

# EAORC BULLETIN 1,141 – 27 April 2025

## CONTENTS

<b>NOTICES.....</b>	<b>2</b>
FORMATTED VERSION OF THIS BULLETIN.....	2
PUBLICATION ALERTS.....	2
EDITORIAL INTERJECTIONS.....	2
OTHER PUBLICATIONS – If the body isn't sacred, nothing is: why menstrual taboos matter.....	2
CAMILLA POWER – If the body isn't sacred, nothing is: why menstrual taboos matter.....	2
<b>NEWS.....</b>	<b>2</b>
NATURE BRIEFING – Chimps get together to enjoy a fruity tippie.....	2
NATURE BRIEFING – Even physicists confused by physics words.....	2
SAPIENS – Finding Footprints Laid at the Dawn of Time.....	3
SCIENCE DAILY – Environmental variability promotes the evolution of cooperation among humans.....	3
SCIENCENEWS – Ancient horse hunts challenge ideas of 'modern' human behavior.....	3
<b>PUBLICATIONS.....</b>	<b>3</b>
Current Biology.....	3
PAPERS.....	3
ANNA C. BOWLAND et al – Wild chimpanzees share fermented fruits.....	3
eLife.....	3
PAPERS.....	3
NICHOLAS JUDD & ROGIER KIEVIT – No effect of additional education on long-term brain structure – a preregistered natural experiment in thousands of individuals.....	3
JESSICA E ROSIEN et al – Food-washing monkeys recognize the law of diminishing returns.....	3
INÉS SCHÖNMANN et al – Stimulus dependencies—rather than next-word prediction—can explain pre-onset brain encoding during natural listening.....	4
JOSEPH M BARNBY et al with THE LONDON PERSONALITY AND MOOD DISORDERS CONSORTIUM – Self-Other Generalisation Shapes Social Interaction and Is Disrupted in Borderline Personality Disorder.....	4
Frontiers in Environmental Archaeology.....	4
PAPERS.....	4
SEMINIEW ASRAT et al – A strontium (87Sr/86Sr) isoscape of Southern Ethiopia: implications for hominin land use and faunal mobility patterns..	4
Frontiers in Language Sciences.....	5
PAPERS.....	5
MONAMI NISHIO et al – Language-specific development of noun bias beyond infancy.....	5
Nature Communications Biology.....	5
PAPERS.....	5
FEDERICA BUONOCORE et al – Transcriptomic sex differences in early human fetal brain development.....	5
MARTIN SURBECK et al with BARBARA FRUTH – Drivers of female power in bonobos.....	5
Nature Molecular Psychiatry.....	5
PAPERS.....	5
HAO LI, et al – Brain circuits that regulate social behavior.....	5
Nature Neuropsychopharmacology.....	6
PAPERS.....	6
CODY A. LIS et al – A rat model of volitional mutual social interactions.....	6
Nature Scientific Reports.....	6
PAPERS.....	6
MATTHIAS URBAN & MATÍAS GUZMÁN NARANJO – Gradient in grammatical structure of indigenous languages reflects pathway of human expansion in the Americas.....	6
New Scientist.....	6
NEWS.....	6
Stone Age dog skeleton hints at complex early relationship with pets.....	6
PLoS One.....	6
PAPERS.....	6
ELENA LUCHKINA & SANDRA WAXMAN – Semantic priming supports infants' ability to learn names of unseen objects.....	6
DAVID M. MARKOWITZ – From vulnerability to duplicity: Examining the connection between childhood adversity and deception.....	7

HAGIT SABATO – Thinking of norms—or being told what they are: The effect of social information on donation decisions .....	7
Royal Society Open Science .....	7
<b>PAPERS</b> .....	7
MAËL LEROUX et al with SIMON W. TOWNSEND – Non-adjacent dependency processing (or lack thereof) in bonobos: an artificial grammar experiment .....	7
Trends in Cognitive Sciences .....	7
<b>PAPERS</b> .....	7
SHIGEHIO OISHI & ERIN C. WESTGATE – Psychological richness offers a third path to a good life .....	7
THOMAS ANDRILLON et al – Where is my mind? A neurocognitive investigation of mind blanking .....	8
<b>SUBSCRIBE to the EAORC Bulletin</b> .....	8
<b>UNSUBSCRIBE from the EAORC Bulletin</b> .....	8
<b>PRODUCED BY AND FOR THE EAORC EMAIL GROUP</b> .....	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](http://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 – If the body isn't sacred, nothing is: why menstrual taboos matter

*The Guardian, Sat 11 Feb (2017)*

#### **CAMILLA POWER – If the body isn't sacred, nothing is: why menstrual taboos matter**

Menstrual seclusion was once about giving women a safe space – hunter gatherer cultures can teach us how women’s blood is potent, not polluting.

These days we tend to assume that menstrual seclusion, menstrual taboos, menstrual huts and pollution beliefs, which are prevalent in some developing countries, are all examples of sexist practices that undermine women’s rights and freedoms. But what if seclusion once gave women a safe space, where they could find solidarity with other women? Suppose those taboos were first invented by women for reasons of their own?

<https://www.theguardian.com/society/2017/feb/11/if-the-body-isnt-sacred-nothing-is-why-menstrual-taboos-matter>

## NEWS

### NATURE BRIEFING – Chimps get together to enjoy a fruity tippie

Wild chimpanzees (*Pan troglodytes verus*) have been spotted gathering to share mildly alcoholic fruits. Researchers caught small groups of chimps of all ages and sexes sharing fermented African breadfruit on several occasions. The fruit’s alcohol content isn’t high enough to get the chimps drunk, but they were seen to choose fermented pieces over others. “Chimps don’t share food all the time, so this behaviour with fermented fruit might be important,” says ecologist Kimberley Hockings. It “could be the early evolutionary stages of feasting”.

<https://www.theguardian.com/science/2025/apr/21/wild-chimpanzees-filmed-by-scientists-bonding-over-alcoholic-fruit>

### NATURE BRIEFING – Even physicists confused by physics words

The final episode of the podcast miniseries What’s in a name explores how the terminology used in physics can serve to confuse rather than clarify. “Physicists and mathematicians, unlike a lot of other scientists, literally have to make stuff up sometimes,” quantum physicist Ian Durham tells the Nature Podcast. “Because they need a way to describe something extremely complex.” But the images that chosen terms evoke don’t always correspond to reality: electrons don’t ‘spin’ and ‘dark matter’ isn’t dark (and might not be made of matter). In those cases, the names we use can inadvertently send scientists down very specific research avenues while distracting them from others.

<https://www.nature.com/articles/d41586-025-01089-w>

### SAPIENS – Finding Footprints Laid at the Dawn of Time

In the Brazilian Amazon, a university-trained archaeologist and Wajãpi Indigenous people understand traces from the past differently—but their partnership bears fruit for both.

<https://www.sapiens.org/archaeology/indigenous-knowledge-archaeology-amazon-brazil/>

---

### SCIENCE DAILY – Environmental variability promotes the evolution of cooperation among humans

Researchers have demonstrated that intensified environmental variability (EV) can promote the evolution of cooperation through simulation based on evolutionary game theory. This result offers a new perspective for the reinterpretation of the variability selection hypothesis (VSH), which attributes improvement in human cognitive abilities to severe EV in Africa during the Middle Stone Age (MSA), as further relevant to the explanation of the evolution of sociality.

<https://www.sciencedaily.com/releases/2025/04/250418112801.htm>

---

### SCIENCENEWS – Ancient horse hunts challenge ideas of ‘modern’ human behavior

Sophisticated social and mental capacities date back at least 300,000 years.

<https://www.sciencenews.org/article/ancient-horse-hunters-behavior-modern>

---

---

## PUBLICATIONS

---

### Current Biology

#### PAPERS

#### **ANNA C. BOWLAND et al – Wild chimpanzees share fermented fruits**

The use of fermented foods and drinks by humans is so widespread as to be considered ubiquitous, with their use largely linked to dietary benefits and social bonding. The discovery of a molecular adaptation in an alcohol dehydrogenase enzyme that greatly increased ethanol metabolism in the common ancestor of African apes suggests that the incorporation of fermented fruit in the human diet has ancient origins. However, little is known about the inclusion of ethanolic foods in the diet of nonhuman great apes. Here, we document for the first time the repeated ingestion and sharing of naturally fermented African breadfruit (*Treculia africana*) with confirmed ethanol (alcohol), by wild chimpanzees (*Pan troglodytes verus*) in Cantanhez National Park, Guinea-Bissau. Widespread plant food sharing in great apes and the recent confirmation of ethanol presence in diverse fruit species suggest the sharing, and dietary incorporation, of ethanol-containing foods is extensive and may have played a long-standing role in hominoid societies.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(25\)00281-7](https://www.cell.com/current-biology/fulltext/S0960-9822(25)00281-7)

---

### eLife

#### PAPERS

#### **NICHOLAS JUDD & ROGIER KIEVIT – No effect of additional education on long-term brain structure – a preregistered natural experiment in thousands of individuals**

Education is related to a wide variety of beneficial health, behavioral, and societal outcomes. However, whether education causes long-term structural changes in the brain remains unclear. A pressing challenge is that individuals self-select into continued education, thereby introducing a wide variety of environmental and genetic confounders. Fortunately, natural experiments allow us to isolate the causal impact of increased education from individual (and societal) characteristics. Here, we exploit a policy change in the UK (the 1972 ROSLA act) that increased the amount of mandatory schooling from 15 to 16 years of age to study the impact of education on long-term structural brain outcomes in the UK Biobank. Using regression discontinuity – a causal inference method – we find no evidence of an effect from an additional year of education on any structural neuroimaging outcomes. This null result is robust across modalities, regions, and analysis strategies. An additional year of education is a substantial cognitive intervention, yet we find no evidence for sustained experience-dependent plasticity. Our results provide a challenge for prominent accounts of cognitive or ‘brain reserve’ theories which identify education as a major protective factor to lessen adverse aging effects. Our preregistered findings are one of the first implementations of regression discontinuity on neural data – opening the door for causal inference in population-based neuroimaging.

<https://elifesciences.org/reviewed-preprints/101526>

---

#### **JESSICA E ROSIEN et al – Food-washing monkeys recognize the law of diminishing returns**

Few animals have the cognitive faculties or prehensile abilities needed to eliminate tooth-damaging grit from food surfaces. Some populations of monkeys wash sand from foods when standing water is readily accessible, but this propensity varies within groups for reasons unknown. Spontaneous food-washing emerged recently in a group of long-tailed macaques (*Macaca fascicularis*) inhabiting Koram Island, Thailand, and it motivated us to explore the factors that drive individual variability. We measured the mineral and physical properties of contaminant sands and conducted a field experiment, eliciting 1,282 food-handling bouts by 42 monkeys. Our results verify two long-standing presumptions, that monkeys have a strong aversion to sand and that removing it is intentional. Reinforcing this result, we found that monkeys clean foods

---

beyond the point of diminishing returns, a suboptimal behavior that varied with social rank. Dominant monkeys abstained from washing, a choice consistent with the impulses of dominant monkeys elsewhere: to prioritize rapid food intake and greater reproductive fitness over the long-term benefits of prolonging tooth function.

<https://elifesciences.org/reviewed-preprints/98520>

### **INÉS SCHÖNMANN et al – Stimulus dependencies—rather than next-word prediction—can explain pre-onset brain encoding during natural listening**

The human brain is thought to constantly predict future words during language processing. Recently, a new approach to investigating linguistic predictions emerged which aims to capture predictive pre-activation directly by using neural network representations of words to predict brain activity prior to word onset. However, it is unclear what exactly is driving the predictability of pre-stimulus brain activity. Here we show, across two datasets, that both proposed hallmarks of neural pre-activation—i.e. (i) pre-onset brain response predictability and (ii) its modulation by word expectedness—is not only observed in brain responses, but also in representations of the stimulus material itself. We show that various structural and incidental dependencies existing in natural language can explain previously reported hallmarks of pre-diction without assuming any pre-activation in the neural data. This suggests that pre-onset prediction of brain activity might only reflect dependencies within the stimulus material rather than predictive computations, and questions the extent to which this new prediction-based method can be used to study prediction in the brain.

<https://elifesciences.org/reviewed-preprints/106543>

### **JOSEPH M BARNBY et al with THE 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 interpersonal (in)stability. 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, generating a new neutral prior 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 causal predictions about the mechanisms of social information generalisation concerning both joint and individual reward.

<https://elifesciences.org/reviewed-preprints/104008>

## **Frontiers in Environmental Archaeology**

### **PAPERS**

### **SEMINEW ASRAT et al – A strontium ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) isoscape of Southern Ethiopia: implications for hominin land use and faunal mobility patterns**

Tracing human and animal mobility behavior, land use, and exploitation strategies through strontium (Sr) isotope analysis is critical for archaeological and palaeoecological research. The development of an  $^{87}\text{Sr}/^{86}\text{Sr}$  bioavailable baseline map, often termed isoscape, is a prerequisite for interpreting the Sr isotope composition of animal and human remains from an archaeological context. Despite the wealth of archaeological records dispersed across southern Ethiopia, we know little about bioavailable  $^{87}\text{Sr}/^{86}\text{Sr}$ , which calls for a Sr isoscape to address key archaeological questions. Here, we present the first  $^{87}\text{Sr}/^{86}\text{Sr}$  isoscape of southern Ethiopia produced using a geostatistical Ordinary Kriging approach through the analysis of water, plants, and soil leachate, combined with previously published datasets. We used the Middle Stone Age (MSA) site of Gotera as a case study and conducted  $^{87}\text{Sr}/^{86}\text{Sr}$  isotope analysis of faunal tooth enamel. The results show that our novel baseline isoscape displayed heterogeneous  $^{87}\text{Sr}/^{86}\text{Sr}$  isotope ratios in both the measured and predicted values (ranging from 0.703 to 0.712), consistent with geological units, with an accurate model performance evaluated through Leave-One-Out Cross-Validation (LOOCV) technique. The faunal tooth enamel analysis reveals that the Gotera fauna are of predominantly local origin, suggesting limited mobility and reliance on the exploitation of local resources across the Gotera area. This study on bioavailable isoscape and faunal  $^{87}\text{Sr}/^{86}\text{Sr}$  isotopes highlights the potential of Sr isotope analysis to reconstruct past mobility patterns, spatial ecologies, and resource utilization strategies in Ethiopia.

<https://www.frontiersin.org/journals/environmental-archaeology/articles/10.3389/fearc.2025.1499291/full>

## Frontiers in Language Sciences

## PAPERS

**MONAMI NISHIO et al – Language-specific development of noun bias beyond infancy**

Speech and language delays can significantly impact a child's learning, literacy, and social development, making early detection—particularly through vocabulary monitoring—essential. One well-established phenomenon in early language acquisition is the “noun bias,” where infants acquire nouns more readily than verbs. However, the developmental trajectory of this bias beyond infancy remains unclear, especially across different languages. In this study, we analyzed spontaneous speech using AI-based voice analysis to examine vocabulary development in Japanese- and English-speaking children across a broad age range. We quantified changes in noun and verb use over time and found that noun growth plateaued earlier in English than in Japanese, resulting in a more pronounced and persistent noun bias in Japanese beyond infancy. These findings suggest that the early noun bias may gradually converge with adult-like noun-to-verb ratios, which differ substantially across languages (e.g., 23,800:7,921 in English vs. 71,460:7,886 in Japanese). This study demonstrates the utility of AI-based tools in advancing language development research and underscores their potential for clinical applications in identifying and assessing speech and language delays.

<https://www.frontiersin.org/journals/language-sciences/articles/10.3389/flang.2025.1556481/full>

## Nature Communications Biology

## PAPERS

**FEDERICA BUONOCORE et al – Transcriptomic sex differences in early human fetal brain development**

The influence of sex chromosomes and sex hormones on early human brain development is poorly understood. We therefore undertook transcriptomic analysis of 46,XY and 46,XX human brain cortex samples (n = 64) at four different time points between 7.5 and 17 weeks post conception (wpc), in two independent studies. This developmental period encompasses the onset of testicular testosterone secretion in the 46,XY fetus (8wpc). We show differences in sex chromosome gene expression including X-inactivation genes (XIST, TSIX) in 46,XX samples; core Y chromosome genes (n = 18) in 46,XY samples; and two Y chromosome brain specific genes, PCDH11Y and RP11-424G14.1. PCDH11Y (protocadherin11 Y-linked) regulates excitatory neurons; this gene is unique to humans and is implicated in language development. RP11-424G14.1 is a long non-coding RNA. Fewer differences in sex hormone pathway-related genes are seen. The androgen receptor (AR, NR3C4) shows cortex expression in both sexes, which decreases with age. Global cortical sex hormone effects are not seen, but more localized AR mechanisms may be important with time (e.g., hypothalamus). Taken together, our data suggest that limited but potentially important sex differences occur during early human fetal brain development.

<https://www.nature.com/articles/s42003-025-08070-3>

**MARTIN SURBECK et al with BARBARA FRUTH – Drivers of female power in bonobos**

In mammals, female dominance over males is a rare phenomenon. However, recent findings indicate that even in species with sexual dimorphism biased towards males, females sometimes occupy high status. Here we test three main hypotheses explaining intersexual power relationships, namely the self-reinforcing effects of winning and losing conflicts, the strength of mate competition, and female coalition formation. We test these for bonobos (*Pan paniscus*), one of our closest living relatives, where females have high status relative to males despite male-biased size dimorphism. We compiled demographic and behavioral data of 30 years and 6 wild living communities. Our results only support predictions of the female coalition hypothesis. We found that females target males in 85% of their coalitions and that females occupy higher ranks compared to males when they form more frequent coalitions. This result indicates that female coalition formation is a behavioral tool for females to gain power over males.

<https://www.nature.com/articles/s42003-025-07900-8>

## Nature Molecular Psychiatry

## PAPERS

**HAO LI, et al – Brain circuits that regulate social behavior**

Social interactions are essential for the survival of individuals and the reproduction of populations. Social stressors, such as social defeat and isolation, can lead to emotional disorders and cognitive impairments. Furthermore, dysfunctional social behaviors are hallmark symptoms of various neuropsychiatric disorders, including autism spectrum disorder (ASD) and post-traumatic stress disorder (PTSD). Consequently, understanding the neural circuit mechanisms underlying social behaviors has become a major focus in neuroscience. Social behaviors, which encompass a wide range of expressions and phases, are regulated by complex neural networks. In this review, we summarize recent progress in identifying the circuits involved in different types of social behaviors, including general social investigation, social preference, mating, aggression, parenting, prosocial behaviors, and dominance behaviors. We also outline the circuit mechanisms associated with social deficits in neuropsychiatric disorders, such as ASD, schizophrenia, and PTSD. Given the pivotal role of rodents in social behavior research, our review primarily focuses on neural circuits in these animals. Finally, we propose future research directions, including the development of specific behavioral paradigms, the identification of circuits involved in motor output, the



integration of activity, transcriptome, and connectome data, the multifunctional roles of neurons with multiple targets, and the interactions among multiple brain regions.

<https://www.nature.com/articles/s41380-025-03037-6>

## Nature Neuropsychopharmacology

### PAPERS

#### **CODY A. LIS et al – A rat model of volitional mutual social interactions**

Social interactions are essential for building societies and fostering cooperation among individuals. These behaviors are governed by complex norms and signaling mechanisms promoting mutual engagement. While animal models are often used to study social behaviors, they typically focus on one individual, overlooking the role and motivation of an otherwise passive social partner. Here, we developed a model where resident and partner rats voluntarily engage in mutual social interactions. In this model, the resident initiates interaction by pressing a lever to activate cues for the partner, who responds by pressing an additional lever, leading to social interaction. To test motivation for mutual social interaction, we increased the effort required for both residents and partners either concurrently or independently. We further investigated the mechanisms underlying these interactions by manipulating the norepinephrine system both systemically and centrally during mutual social interactions. Both male and female paired rats consistently demonstrate mutual motivation to engage in social interactions, regardless of their roles. The rats effectively coordinate their actions, showing low latency and high engagement frequency even as effort demands increase. The average social score analysis identified a significant proportion of highly motivated social pairs. Manipulating the norepinephrine system selectively disrupted the distribution of highly motivated social pairs, emphasizing its role in regulating social interactions. Ablating norepinephrine terminals had no impact on motivation for food rewards, further confirming that central norepinephrine manipulation specifically affects mutual social interactions. Our findings provide insight into the fundamental behavioral and neurobiological mechanisms underlying sociability and complex social structures in rodents.

<https://www.nature.com/articles/s41386-025-02113-3>

## Nature Scientific Reports

### PAPERS

#### **MATTHIAS URBAN & MATÍAS GUZMÁN NARANJO – Gradient in grammatical structure of indigenous languages reflects pathway of human expansion in the Americas**

The settlement of the Americas is one of the major episodes of prehistoric human dispersal, and involved multiple temporally and geographically uneven demographic events that continued into the Holocene. Here we suggest the possibility that these complex dynamics are reflected in the spatial structure of Indigenous linguistic diversity. On the basis of newly collated data, we find more pronounced spatial structure in linguistic diversity in North America than in South America after known genealogy and language contact are accounted for. Furthermore, we report a continent-wide gradient in aspects of sound systems and grammatical structure that mirrors early north–south dispersal paths, and that is not explained by local language contact and known phylogenetic relationships.

<https://www.nature.com/articles/s41598-025-86265-8>

## New Scientist

### NEWS

#### **Stone Age dog skeleton hints at complex early relationship with pets**

A nearly complete skeleton found in a cave in France belonged to a group known as the Palaeolithic dogs and its skeleton suggests it had a confusing relationship with humans.

<https://www.newscientist.com/article/2477380-stone-age-dog-skeleton-hints-at-complex-early-relationship-with-pets/>

## PLoS One

### PAPERS

#### **ELENA LUCHKINA & SANDRA WAXMAN – Semantic priming supports infants’ ability to learn names of unseen objects**

Human language permits us to call to mind representations of objects, events, and ideas that we cannot witness directly, enabling us to learn about the world far beyond our immediate surroundings. When and how does this capacity emerge? To address this question, we evaluated infants at 12 and 15 months, asking whether they establish a representation of a novel noun’s meaning in the absence of any visible referents, and use this representation to identify a candidate referent when it later becomes available. During training, infants (67 12-month-olds; 67 15-month-olds) were primed with words and images of objects from a particular semantic neighborhood (e.g., fruits) and were also introduced to a novel noun (e.g., “a modi”), used to name a hidden object. During test, infants heard that noun again, this time with two unfamiliar objects present—one from the primed neighborhood (e.g., a dragon fruit) and the other from an unrelated semantic neighborhood (e.g., an ottoman). If infants can represent something about the meaning of the novel noun in the absence of a visible referent and then use such a representation when a candidate referent appears, then at test, they should prefer the object from the

primed semantic neighborhood. At 15 months, infants succeeded. In contrast, 12-month-olds did not succeed on this task even after a full week of vocabulary training designed to boost the effect of priming. It is possible then that 12-month-olds' representations of novel nouns' meaning are not yet sufficiently rich (if any at all) to guide their choice of referent when one does appear. Together, these findings suggest that the capacity to establish a representation of a novel noun's meaning in the absence of any visible referent and use this representation later to identify a candidate referent object emerges between 12 and 15 months.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0321775>

#### **DAVID M. MARKOWITZ – From vulnerability to duplicity: Examining the connection between childhood adversity and deception**

Deception research has traditionally evaluated how individual differences like personality traits and demographics correlate with lying. However, the establishment of adverse childhood experiences (ACEs) as an individual difference that also links to deception remains underexplored. To this end, the present study (N = 784 students) investigated the relationship between ACEs and deception in adulthood. Results indicated that individuals with more (versus less) adverse childhood experiences, particularly those involving maltreatment and victimization, reported more daily white and big lies, independent of aversive personality traits like narcissism and Machiavellianism. Consistent with other studies on individual differences and deception, the effect sizes were small, but systematic. Together, these findings support the dispositional honesty hypothesis, indicating that foundational childhood experiences and events can shape or signal deceptive behavior. Generally, the study contributes to our underexamined knowledge base of the developmental antecedents of lying, emphasizing the role that adversity plays during childhood to influence deceptive behavior beyond commonly studied personality traits.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0321666>

#### **HAGIT SABATO – Thinking of norms—or being told what they are: The effect of social information on donation decisions**

The effect of social information (descriptive versus injunctive norms) on people's donation decisions was examined in two studies. In Study 1 (N=376) participants received information about the norm (a high versus a low anchor) for each norm type, while in Study 2 (N=392) participants were instructed to think of the social norm (what one ought to do vs. what most people do) before their donation decision. Results suggest that when actual information was given (Study 1), a high anchor reduced participants' initial willingness to donate—but among those who did decide to donate, the high anchor resulted in greater donation amounts than the low anchor. This pattern held true for both injunctive and descriptive norms. Merely thinking about the injunctive norm—without any anchor (Study 2)—increased donations, compared with thinking about the descriptive norm, or control conditions. Possible explanations, and the implications for charitable giving are discussed.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0321547>

### **Royal Society Open Science**

#### **PAPERS**

#### **MAËL LEROUX et al with SIMON W. TOWNSEND – Non-adjacent dependency processing (or lack thereof) in bonobos: an artificial grammar experiment**

A key feature of language is our capacity to process syntactic relationships between words, whether they are directly sequential ('adjacent dependencies') or separated by other words ('non-adjacent dependencies'). Recent data suggest that the basic ability to compute adjacent and non-adjacent dependencies is not uniquely human, but rooted deep within our primate lineage, perhaps as far back as our last shared ancestor with chimpanzees and common marmosets (approx. 40 Ma). However, this conclusion hinges on comparable data from other non-human primate species, in particular from bonobos, to whom we are equidistantly related to chimpanzees. To further explore this ancestral hypothesis, we tested if bonobos process both adjacent and non-adjacent dependencies in an artificial grammar learning paradigm. We habituated subjects to strings of arbitrary acoustic stimuli comprised of predictive 'rules' between elements that were consistent with adjacent and non-adjacent dependencies. We then tested whether the bonobos were able to (i) apply these rules to novel acoustic stimuli and (ii) detect rule violations. Ultimately, we found no evidence that bonobos processed adjacent or non-adjacent dependencies. This finding ostensibly complicates claims for homologous origins for this capacity, but additional data from other bonobo populations and other great ape species are necessary to draw firm evolutionary inferences.

<https://royalsocietypublishing.org/doi/10.1098/rsos.242173>

### **Trends in Cognitive Sciences**

#### **PAPERS**

#### **SHIGEHIRO OISHI & ERIN C. WESTGATE – Psychological richness offers a third path to a good life**

Psychologists have long debated the relative benefits of a happy life versus a meaningful life, assuming these to be only two major dimensions of a good life. Here, we propose an alternative: a psychologically rich life, or a life filled with diverse, interesting experiences. Psychologically rich lives not only feel different from meaningful or happy lives, but also have different correlates. Unlike happiness and meaning in life, openness to experience is the strongest personality predictor of a psychologically rich life. While happy and meaningful lives are associated with conservative worldviews, psychologically rich

lives are not. Instead, such lives are characterized by attributional complexity, holism, and unusual perspective-changing experiences. This psychologically rich life, we suggest, offers a third path to the good life.

[https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613\(25\)00081-6](https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00081-6)

**THOMAS ANDRILLON et al – Where is my mind? A neurocognitive investigation of mind blanking**

During wakefulness, our thoughts transition between different contents. However, there are moments that are seemingly devoid of reportable content, referred to as mind blanking (MB). It remains unclear what these blanks represent, highlighting the definitional and phenomenological ambiguities surrounding MB. We map out MB in terms of its reportable expressions, neurophysiology, and relationship to adjacent phenomenology, including meditative practices and sleep. We propose a mechanistic account linking MB to changes at the physiological, neural, and cognitive levels. We suggest that ongoing experiences are characterized by degrees of richness, and that contentless events represent distinct mental states with their own diversity. We encourage future research to acknowledge MB as a reportable mental category, leading to a comprehensive understanding of ongoing experience.

[https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613\(25\)00034-8](https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(25)00034-8)

---

## 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).