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## NOTICES

### PUBLICATION ALERTS

If you have had a paper or book published, or you see something which would be of interest to the group, do 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, do let me know.  
And if you have any other ideas for extending the “EAORC experience”, please contact me.

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## EAORC NEWS – Replacing the Membership Page on the Website

The membership list is rather meaningless, and I have been thinking of what could replace it. I’ve settled on a **RECOMMENDATIONS PAGE** instead. So if any of you have a few kind words to say about EAORC and are happy to see those words on the website, drop me a line and I’ll start setting up the new resource.

Many thanks in anticipation, and especial thanks to those who have already responded. The page will go live next week.  
Martin

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## ACADEMIA.EDU – The hand of Homo naledi

*Nature Communications* 6:8431, (2015)

### TRACY L. KIVELL et al with LEE R. BERGER – The hand of Homo naledi

A nearly complete right hand of an adult hominin was recovered from the Rising Star cave system, South Africa. Based on associated hominin material, the bones of this hand are attributed to Homo naledi. This hand reveals a long, robust thumb and derived wrist morphology that is shared with Neandertals and modern humans, and considered adaptive for intensified manual manipulation. However, the finger bones are longer and more curved than in most australopiths, indicating frequent use of the hand during life for strong grasping during loco-motor climbing and suspension. These markedly curved digits in combination with an otherwise human-like wrist and palm indicate a significant degree of climbing, despite the derived nature of many aspects of the hand and other regions of the postcranial skeleton in H. naledi.

[https://www.academia.edu/16701833/The\\_hand\\_of\\_Homo\\_naledi](https://www.academia.edu/16701833/The_hand_of_Homo_naledi)

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## CONFERENCE ALERT – Challenging Borders: From/Between Borders – 11, 12 and 13 Nov. 2021

We are organising a conference on boundaries in language, which will focus on the following topics:

- Linguistic and sociodiscursive practices in border spaces from a sociolinguistic, anthropological linguistic, and discourse analysis perspective.
- Borders as a metaphor of integration and differentiation, along ethnic, cultural, socio-political, generational, gender /sex, and class lines, and in the corresponding media representation.
- Theoretical and methodological treatment of categorization in sociolinguistic, anthropological linguistic and discourse analysis.

You can read more about the theme of the conference here: <https://www.challengingborders.net>

New deadline for proposals submissions: 17.07.2021

Prof. Dr. Yvette Bürki, Universität Bern

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## NEWS

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### BREAKING SCIENCE – Coronavirus Epidemic Occurred in East Asia 25,000 Years Ago, Genetic Study Shows

The genomes of multiple East Asian populations bear the signature of a viral epidemic that occurred approximately 900 generations, or 25,000 years (28 years per generation) ago, according to a new study published in the journal Current Biology.

[http://feedproxy.google.com/~r/BreakingScienceNews/~3/UkUsvZ6BvXI/ancient-coronavirus-epidemic-east-asia-09805.html?utm\\_source=feedburner&utm\\_medium=email](http://feedproxy.google.com/~r/BreakingScienceNews/~3/UkUsvZ6BvXI/ancient-coronavirus-epidemic-east-asia-09805.html?utm_source=feedburner&utm_medium=email)

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### BREAKING SCIENCE – 146,000-Year-Old Archaic Human Cranium Represents New Species: Homo longi

Homo longi is phylogenetically closer to Homo sapiens than to Neanderthals or other archaic humans, according to new research described in The Innovation. A well-preserved ancient human fossil known as the Harbin cranium was reportedly discovered when a bridge was built over the Songhua River in Harbin City, the Heilongjiang province, China.

[http://feedproxy.google.com/~r/BreakingScienceNews/~3/5eS1Y7C-dvg/homo-longi-09804.html?utm\\_source=feedburner&utm\\_medium=email](http://feedproxy.google.com/~r/BreakingScienceNews/~3/5eS1Y7C-dvg/homo-longi-09804.html?utm_source=feedburner&utm_medium=email)

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### BREAKING SCIENCE – Climate Change Drove Prehistoric Proboscideans to Extinction

A new study, published in the journal Nature Ecology & Evolution, challenges claims that early humans slaughtered mammoths, mastodons and prehistoric elephants to extinction over millennia.

[http://feedproxy.google.com/~r/BreakingScienceNews/~3/KrgNpqReKEU/climate-change-proboscideans-extinction-09822.html?utm\\_source=feedburner&utm\\_medium=email](http://feedproxy.google.com/~r/BreakingScienceNews/~3/KrgNpqReKEU/climate-change-proboscideans-extinction-09822.html?utm_source=feedburner&utm_medium=email)

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### NATURE BRIEFING – Mysterious fossils expand human family

Fossils found in Israel hint that a previously unknown group of hominins — the Neshar Ramla people — were the direct ancestors of Neanderthals. And researchers have suggested that an ancient human skull found in China in the 1930s could

belong to a new species, Homo longi (Dragon Man), which might be an even closer relative of modern humans than are Neanderthals. But both findings have sparked debate among scientists. The studies are based on analyses of the size, shape and structure of fossilized bones — methods that are subject to individual judgement and interpretation. As is often the case for fossil finds, there is no DNA evidence.

<https://nature.us17.list-manage.com/track/click?u=2c6057c528fdc6f73fa196d9d&id=f593c2a1a3&e=1db4b9a19b>

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### NATURE BRIEFING – Utrecht ditches impact factor judging

Utrecht University in the Netherlands is formally abandoning the impact factor — a standard measure of scientific success — in all hiring and promotion decisions. By early 2022, the university will judge its scholars by other standards, including their commitment to teamwork and their efforts to promote open science. “Impact factors don’t really reflect the quality of an individual researcher or academic,” says Paul Boselie, a governance researcher and the project leader for the new scheme. “We have a strong belief that something has to change, and abandoning the impact factor is one of those changes.”

<https://nature.us17.list-manage.com/track/click?u=2c6057c528fdc6f73fa196d9d&id=29e38a96ce&e=1db4b9a19b>

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### SCIENCE DAILY – Elephants solve problems with personality

This study makes connections between two sources of individual variation, personality and cognition, in threatened species.

<https://www.sciencedaily.com/releases/2021/06/210625190956.htm>

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### SCIENCE DAILY – Brain circuit for spirituality?

Using datasets from neurosurgical patients and those with brain lesions, researchers mapped lesion locations associated with spiritual and religious belief to a specific human brain circuit.

<https://www.sciencedaily.com/releases/2021/07/210701195245.htm>

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### SCIENCE DAILY – Researchers explore how children learn language

New research pinpoints how young children quickly learn language, opening new paths to leverage for machine learning.

<https://www.sciencedaily.com/releases/2021/07/210702114538.htm>

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### SCIENCE NEWS – Stunning ‘Dragon Man’ skull may be an elusive Denisovan—or a new species of human

Almost 90 years ago, Japanese soldiers occupying northern China forced a Chinese man to help build a bridge across the Songhua River in Harbin. While his supervisors weren’t looking, he found a treasure: a remarkably complete human skull buried in the riverbank. He wrapped up the heavy cranium and hid it in a well to prevent his Japanese supervisors from finding it. Today, the skull is finally coming out of hiding, and it has a new name: Dragon Man, the newest member of the human family, who lived more than 146,000 years ago.

<https://www.sciencemag.org/news/2021/06/stunning-dragon-man-skull-may-be-elusive-denisovan-or-new-species-human>

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### SCIENCE NEWS – When is ‘self-plagiarism’ OK? New guidelines offer researchers rules for recycling text

Although researchers often have valid reasons to take text they have already published and reuse it in new papers, peers often frown on such recycling as “self-plagiarism.” But when Cary Moskowitz of Duke University, who studies the teaching of writing, went looking for guidance on self-plagiarism for his students, he came up empty-handed.

<https://www.sciencemag.org/news/2021/06/when-self-plagiarism-ok-new-guidelines-offer-researchers-rules-recycling-text>

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### SOCIETY FOR SCIENCE – ‘Dragon Man’ skull may help oust Neandertals as our closest ancient relative

A Chinese fossil has been classified as a new Homo species that lived more than 146,000 years ago, but not all scientists are convinced.

<http://click.societyforscience->

[email.com/?qs=049ae97f13ce72598b90c350b845921b40013d542816b003dd57d55406c713f994dff665767986c3344210c0851c294bfb084c63c69f72e3](mailto:email.com/?qs=049ae97f13ce72598b90c350b845921b40013d542816b003dd57d55406c713f994dff665767986c3344210c0851c294bfb084c63c69f72e3)

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### SOCIETY FOR SCIENCE – Israeli fossil finds reveal a new hominid group, Neshar Ramla Homo

Discoveries reveal a new Stone Age population that had close ties to Homo sapiens at least 120,000 years ago, complicating the human family tree.

<http://click.societyforscience->

[email.com/?qs=15a01e128752f550d401913781830681beb8f4a435135d57c3375f5529b09f90f37b4fe5c38f641f96aa55666560fc388f56b6fc69f259f54972c42c10d972c1](mailto:email.com/?qs=15a01e128752f550d401913781830681beb8f4a435135d57c3375f5529b09f90f37b4fe5c38f641f96aa55666560fc388f56b6fc69f259f54972c42c10d972c1)

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### THE CONVERSATION – How Cinderella lost its original feminist edge in the hands of men

Cinderella has been taken further and further away from its origins that we forget it was originally a radical story about female desire, servitude and violence.

<https://theconversationuk.cmail19.com/t/r-l-tlhdjhtt-khhlilahl-z/>

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## PUBLICATIONS

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### Animal Behaviour

#### PAPERS

##### **LAURA S.LEWIS et al with JOSEP CALL – Bonobos and chimpanzees preferentially attend to familiar members of the dominant sex**

Social animals must carefully track consequential events and opportunities for social learning. However, the competing demands of the social world produce trade-offs in social attention, defined as directed visual attention towards conspecifics. A key question is how socioecology shapes these biases in social attention over evolution and development. Chimpanzees, Pan troglodytes, and bonobos, Pan paniscus, provide ideal models for addressing this question because they have large communities with fission–fusion grouping, divergent sex-based dominance hierarchies and occasional intergroup encounters. Using noninvasive eye-tracking measures, we recorded captive apes' attention to side-by-side images of familiar and unfamiliar conspecifics of the same sex. We tested four competing hypotheses about the influence of taxonomically widespread socioecological pressures on social attention, including intergroup conflict, dominance, dispersal and mating competition. Both species preferentially attended to familiar over unfamiliar conspecifics when viewing the sex that typically occupies the highest ranks in the group: females for bonobos, and males for chimpanzees. However, they did not demonstrate attentional biases between familiar and unfamiliar members of the subordinate sex. Findings were consistent across species despite differences in which sex tends to be more dominant. These results suggest that sex-based dominance patterns guide social attention across Pan. Our findings reveal how socioecological pressures shape social attention in apes and likely contribute to the evolution of social cognition across primates.

<https://www.sciencedirect.com/science/article/abs/pii/S000334722100138X>

#### CORRECTIONS

##### **LAURA S.LEWIS et al with JOSEP CALL – Erratum to “Bonobos and chimpanzees preferentially attend to familiar members of the dominant sex” [Animal Behaviour 177 (2021) 193–206]**

It was discovered that the original online version of the above article contained errors that were not the fault of the authors. The affiliations of two authors, Fumihiro Kano and Christopher Krupenye, were listed incorrectly on the title page of the article.

The Publisher decided to ‘resupply’ (repost and replace) the XML and online PDF of the article. The printed issue has also been correspondingly altered.

Elsevier regrets and apologizes for any inconvenience caused by posting (and printing) a new version of this article online, but hopes that the reader will understand the reasons for doing so.

<https://www.sciencedirect.com/science/article/pii/S0003347221001846>

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### Biology Letters

#### PAPERS

##### **EDWIN J. C. VAN LEEUWEN, THOMAS J. H. MORGAN & KATHARINA RIEBEL – Foraging zebra finches (*Taeniopygia guttata*) are public information users rather than conformists**

Social learning enables adaptive information acquisition provided that it is not random but selective. To understand species typical decision-making and to trace the evolutionary origins of social learning, the heuristics social learners use need to be identified. Here, we experimentally tested the nature of majority influence in the zebra finch. Subjects simultaneously observed two demonstrator groups differing in relative and absolute numbers (ratios 1 : 2/2 : 4/3 : 3/1 : 5) foraging from two novel food sources (black and white feeders). We find that demonstrator groups influenced observers' feeder choices (social learning), but that zebra finches did not copy the majority of individuals. Instead, observers were influenced by the foraging activity (pecks) of the demonstrators and in an anti-conformist fashion. These results indicate that zebra finches are not conformist, but are public information users.

<https://royalsocietypublishing.org/doi/full/10.1098/rsbl.2020.0767>

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### Frontiers in Communication

#### PAPERS

##### **NIKOLE GIOVANNONE & RACHEL M. THEODORE – Individual Differences in the Use of Acoustic-Phonetic Versus Lexical Cues for Speech Perception**

Previous research suggests that individuals with weaker receptive language show increased reliance on lexical information for speech perception relative to individuals with stronger receptive language, which may reflect a difference in how acoustic-phonetic and lexical cues are weighted for speech processing. Here we examined whether this relationship is the consequence of conflict between acoustic-phonetic and lexical cues in speech input, which has been found to mediate lexical reliance in sentential contexts. Two groups of participants completed standardized measures of language ability and a phonetic identification task to assess lexical recruitment (i.e., a Ganong task). In the high conflict group, the stimulus input distribution removed natural correlations between acoustic-phonetic and lexical cues, thus placing the two cues in high

competition with each other; in the low conflict group, these correlations were present and thus competition was reduced as in natural speech. The results showed that 1) the Ganong effect was larger in the low compared to the high conflict condition in single-word contexts, suggesting that cue conflict dynamically influences online speech perception, 2) the Ganong effect was larger for those with weaker compared to stronger receptive language, and 3) the relationship between the Ganong effect and receptive language was not mediated by the degree to which acoustic-phonetic and lexical cues conflicted in the input. These results suggest that listeners with weaker language ability down-weight acoustic-phonetic cues and rely more heavily on lexical knowledge, even when stimulus input distributions reflect characteristics of natural speech input.

<https://www.frontiersin.org/articles/10.3389/fcomm.2021.691225/full>

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## Frontiers in Neuroscience

### ARTICLES

#### **SUZANNA BURGELMAN – Breakthrough study shows defining traits are forged the moment we're born**

A new study published by the open access publisher Frontiers is the first to research the link between functional brain network connectivity and behavioral temperament in newborns and one-month-old babies. The findings, which show that functional brain connectivity networks with behavioral relevance are already present in young infants, help further bridge the research gap between the human brain and our behavior.

<https://blog.frontiersin.org/2021/06/10/breakthrough-study-shows-defining-traits-are-forged-the-moment-were-born/>

### PAPERS

#### **MARISA BIONDI et al – Cortical Activation to Social and Mechanical Stimuli in the Infant Brain**

From the early days of life infants distinguish between social and non-social physical entities and have different expectations for the way these two entities should move and interact. At the same time, we know very little about the cortical systems that support this early emerging ability. The goal of the current research was to assess the extent to which infant's processing of social and non-social physical entities is mediated by distinct information processing systems in the temporal cortex. Using a cross-sectional design, infants aged 6–9 months (Experiment 1) and 11–18 months (Experiment 2) were presented with two types of events: social interaction and mechanical interaction. In the social interaction event (patterned after Hamlin et al., 2007), an entity with googly eyes, hair tufts, and an implied goal of moving up the hill was either helped up, or pushed down, a hill through the actions of another social entity. In the mechanical interaction event, the googly eyes and hair tufts were replaced with vertical black dots and a hook and clasp, and the objects moved up or down the hill via mechanical interactions. fNIRS was used to measure activation from temporal cortex while infants viewed the test events. In both age groups, viewing social and mechanical interaction events elicited different patterns of activation in the right temporal cortex, although responses were more specialized in the older age group. Activation was not obtained in these areas when the objects moved in synchrony without interacting, suggesting that the causal nature of the interaction events may be responsible, in part, to the results obtained. This is one of the few fNIRS studies that has investigated age-related patterns of cortical activation and the first to provide insight into the functional development of networks specialized for processing of social and non-social physical entities engaged in interaction events.

<https://www.frontiersin.org/articles/10.3389/fnsys.2021.510030/full>

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## Frontiers in Psychology

### PAPERS

#### **BARLOW C. WRIGHT & BERNICE A. L. WRIGHT – Language Can Obscure as Well as Facilitate Apparent-Theory of Mind Performance: Part 2—The Case of Dyslexia in Adulthood**

Many studies imply causal links between linguistic competencies and Theory of Mind (ToM). But despite Dyslexia being a prime example of linguistic deficits, studies on whether it is related to ToM have been relatively unforthcoming. In the first of 2 studies (N = 89), independently-diagnosed dyslexic adults and non-dyslexic adults were presented with false-belief vignettes via computer, answering 4 types of question (Factual, Inference, 1st-order ToM & 2nd-order ToM). Dyslexia related to lower false-belief scores. Study 2 (N = 93) replicated this result with a non-computer-based variant on the false-belief task. We considered the possibility that the apparent-issue with ToM is caused by processing demands more associated to domains of cognition such as language, than to ToM itself. Addressing this possibility, study 2 additionally utilised the ToM30Q questionnaire, designed largely to circumvent issues related to language and memory. Principal-Components analysis extracted 4 factors, 2 capturing perceptual/representational ToM, and the other 2 capturing affective components related to ToM. The ToM30Q was validated via its associations to a published measure of empathy, replication of the female gender advantage over males, and for one factor from the ToM30Q there was a correlation with an existing published index of ToM. However, when we considered the performance of dyslexic and non-dyslexic participants using the ToM30Q, we found absolutely no difference between them. The contrasting findings from our 2 studies here, arguably offer the first experimental evidence with adults, that there is in fact no ToM deficit in dyslexia. Additionally, this finding raises the possibility that some other groups considered in some sense atypical, failed ToM tasks, not because they actually have a ToM deficit at all, but rather because they are asked to reveal their ToM competence through cognitive domains, such as language and memory.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.621457/full>

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## Interface: Journal of the Royal Society

### PAPERS

#### **RICHARD P. MANN – Optimal use of simplified social information in sequential decision-making**

Social animals can improve their decisions by attending to those made by others. The benefit of this social information must be balanced against the costs of obtaining and processing it. Previous work has focused on rational agents that respond optimally to a sequence of prior decisions. However, full decision sequences are potentially costly to perceive and process. As such, animals may rely on simpler social information, which will affect the social behaviour they exhibit. Here, I derive the optimal policy for agents responding to simplified forms of social information. I show how the behaviour of agents attending to the aggregate number of previous choices differs from those attending to just the most recent prior decision, and I propose a hybrid strategy that provides a highly accurate approximation to the optimal policy with the full sequence. Finally, I analyse the evolutionary stability of each strategy, showing that the hybrid strategy dominates when cognitive costs are low but non-zero, while attending to the most recent decision is dominant when costs are high. These results show that agents can employ highly effective social decision-making rules without requiring unrealistic cognitive capacities, and indicate likely ecological variation in the social information different animals attend to.

<https://royalsocietypublishing.org/doi/abs/10.1098/rsif.2021.0082>

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## Mind & Language

### PAPERS

#### **ANDREW PEET – Assertoric content, responsibility, and metasemantics**

I argue that assertoric content functions as a means for us to track the responsibilities undertaken by communicators, and that distinctively assertoric commitments are distinguished by being generated directly in virtue of the words the speaker uses. This raises two questions: (a) Why are speakers responsible for the content thus generated? (b) Why is it important for us to distinguish between commitments in terms of their manner of generation? I answer the first question by developing a novel responsibility based metasemantics. I answer the second by reference to the conflicting pressures governing the resources we have available for appraising speech.

<https://onlinelibrary.wiley.com/doi/full/10.1111/mila.12372>

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## Nature

### NEWS

#### **Mysterious skull fossils expand human family tree — but questions remain**

Fossilized bones found in Israel and China, including a specimen named 'Dragon Man', could belong to new types of ancient human. But the findings have sparked debate.

<https://www.nature.com/articles/d41586-021-01738-w>

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## Nature Africa

### ARTICLES

#### **ESTHER NAKKAZI – Africa's oldest modern human burial found in Kenyan cave**

Sheds light on evolution of death rituals.

<https://www.nature.com/articles/d44148-021-00049-6>

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## Nature Communications

### PAPERS

#### **MICHAEL F. BONNER & RUSSELL A. EPSTEIN – Object representations in the human brain reflect the co-occurrence statistics of vision and language**

A central regularity of visual perception is the co-occurrence of objects in the natural environment. Here we use machine learning and fMRI to test the hypothesis that object co-occurrence statistics are encoded in the human visual system and elicited by the perception of individual objects. We identified low-dimensional representations that capture the latent statistical structure of object co-occurrence in real-world scenes, and we mapped these statistical representations onto voxel-wise fMRI responses during object viewing. We found that cortical responses to single objects were predicted by the statistical ensembles in which they typically occur, and that this link between objects and their visual contexts was made most strongly in parahippocampal cortex, overlapping with the anterior portion of scene-selective parahippocampal place area. In contrast, a language-based statistical model of the co-occurrence of object names in written text predicted responses in neighboring regions of object-selective visual cortex. Together, these findings show that the sensory coding of objects in the human brain reflects the latent statistics of object context in visual and linguistic experience.

<https://www.nature.com/articles/s41467-021-24368-2>

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## Nature Ecology & Evolution

### PAPERS

#### **JUAN L. CANTALAPIEDRA et al – The rise and fall of proboscidean ecological diversity**

Proboscideans were keystone Cenozoic megaherbivores and present a highly relevant case study to frame the timing and magnitude of recent megafauna extinctions against long-term macroevolutionary patterns. By surveying the entire proboscidean fossil history using model-based approaches, we show that the dramatic Miocene explosion of proboscidean functional diversity was triggered by their biogeographical expansion beyond Africa. Ecomorphological innovations drove niche differentiation; communities that accommodated several disparate proboscidean species in sympatry became commonplace. The first burst of extinctions took place in the late Miocene, approximately 7 million years ago (Ma). Importantly, this and subsequent extinction trends showed high ecomorphological selectivity and went hand in hand with palaeoclimate dynamics. The global extirpation of proboscideans began escalating from 3 Ma with further extinctions in Eurasia and then a dramatic increase in African extinctions at 2.4 Ma. Overhunting by humans may have served as a final double jeopardy in the late Pleistocene after climate-triggered extinction trends that began long before hominins evolved suitable hunting capabilities.

<https://www.nature.com/articles/s41559-021-01498-w>

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## Nature Human Behaviour

### ARTICLES

#### **TOMER D. ULLMAN – What are you talking about?**

Figuring out the referent of a new word is a hard problem, yet children solve it early and often. A new model by Bohn et al. proposes that young children rationally combine different sources of information when learning language. This account precisely predicts and explains novel developmental findings, above and beyond competing proposals.

<https://www.nature.com/articles/s41562-021-01147-z>

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### PAPERS

#### **MANUEL BOHN et al – How young children integrate information sources to infer the meaning of words**

Before formal education begins, children typically acquire a vocabulary of thousands of words. This learning process requires the use of many different information sources in their social environment, including their current state of knowledge and the context in which they hear words used. How is this information integrated? We specify a developmental model according to which children consider information sources in an age-specific way and integrate them via Bayesian inference. This model accurately predicted 2–5-year-old children's word learning across a range of experimental conditions in which they had to integrate three information sources. Model comparison suggests that the central locus of development is an increased sensitivity to individual information sources, rather than changes in integration ability. This work presents a developmental theory of information integration during language learning and illustrates how formal models can be used to make a quantitative test of the predictive and explanatory power of competing theories.

<https://www.nature.com/articles/s41562-021-01145-1>

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## Nature Scientific Reports

### PAPERS

#### **DIETRICH STOUT et al with THIERRY CHAMINADE – The measurement, evolution, and neural representation of action grammars of human behavior**

Human behaviors from toolmaking to language are thought to rely on a uniquely evolved capacity for hierarchical action sequencing. Testing this idea will require objective, generalizable methods for measuring the structural complexity of real-world behavior. Here we present a data-driven approach for extracting action grammars from basic ethograms, exemplified with respect to the evolutionarily relevant behavior of stone toolmaking. We analyzed sequences from the experimental replication of ~ 2.5 Mya Oldowan vs. ~ 0.5 Mya Acheulean tools, finding that, while using the same “alphabet” of elementary actions, Acheulean sequences are quantifiably more complex and Oldowan grammars are a subset of Acheulean grammars. We illustrate the utility of our complexity measures by re-analyzing data from an fMRI study of stone toolmaking to identify brain responses to structural complexity. Beyond specific implications regarding the co-evolution of language and technology, this exercise illustrates the general applicability of our method to investigate naturalistic human behavior and cognition.

<https://www.nature.com/articles/s41598-021-92992-5>

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## New Scientist

### NEWS

#### **New fossil finds show we are far from understanding how humans evolved**

LAST week saw the announcement of not one but two groups of ancient humans, both new to science, and there is no reason to think the discoveries will stop any time soon.

## PLoS One

### PAPERS

#### **ERICSON HÖLZCHEN et al – Discovering the opposite shore: How did hominins cross sea straits?**

Understanding hominin expansions requires the comprehension of movement processes at different scales. In many models of hominin expansion these processes are viewed as being determined by large-scale effects, such as changes in climate and vegetation spanning continents and thousands or even millions of years. However, these large-scale patterns of expansions also need to be considered as possibly resulting from the accumulation of small-scale decisions of individual hominins. Moving on a continental scale may for instance involve crossing a water barrier. We present a generalized agent-based model for simulating the crossing of a water barrier where the agents represent the hominin individuals. The model can be configured to represent a variety of movement modes across water. Here, we compare four different behavioral scenarios in conjunction with a set of water barrier configurations, in which agents move in water by either paddling, drifting, swimming or rafting. We introduce the crossing-success-rate (CSR) to quantify the performance in water crossing. Our study suggests that more focus should be directed towards the exploration of behavioral models for hominins, as directionality may be a more powerful factor for crossing a barrier than environmental opportunities alone. A prerequisite for this is to perceive the opposite shore. Furthermore, to provide a comprehensive understanding of hominin expansions, the CSR allows for the integration of results obtained from small-scale simulations into large-scale models for hominin expansion.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0252885>

#### **I. B. LAUMER et al – Individual Goffin’s cockatoos (*Cacatua goffiniana*) show flexible targeted helping in a tool transfer task**

Flexible targeted helping is considered an advanced form of prosocial behavior in hominoids, as it requires the actor to assess different situations that a conspecific may be in, and to subsequently flexibly satisfy different needs of that partner depending on the nature of those situations. So far, apart from humans such behaviour has only been experimentally shown in chimpanzees and in Eurasian jays. Recent studies highlight the prosocial tendencies of several bird species, yet flexible targeted helping remained untested, largely due to methodological issues as such tasks are generally designed around tool-use, and very few bird species are capable of tool-use. Here, we tested Goffin’s cockatoos, which proved to be skilled tool innovators in captivity, in a tool transfer task in which an actor had access to four different objects/tools and a partner to one of two different apparatuses that each required one of these tools to retrieve a reward. As expected from this species, we recorded playful object transfers across all conditions. Yet, importantly and similar to apes, three out of eight birds transferred the correct tool more often in the test condition than in a condition that also featured an apparatus but no partner. Furthermore, one of these birds transferred that correct tool first more often before transferring any other object in the test condition than in the no-partner condition, while the other two cockatoos were marginally non-significantly more likely to do so. Additionally, there was no difference in the likelihood of the correct tool being transferred first for either of the two apparatuses, suggesting that these birds flexibly adjusted what to transfer based on their partner’s need. Future studies should focus on explanations for the intra-specific variation of this behaviour, and should test other parrots and other large-brained birds to see how this can be generalized across the class and to investigate the evolutionary history of this trait.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0253416>

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## PNAS

### PAPERS

#### **NIHAL KODURI & ANDREW W. LO – The origin of cooperation**

We construct an evolutionary model of a population consisting of two types of interacting individuals that reproduce under random environmental conditions. We show that not only does the evolutionarily dominant behavior maximize the number of offspring of each type, it also minimizes the correlation between the number of offspring of each type, driving it toward  $-1$ . We provide several examples that illustrate how correlation can be used to explain the evolution of cooperation.

<https://www.pnas.org/content/118/26/e2015572118.abstract?etoc>

#### **STEVE RATHJE, JAY J. VAN BAVEL & SANDER VAN DER LINDEN – Out-group animosity drives engagement on social media**

There has been growing concern about the role social media plays in political polarization. We investigated whether out-group animosity was particularly successful at generating engagement on two of the largest social media platforms: Facebook and Twitter. Analyzing posts from news media accounts and US congressional members ( $n = 2,730,215$ ), we found that posts about the political out-group were shared or retweeted about twice as often as posts about the in-group. Each individual term referring to the political out-group increased the odds of a social media post being shared by 67%. Out-group language consistently emerged as the strongest predictor of shares and retweets: the average effect size of out-group language was about 4.8 times as strong as that of negative affect language and about 6.7 times as strong as that of moral-emotional language—both established predictors of social media engagement. Language about the out-group was a very

strong predictor of “angry” reactions (the most popular reactions across all datasets), and language about the in-group was a strong predictor of “love” reactions, reflecting in-group favoritism and out-group derogation. This out-group effect was not moderated by political orientation or social media platform, but stronger effects were found among political leaders than among news media accounts. In sum, out-group language is the strongest predictor of social media engagement across all relevant predictors measured, suggesting that social media may be creating perverse incentives for content expressing out-group animosity.

<https://www.pnas.org/content/118/26/e2024292118.abstract?etoc>

### **OLIVIER TOUBIA, JONAH BERGER & JEHOSHUA ELIASHBERG – How quantifying the shape of stories predicts their success**

Narratives, and other forms of discourse, are powerful vehicles for informing, entertaining, and making sense of the world. But while everyday language often describes discourse as moving quickly or slowly, covering a lot of ground, or going in circles, little work has actually quantified such movements or examined whether they are beneficial. To fill this gap, we use several state-of-the-art natural language-processing and machine-learning techniques to represent texts as sequences of points in a latent, high-dimensional semantic space. We construct a simple set of measures to quantify features of this semantic path, apply them to thousands of texts from a variety of domains (i.e., movies, TV shows, and academic papers), and examine whether and how they are linked to success (e.g., the number of citations a paper receives). Our results highlight some important cross-domain differences and provide a general framework that can be applied to study many types of discourse. The findings shed light on why things become popular and how natural language processing can provide insight into cultural success.

<https://www.pnas.org/content/118/26/e2011695118.abstract?etoc>

### **COMMENTARIES**

#### **PHILIP VAN PEER – The stratigraphic context of Spy Cave and the timing of Neanderthal disappearance in Northwest Europe**

Devièse et al. argue that Neanderthals disappeared from Northwest Europe between 44,200 and 40,600 cal B.P. The stratigraphy at Spy, however, qualifies this conclusion as premature.

<https://www.pnas.org/content/118/26/e2106335118?etoc=>

#### **THIBAUT DEVIÈSE et al – Reply to Van Peer: Direct radiocarbon dating and ancient genomic analysis reveal the true age of the Neanderthals at Spy Cave**

Van Peer contests the conclusions of our article on Neanderthal disappearance in Northwest Europe, but we think his argument may reflect a misunderstanding of the stratigraphy at Spy Cave and/or incomplete reading of our article. We provide here a response to his arguments.

<https://www.pnas.org/content/118/26/e2107116118?etoc=>

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## **Proceedings of the Royal Society B**

### **PAPERS**

#### **MINJAE KIM, JUNG-KYOO CHOI & SEUNG KI BAEK – Win-Stay-Lose-Shift as a self-confirming equilibrium in the iterated Prisoner’s Dilemma**

Evolutionary game theory assumes that players replicate a highly scored player’s strategy through genetic inheritance. However, when learning occurs culturally, it is often difficult to recognize someone’s strategy just by observing the behaviour. In this work, we consider players with memory-one stochastic strategies in the iterated Prisoner’s Dilemma, with an assumption that they cannot directly access each other’s strategy but only observe the actual moves for a certain number of rounds. Based on the observation, the observer has to infer the resident strategy in a Bayesian way and chooses his or her own strategy accordingly. By examining the best-response relations, we argue that players can escape from full defection into a cooperative equilibrium supported by Win-Stay-Lose-Shift in a self-confirming manner, provided that the cost of cooperation is low and the observational learning supplies sufficiently large uncertainty.

<https://royalsocietypublishing.org/doi/full/10.1098/rspb.2021.1021>

#### **YANG LI AND SHIN-ICHI AKIMOTO – Self and non-self recognition affects clonal reproduction and competition in the pea aphid**

The spatial interaction of clonal organisms is an unsolved but crucial topic in evolutionary biology. We evaluated the interactions between aphid clones using a colour mutant (yellow) and an original (green) clone. Colonies founded by two aphids of the same clone and mixed colonies, founded by a green aphid and a yellow aphid, were set up to observe population growth for 15 days. We confirmed positive competition effects, with mixed colonies increasing in size more rapidly than clonal colonies. In mixed colonies where reproduction started simultaneously, green aphids overwhelmed yellow aphids in number, and yellow aphids restrained reproduction. However, when yellow aphids started to reproduce earlier, they outnumbered the green aphids. To test whether aphids have the ability to control reproduction according to the densities of self and non-self clones, one yellow aphid or one antennae-excised yellow aphid was transferred into a highly dense green clone colony. Intact yellow aphids produced fewer nymphs in crowded green colonies, whereas the fecundity of

antennae-excised aphids did not change. Thus, we conclude that aphid clones can discriminate between self and non-self clones, and can regulate their reproduction, depending on whether they are superior or inferior in number to their competitors.

<https://royalsocietypublishing.org/doi/full/10.1098/rspb.2021.0787>

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## Royal Society Open Science

### PAPERS

#### **WILLIAM AMOS – Correlated and geographically predictable Neanderthal and Denisovan legacies are difficult to reconcile with a simple model based on inter-breeding**

Although the presence of archaic hominin legacies in humans is taken for granted, little attention has been given as to how the data fit with how humans colonized the world. Here, I show that Neanderthal and Denisovan legacies are strongly correlated and that inferred legacy size, like heterozygosity, exhibits a strong correlation with distance from Africa. Simulations confirm that, once created, legacy size is extremely stable: it may reduce through admixture with lower legacy populations but cannot increase significantly through neutral drift. Consequently, populations carrying the highest legacies are likely to be those whose ancestors inter-bred most with archaics. However, the populations with the highest legacies are globally scattered and are unified, not by having origins within the known Neanderthal range, but instead by living in locations that lie furthest from Africa. Furthermore, the Simons Genome Diversity Project data reveal two distinct correlations between Neanderthal and Denisovan legacies, one that starts in North Africa and increases west to east across Eurasia and into some parts of Oceania, and a second, much steeper trend that starts in Africa, peaking with the San and Ju/'hoansi and which, if extrapolated, predicts the large inferred legacies of both archaics found in Oceania/Australia. Similar 'double' trends are observed for the introgression statistic  $f_4$  in a second large dataset published by Qin and Stoneking (Qin & Stoneking 2015 Mol. Biol. Evol. 32, 2665–2674 (doi:10.1093/molbev/msv141)). These trends appear at odds with simple models of how introgression occurred though more complicated patterns of introgression could potentially generate better fits. Moreover, substituting archaic genomes with those of great apes yields similar but biologically impossible signals of introgression, suggesting that the signals these metrics capture arise within humans and are largely independent of the test group. Interestingly, the data do appear to fit a speculative model in which the loss of diversity that occurred when humans moved further from Africa created a gradient in heterozygosity that in turn progressively reduced mutation rate such that populations furthest from Africa have diverged less from our common ancestor and hence from the archaics. In this light, the two distinct trends could be interpreted in terms of two 'out of Africa' events, an early one ending in Oceania and Australia and a later one that colonized Eurasia and the Americas.

<https://royalsocietypublishing.org/doi/full/10.1098/rsos.201229>

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## Science

### NEWS

#### **'Dragon Man' may be an elusive Denisovan**

Almost 90 years after a Chinese bridge builder discovered a remarkably complete human skull and hid it in a well, Chinese scientists are now introducing it as "Dragon Man," the newest member of the human family, who lived more than 146,000 years ago. In three papers in the year-old journal *The Innovation*, paleontologist Qiang Ji of Hebei GEO University and his team describe the skull and argue it represents a new species that is a sister group to *Homo sapiens*, even closer kin to us than were the Neanderthals. Other researchers question that idea. But they suspect the large skull, which the team calls *H. longi* (long means dragon in Mandarin), has an equally exciting identity: They think it may be the long-sought skull of a Denisovan, an elusive human relative from Asia known chiefly from DNA.

<https://science.sciencemag.org/content/373/6550/11>

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## Science Advances

### PAPERS

#### **YASEMIN B. GULTEKIN et al – High plasticity in marmoset monkey vocal development from infancy to adulthood**

The vocal behavior of human infants undergoes marked changes across their first year while becoming increasingly speech-like. Conversely, vocal development in nonhuman primates has been assumed to be largely predetermined and completed within the first postnatal months. Contradicting this assumption, we found a dichotomy between the development of call features and vocal sequences in marmoset monkeys, suggestive of a role for experience. While changes in call features were related to physical maturation, sequences of and transitions between calls remained flexible until adulthood. As in humans, marmoset vocal behavior developed in stages correlated with motor and social development stages. These findings are evidence for a prolonged phase of plasticity during marmoset vocal development, a crucial primate evolutionary preadaptation for the emergence of vocal learning and speech.

[https://advances.sciencemag.org/content/7/27/eabf2938?utm\\_campaign=toc\\_advances\\_2021-07-02](https://advances.sciencemag.org/content/7/27/eabf2938?utm_campaign=toc_advances_2021-07-02)

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