be worn and its imagery evoked to demonstrate allegiance to GLF and its ethos, whilst a tradition of gay badge-wearing emerged as a legacy of GLF. Overall, this badge was a major tool to signify identity and build community, not just during GLF's initial existence, but up to the present day. Through its combination of extensive oral histories and archival research, this article provides new insights into how material culture can be used to understand social movements and their long-term impacts.

***This is included here because it's the first time I've been data the subject of an academic paper – and it's a very good academic paper, too! First degree dissertations can also become important academic papers.***

<https://www.cambridge.org/core/journals/historical-journal/article/lives-and-legacies-of-the-british-gay-liberation-front-badge-19702024/313970B8AB620F063001F7159E6F1006>

---

## NEWS

### SCIENCE DAILY – Asian elephants have larger brains than their African relatives

African elephants are the largest land animals on earth and significantly larger than their relatives in Asia, from which they are separated by millions of years of evolution. Nevertheless, Asian elephants have a 20 percent heavier brain, as scientists were able to demonstrate. They also showed that elephant brains triple in weight after birth. These results provide potential explanations for behavioral differences between African and Asian elephants as well as for the pachyderms' long youth, during which they gain enormous experience and learn social skills.

<https://www.sciencedaily.com/releases/2025/05/250520121427.htm>

### SCIENCE DAILY – Overimitation begins in infancy but is not yet linked to in-group preference

A new study examines the emergence of overimitation in infants aged between 16 and 21 months to see if and how it is linked to social affiliation and other forms of imitation. The researchers found that young children engaged in low rates of overimitation and that it was not driven by in-group preference -- meaning they were not acting to please someone similar to themselves. This suggests that overimitation for social affiliation reasons may emerge later. But they did find that other types of imitation associated with memory and cognition were closely correlated.

<https://www.sciencedaily.com/releases/2025/05/250522162544.htm>

### THE CONVERSATION – What the hidden rhythms of orangutan calls can tell us about language

Recursion was thought to be a unique feature of human language.

<https://theconversation.com/what-the-hidden-rhythms-of-orangutan-calls-can-tell-us-about-language-new-research-257400>

---

## PUBLICATIONS

### Academia Biology

#### PAPERS

#### MICHELANGELO BISCONTI & GIANDONATO TARTARELLI – Morphological evolution of the hominid brain

A comparative analysis of the brain surfaces and endocasts of 35 hominid specimens including 24 operational taxonomic units was performed with the aim to search for morphological transformations of the brain surface that occurred over time throughout the hominid lineage. Our research was directed at size-independent morphological characters. We found 14 characters dealing with (1) relative proportions of the frontal lobe, (2) relative proportions of the parietal lobe, (3) relative proportions of the temporal lobe, (4) extension of the occipital lobe and position of the parieto-occipital sulcus, and (5) morphology and proportions of the frontal bec. We described and mapped these characters onto a reference phylogeny of Hominidae including 4 ape species and 20 operational taxonomic units belonging to bipedal hominins (species Australopithecus, Paranthropus, and Homo) to infer character states at the ancestral nodes. At the macroscopical level, we found that (a) the occipital lobe changed its inclination at the Pan-Australopithecus transition; (b) the frontal lobe increased its roundness during the transition between Australopithecus/Paranthropus and Homo; (c) the parietal lobe increased its relative length in a hominin clade including Homo erectus, H. floresiensis, H. cepranensis, H. neandertalensis and H. sapiens; and (d) the distal border of the temporal lobe increased its height and the posterolateral border of the temporal lobe acquired a ventrally concave outline in the clade including H. neandertalensis and H. sapiens. These observations are important in the broader context of the inference of the relationships of paleoneurology and behavioral outputs in extinct hominid species.

<https://www.academia.edu/2837-4010/3/2/10.20935/AcadBiol7710>

---

### Animal Behaviour

#### PAPERS

#### JACK L. RICHARDSON, SHANNON C. MCFARLIN & MARTHA M. ROBBINS – Biological, social and ecological correlates of social play in immature Bwindi mountain gorillas, *Gorilla beringei beringei*

Social play is a widespread behaviour in mammals, yet quantifying the proximate and ultimate costs and benefits of such play for immature individuals can be challenging. Here we assess how social play in Bwindi mountain gorillas varies with biological (age, sex, weaning status, mother parity), social (partner availability) and ecological factors (fruit consumption), while considering three nonmutually exclusive hypotheses for the function of play: the motor training, social relationship and energetic constraints hypotheses. We examine variation in social play in a data set representing over 6000 h of focal sampling of 33 immature Bwindi mountain gorillas (aged 0.6–8.0 years) spanning 18 years. We found that male and female mountain gorillas have different ontogenies of social play. Male gorillas played more than females, adhering to our prediction that males would be under stronger selection pressure than females to enhance development of social and motor skills. The rate of play per individual was also correlated with the number of other immature individuals present, suggesting that the development of certain skills may be linked to social opportunities for play. Furthermore, play rate was positively correlated with fruit consumption and weaning status, but not with a mother's parity, suggesting energetic constraints of play. Variation

in social play in gorillas is consistent with predictions for both motor and social development functions and suggests that social play is under energetic constraints. Our results demonstrate that sex differences in immature play reflect sex differences in competition and affiliation as adults, suggesting that the costs and benefits of social play are not equal between the sexes.

<https://www.sciencedirect.com/science/article/abs/pii/S0003347225001174>

## Frontiers in Education

### PAPERS

#### **ANNAGUL ANNAMYRADOVA – A contrastive study of pragmatic and semantic features in typical and atypical comparative constructions across English, Chinese, Russian, and Turkmen: cognitive interpretations explored**

This article presents a contrastive analysis that sheds light on the similarities and differences of comparative constructions in English, Chinese, Russian, and Turkmen, and the reasons behind them from a cognitive perspective. Specifically, based on the analysis of the massive online English, Chinese, and Russian corpora, namely the Corpus of Contemporary American English, the Russian National Corpus, the Center for Chinese Linguistics Corpus, and the self-built Turkmen corpus data, this study focuses on pragmatic and semantic features of typical and atypical comparatives, providing a comprehensive analysis of their resemblances and distinctions. The similarities are chiefly exhibited in the prominent usage of typical comparative constructions, the occurrence of comparative deletion, and atypical semantic features based on the typical ones. The differences mainly lie in the preference for typical synthetic or analytic forms and the distribution between concrete and abstract atypical forms, expression forms of degree semantics in typical comparatives, and semantic types of atypical comparatives. The cognitive interpretations for the similarities of the typical and atypical comparative constructions in the mentioned languages are mainly reflected in human cognition toward the comparatives. The cognitive interpretations for the differences are mainly manifested in the diverse levels of salience and specificity of construal modes in the context of comparison.

<https://www.frontiersin.org/journals/education/articles/10.3389/feduc.2025.1513434/full>

## Frontiers in Language Sciences

### PAPERS

#### **ANNE RENZEL, GUNTHER DE VOGELAER & JENS BÖLTE – Varying strategies for processing “loose” argument structure in West Germanic languages**

Permissive subjects are non-agentive subjects combined with action verbs in the active form (e. g., “A few years ago a penny would buy you two or three pins”; “The tent sleeps four people”), hardly found in German compared to English. For this contrast, previous research offers an explanation related to processing constraints, proposing that distinct processing strategies account for varying efficiency of processing permissive subjects. The differences in processing strategies are said to be linked to typological properties, specifically word order. It is argued that if a language has SVO order (like English), permissive subjects should be better processed due to more routinized look ahead parsing strategies. In contrast, if a language is SOV (like German), parsers should be more used to look back parsing strategies, leading to difficulties in processing permissive subjects. The present study addresses the question how look ahead vs. look back parsing strategies for permissive subjects depend on features like SVO/SOV. Additionally to English and German, we investigate Dutch, as it is also SOV but seems to allow slightly more diverse roles in the grammatical subject than German. In order to demonstrate cross-linguistic differences in the processing of various types of permissive subjects, we conducted an experiment in which native speakers of English (n = 40), Dutch (n = 45), and German (n = 45) performed a self-paced reading task. The results reveal that German speakers experience greater difficulty processing permissive subjects, as evidenced by considerably slower reading times compared to English speakers. Reading times for Dutch speakers fall between those of English and German speakers. This pattern is not limited to documented permissive subjects, but extends beyond allegedly grammatical constructions (e.g., “The house lives four families”), which are also read faster in English and Dutch than in German. Therefore, our findings suggest fundamental differences in processing strategies for non-agentive subject-verb combinations between English and Dutch (look ahead) on the one hand and German (look back) on the other relating to other typological contrasts than word order influencing the processing of permissive subjects, most likely case.

<https://www.frontiersin.org/journals/language-sciences/articles/10.3389/flang.2025.1529973/full>

## Frontiers in Neural Circuits

### PAPERS

#### **SHO TSUJI et al – Facial affect and arousal as a complement to gaze measures in infant speech sound perception studies**

This study explores infant facial expressions during visual habituation to investigate perceptual attunement to native and non-native speech sounds. Using automated facial affect analysis based on Facial Action Units, we analyzed valence, arousal, positive affect, and negative affect during the experiment. Valence and arousal decreased with habituation, while positive affect increased, with differences between native and non-native stimuli. Facial affect showed links to discrimination

outcomes, with better native discrimination linked to reduced negative affect. These findings highlight the potential of facial expression analysis as a complementary tool to gaze-based measures in early language development research.

<https://www.frontiersin.org/journals/neural-circuits/articles/10.3389/fncir.2025.1553918/full>

## Frontiers in Psychiatry

### PAPERS

#### **AMIT KUMAR – Unique models of embodied cognition and eco-social niches proposed to validate hypothesis of social attunement and mis-attunement with a focus on autism**

This paper uses basic concepts of embodied cognition based on the idea that the biology of the brain is impacted by the physics of movement and the interacting physical objects as well as biological markets or competition. These concepts are leveraged to explain the emergence of autism features and characteristics through multiple hypotheses using hidden states and eco-social niche. I begin by defining cognitive granularity, which forms the basis of my embodied cognition hypotheses. These hypotheses leverage cognitive psychology concepts to distinguish three dyads—resource proxy, executor, and evaluator—each with different sensorimotor skills for action control and action perception. Each of these dyads interacts with the environment in physically distinct and beneficial ways leading to iterative honing of the dyads' individual skills: dialects of internalization and externalization. Collectively, these interacting dyads further form the basis of social attunement and mis-attunement—dialects of individual and collective. The social attunement hypotheses apply economic concepts of supply/demand curve and Nash equilibrium or game theory to the evolving human (hominin) biological market to derive eco-social niches for modeling the underlying neurotypical dyads: executor and evaluator. I hypothesize that insufficient sensorimotor integration within a dyad impedes proper participation in the eco-social niche, leading to psychiatric issues. In my model, this mis-attunement is reflected in the characteristics of the resource proxy and extreme evaluator dyads.

<https://www.frontiersin.org/journals/psychiatry/articles/10.3389/fpsy.2025.1562061/full>

## iScience

### PAPERS

#### **TATIA BUIDZE, YUAN-WEI YAO & JAN GLÄSCHER – Expectation Violations as an Effective Alternative to Complex Mentalizing in Novel Communication**

Communicating without a shared language is often assumed to require cognitively demanding Theory of Mind reasoning. In this study, we tested whether a more parsimonious mechanism based on expectancy violations can achieve comparable performance. We tested this in the Tacit Communication Game, where we simulated Sender behaviour using four computational models: the Surprise model based on expectancy violations and three levels of Theory of Mind. Human receivers interacted with each agent; we measured goal-identification accuracy and reaction times. The results show that Receivers paired with the Surprise model matched the accuracy of the most complex second level Theory of Mind agent and produced human-like message patterns. Models yielding higher accuracy also elicited faster responses, indicating lower cognitive load. These findings question the need for recursive mentalizing in unfamiliar interactions and highlight expectancy violation as a parsimonious route to efficient communication.

[https://www.cell.com/iscience/fulltext/S2589-0042\(25\)01056-9](https://www.cell.com/iscience/fulltext/S2589-0042(25)01056-9)

#### **VINAY S. RAGHAVAN & LUCAS C. PARRA – Neural encoding of linguistic features during natural sentence reading**

Reading is a complex process that involves translating characters into meaning. Orthographic, phonologic, and semantic features of individual words seem to play a role, but it is not clear how the brain encodes these features during natural reading. To answer this, we analyzed eye tracking and electroencephalography (EEG) signals while proficient adult readers read full sentences of English text. We found that fixation-locked neural responses are modulated by the complete linguistic hierarchy. This included modulation with phoneme and phonotactic information, typically observed during auditory processing of speech. Notably, responses were modulated by the phonotactics of prior words and phonemes of the current word. Our results indicate that natural sentence reading involves, in parallel, comprehensive encoding of the fixated word, phonotactic encoding for previous words, and contextual encoding of words around fixation.

[https://www.cell.com/iscience/fulltext/S2589-0042\(25\)01059-4](https://www.cell.com/iscience/fulltext/S2589-0042(25)01059-4)

## Mind & Language

### PAPERS

#### **SPENCER PAULSON – A social model of cognitive integration**

In this article, I draw on the social intentionality hypothesis to develop an account of cognitive integration. My account sheds light on the variety of cognitive integration that has been of most interest to epistemologists by arguing that it is best understood as the intrapersonal analogue of a paradigmatically interpersonal problem. Furthermore, the intrapersonal version of the problem is solved by simulating the solution to the interpersonal version. Consequently, we better understand the intrapersonal version of the problem relevant to epistemology by considering the interpersonal version.

<https://onlinelibrary.wiley.com/doi/full/10.1111/mila.12556>



## Nature Archaeological and Anthropological Sciences

### PAPERS

#### **DAVID ÁLVAREZ-ALONSO et al – More than a fingerprint on a pebble: A pigment-marked object from San Lázaro rock-shelter in the context of Neanderthal symbolic behavior**

The pebble discovered in the San Lázaro rock-shelter (Segovia, Central Spain) is the oldest known non-utilitarian object with a fingerprint made in Europe. Its morphology and the strategic position of an ochre dot, where a dermatoglyphic image has been detected, may be evidence of symbolic behavior. This object contributes to our understanding of Neanderthals' capacity for abstraction, suggesting that it could represent one of the earliest human facial symbolizations in Prehistory. All the analyses carried out suggest an intentional effort to transport and paint the pebble for non-utilitarian purposes, suggesting that it is indeed the work of Neanderthals. The discovery is doubly exceptional because it includes the most complete dermatoglyphic image identified to date, with the exception of the partial fingerprint from Königsau, both with a comparable minimum age. This dermatoglyphic image is not visible and it was revealed after a multispectral analysis. This method adds significant value to the identification that has been carried out of the human fingerprint, as it is the first time that such an analysis has been conducted with evidence as ancient as this, opening the door to future research and discoveries.

<https://link.springer.com/article/10.1007/s12520-025-02243-1>

---

## Nature Communications

### PAPERS

#### **KRISTA MCGRATH et al – Late Paleolithic whale bone tools reveal human and whale ecology in the Bay of Biscay**

Reconstructing how prehistoric humans used the products obtained from large cetaceans is challenging, but key to understand the history of early human coastal adaptations. Here we report the multiproxy analysis (ZooMS, radiocarbon, stable isotopes) of worked objects made of whale bone, and unworked whale bone fragments, found at Upper Paleolithic sites (Magdalenian) around the Bay of Biscay. Taxonomic identification using ZooMS reveals at least five species of large whales, expanding the range of known taxa whose products were utilized by humans in this period. Radiocarbon places the use of whale products ca. 20–14 ka cal BP, with a maximum diffusion and diversity at 17.5–16 ka cal BP, making it the oldest evidence of whale-bone working to our knowledge.  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  stable isotope values reflect taxon-specific differences in foraging behavior. The diversity and chronology of these cetacean populations attest to the richness of the marine ecosystem of the Bay of Biscay in the late Paleolithic, broadening our understanding of coastal adaptations at that time.

<https://www.nature.com/articles/s41467-025-59486-8>

---

## Nature Humanities & Social Sciences Communications

### PAPERS

#### **RUOXI LIU, PING XIN & KEN CHEN – The construction of authorial voice in thesis writing: a multidimensional comparative perspective**

Constructing appropriate authorial voices through in-text citations is the basis for quality academic writing. Writers are required to distinguish a variety of other voices presented in academic writing, including their own, and to maintain effective control over them. Voice construction has been widely studied, but little attention is given to the examination of novice writers. To fill this gap, this study aims to conduct a multidimensional exploration of masters' citation usages and the construction of authorial voices in terms of citation forms, reporting markers and citation distributions. For this purpose, a corpus of 20 Chinese master theses in Applied Linguistics and a corpus of 20 published research papers have been constructed, all written in Chinese and totaling one million Chinese characters. Findings revealed that, compared with experts' use of citations, novice writers employed significantly more citations in Research Background while less in the Main Body section. In each section, novices used significantly more "author as subject" forms to list the cited sources without conveying any evaluation while using fewer non-integral forms, which led to the authorial voice being drowned out by the cited authors' voices. Both novices and experts often used research markers and expressed neutral evaluation, and the evaluation in Chinese academic writing was usually not communicated via reporting markers directly. This study provides a dynamic view of citation practices of novice writers and also sheds new insights on the study of academic writing in Chinese.

<https://www.nature.com/articles/s41599-025-04880-2>

---

## Nature Scientific Reports

### PAPERS

#### **MARIA GABRIELLA RUFINO & JOÃO PEDRO SOUZA-ALVES – The basal area explains the abundance of stone tool sites reused by blonde capuchin monkeys**

Behavioural adaptability in primates is widely known. However, the role of local landscape metrics on the use of stone tool sites remains poorly understood. Therefore, we tested whether the distance from water sources, the availability of edible nuts and stones on the ground, and the density and basal area of the trees can influence the abundance of stone tool sites reused by blonde capuchin monkeys. A total of 238 trees were measured in the area. The area exhibited a density of 793.33

individuals/ha and a base area of 20.54 m<sup>2</sup>/ha. A total of 53 edible nuts ( $4 \pm 7$ ) and 3078 stones ( $307 \pm 172$ ) were recorded as available on the ground during the study period. The total number of reused sites was 72 ( $2.05 \pm 1.74$ ). Distances to water sources were measured on 35 occasions ( $181.6 \pm 161.1$  m). GLM revealed a positive correlation between the basal area of the trees and the abundance of stone tool sites reused by blonde capuchin monkeys within the study area. In this sense, understanding of the manner in which habitat has shaped the behavioural pattern of a species is essential for the implementation of functional measures aiming at the conservation of the species.

<https://www.nature.com/articles/s41598-025-03554-y>

---

## New Scientist

### NEWS

#### **We assume women are morally superior to men – and that's a bad thing**

Women seem to be judged as being more moral than men, which could mean they have further to fall if they don't meet societal expectations.

<https://www.newscientist.com/article/2481394-we-assume-women-are-morally-superior-to-men-and-thats-a-bad-thing/>

### ARTICLES

#### **ADAM ZEMAN – The four types of Imagination and how they create our worlds**

We spend as much as a quarter to a half of our waking lives daydreaming. Perhaps counterintuitively, our imagination isn't a single thing. Rather, the latest research suggests it exists in at least four forms. Read more

<https://www.newscientist.com/article/2480349-the-four-types-of-imagination-and-how-they-create-our-worlds/>

---

## PLoS One

### PAPERS

#### **ASYA ACHIMOVA, MICHAEL FRANKE & MARTIN V. BUTZ – The alignment model of indirect communication**

Speakers often choose utterances under uncertainty about the potential opinion of the listener. In this case, utterances that do not signal the speaker's opinion directly may allow the speaker to avoid possible conflict: saying that an election outcome is interesting rather than amazing, even if the speaker is truly excited about it, may give her an option to retreat if it turns out that the listener's opinion is the opposite. By enhancing the Rational Speech Act framework with a turn-taking pragmatic system, we develop a model of indirect communication that is able to (1) rationalize the choice of indirect utterances when speakers' opinions do not align; (2) capture complex reasoning about the true interlocutor's opinion when facing indirect utterances and responses. The model has several novel features: in addition to standard informativeness goals, speaker choices factor in potential divergences of opinions between conversation partners. The listener model further considers multi-turn dialogues rather than isolated utterances: it is able to derive that an utterance like "interesting" can be interpreted positively or negatively depending on preceding discourse. The model, though complex, makes novel, non-trivial qualitative predictions, which are supported by data from three behavioral experiments reported here.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0323839>

#### **WEIRUI XIONG, JIAXIN WANG & JIAYI LI – Small means immoral? The impact of spatial size metaphor on moral judgment**

This study aims to explore the unconscious relationship between moral concepts and the spatial dimension of size, as well as to examine whether the unknown size of a room influences participants' moral cognitive judgments within the framework of embodied cognition. Study 1 and Study 2 investigate participants' unconscious biases. Specifically, participants exhibited faster response times when judging moral concepts presented in large fonts and sizes and immoral concepts presented in small fonts and sizes, compared to when moral concepts were presented in small fonts and sizes and immoral concepts in large fonts and sizes. Study 3 employed a moral dilemma task, revealing that participants placed in a large room evaluated characters in a story more morally under the embodiment effect than those in a small room. Collectively, these three studies demonstrate that the unconscious psychological relationship between moral concepts and the spatial dimension of size influences individuals' abstract moral judgments under embodied cognition.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0324991>

---

## PNAS

### COMMENTARIES

#### **TIBOR TAUZIN – Communicative mentalization is limited in nonhuman great apes**

The evolutionary origins of humans' mentalization skills have been investigated since the seminal paper by Premack and Woodruff. In his famous response to this paper, Dennett argued that empirical tasks testing mentalization must be novel for the participants. Thus, they should not rely on the previous experiences of the subjects, because in such contexts, their behavioral responses can reflect simpler, reward-based learning mechanisms.

Townrow and Krupenye claim that bonobos can mentalize in communicative interactions because they point more frequently when they inform an ignorant as opposed to a knowledgeable human about the location of a food item. However, their study

design does not meet the novelty requirement; therefore, it is open to alternative interpretations. In the familiarization phase and repeated familiarization trials, apes were taught that an experimenter—who saw the hiding of the food—would reveal and provide it for them, even if the apes did not point. As expected, apes produced few points in the familiarization trials, presumably because it was not necessary to obtain a reward. The knowledge test trials were virtually the same as the familiarization trials, so the apes might continue what they had learned during familiarization. Indeed, they pointed infrequently in the knowledge condition. In contrast, during the ignorance test trials, the hiding of the food was occluded from the experimenter by a screen, and the apes produced more pointing gestures. These results may suggest that bonobos attributed ignorance to the experimenter regarding the food's location. However, it is also possible that they pointed less in the knowledge than in the ignorance condition because they had already learned that it was not necessary to point to receive food. In contrast, in the ignorance condition, apes might point more often, because they were rewarded only in one-third of the trials if they did not point. Or perhaps, they pointed more because they had learned in previous interactions with humans that pointing increases their chances to receive a reward—unless they had been taught otherwise. These or similar reward-based learning processes, whether alone or combined, could account for the apes' behavior in the Townrow and Krupenye study.

<https://www.pnas.org/doi/full/10.1073/pnas.2503448122>

---

**LUKE A. TOWNROW & CHRISTOPHER KRUPENYE – Reply to Tauzin: How to implement novelty in theory of mind tasks**

Tauzin, following Dennett, asserts that novelty is an important feature of any compelling theory of mind experiment, ensuring agents' actions could not be anticipated "by virtue of being habitual for [the agent] or oft-repeated in just these circumstances". On considerations of novelty, Tauzin argues that our positive evidence that apes can mentalize in communicative contexts should be granted less weight than apes' failure in his own task. We believe, however, that it is specifically because we carefully implemented novelty into our design that our study revealed apes' capacities where his did not.

<https://www.pnas.org/doi/full/10.1073/pnas.2503973122>

**ORIGINAL PAPER (EAORC 1,130): LUKE A. TOWNROW & CHRISTOPHER KRUPENYE – Bonobos point more for ignorant than knowledgeable social partners**

<https://www.pnas.org/doi/full/10.1073/pnas.2412450122>

---

**Science**

**NEWS**

**Research may be increasingly incremental—but studies making lasting paradigm shifts are on the rise**

New metric identifying "persistently disruptive" papers offers a "bright spot" amid signs of declining innovation.

<https://www.science.org/content/article/research-may-be-increasingly-incremental-studies-making-lasting-paradigm-shifts-are>

**PAPERS**

**PALESA P. MADUPE et al – Enamel proteins reveal biological sex and genetic variability in southern African Paranthropus**

*Paranthropus robustus* is a morphologically well-documented Early Pleistocene hominin species from southern Africa with no genetic evidence reported so far. In this work, we describe the mass spectrometric sequencing of enamel peptides from four ~2 million-year-old dental specimens attributed morphologically to *P. robustus* from the site of Swartkrans in South Africa. The identification of AMELY-specific peptides enabled us to assign two specimens to male individuals, whereas semiquantitative mass spectrometric data analysis attributed the other two to females. A single amino acid polymorphism and the enamel-dentine junction shape variation indicated potential subgroups present within southern African *Paranthropus*. This study demonstrates how palaeoproteomics can help distinguish sexual dimorphism from other sources of variation in African Early Pleistocene hominins.

<https://www.science.org/doi/10.1126/science.adt9539>

---

**SUBSCRIBE to the EAORC Bulletin**

If you would like to subscribe to this free weekly newsletter, please contact [martin.edwardes@btopenworld.com](mailto:martin.edwardes@btopenworld.com).

---

**UNSUBSCRIBE from the EAORC Bulletin**

Send an email to [martin.edwardes@btopenworld.com](mailto:martin.edwardes@btopenworld.com) with the subject "EAORC unsubscribe".

---

**PRODUCED BY AND FOR THE EAORC EMAIL GROUP**

EAORC is a fee-free academic internet news service and has no commercial sponsorship or other commercial interests.

EAORC website information is at <http://martinedwardes.me.uk/eaorc/>



If you have received this bulletin, and are unhappy about receiving it, please contact [martin.edwardes@btopenworld.com](mailto:martin.edwardes@btopenworld.com).