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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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### PUBLICATION ALERT – The Language of Humor

*Cambridge University Press: Cambridge, UK (2018)*

#### **ALLEEN NILSEN & DON NILSEN – The Language of Humor**

Much of today’s communication is carried out through various kinds of humor, and we therefore need to be able to understand its many aspects. Here, two of the world’s leading pioneers in humor studies, Alleen and Don Nilsen, explore how

humor can be explained across the numerous sub-disciplines of linguistics. Drawing on examples from language play and jokes in a range of real-life contexts, such as art, business, marketing, comedy, creative writing, science, journalism and politics, the authors use their own theory of 'Features, functions and subjects of Humor' to analyze humor across all disciplines. Each highly accessible chapter uses a rich array of examples to stimulate discussion and interaction even in large classes. Supplemental PowerPoints to accompany each of the 25 chapters are available online, taking many of the insights from the chapters for further interactional discussions with students.

<https://www.cambridge.org/core/books/language-of-humor/B37E80D6A21DB3A2E344A4061D996D9C>

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## ACADEMIA.EDU – Was Man More Aquatic in the Past?

*Bentham e-Books: Sharjah, UAE (2011)*

### **MARIO VANEECHOUTTE, ALGIS KULIUKAS & MARC VERHAEGEN (eds) – Was Man More Aquatic in the Past? Fifty Years after Alister Hardy: Waterside Hypotheses of Human Evolution**

In 2008, Don Johansen noted in his book, *Lucy's legacy*, that recent palaeo-environmental research “has sounded the death knell for the so-called savannah hypothesis that reigned supreme when I was a student.” As he explained: “These latest findings indicate that our primeval predecessors must have been bipedal in the forest. The concept of the woodland biped has now become, in its turn, the conventional wisdom, and the once ‘supreme’ savannah hypothesis has been so discreetly dismantled that some of today's students are unaware that it ever existed.”

For roughly half a century, it had been treated as proven by a solid consensus of the scientists specializing in the study of human origins. But towards the end of the 20th century doubts about the savannah scenario were accumulating, and were confirmed when new tools of research enabled scientists to analyse and identify fossilized pollen in the sites where hominid remains had been found. It meant that at least one of the salient hallmarks of mankind – bipedalism – must have evolved while our ancestors apparently occupied the same environment as the other apes.

Replacing the savannah scenario with a woodland one has been treated as a necessary but minor readjustment in the official story of human evolution. But this re-appraisal involves one major drawback. The strength of the savannah hypothesis lay in the fact that it offered possible explanations of unique human features such as bipedalism. The woodland hypothesis made this more difficult. We have a clear extant example of a ground-dwelling African ape: Adult gorillas walk on all fours in the forest, presumably because it has proved to be the most effective mode of locomotion in those conditions. Why then would a similar environment among the trees cause just one branch of the anthropoid apes to evolve along such different lines? The old question, “Why a naked biped?” - now seems further than ever from a solution in terms of the traditional scenario. A possible answer had been proposed in 1960, when Professor Alister Hardy enquired whether Man might have been more aquatic in the past. It was not surprising that scientists initially ignored his article. Their view of the matter was that the suggestion he made was unnecessary and unheard of: It had not been submitted to a professional journal in the approved manner, and it was written by a marine biologist with no anthropological qualifications.

[https://www.academia.edu/40175269/Was\\_Man\\_More\\_Aquatic\\_in\\_the\\_Past\\_Fifty\\_Years\\_after\\_Alister\\_Hardy\\_Waterside\\_Hypotheses\\_of\\_Human\\_Evolution?email\\_work\\_card=view-paper](https://www.academia.edu/40175269/Was_Man_More_Aquatic_in_the_Past_Fifty_Years_after_Alister_Hardy_Waterside_Hypotheses_of_Human_Evolution?email_work_card=view-paper)

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## RESEARCHGATE – The Origin of Articulate Language Revisited

*Human Evolution 29:1-3, 1-33 (2014)*

### **MARIO VANEECHOUTTE – The Origin of Articulate Language Revisited: The Potential of a Semi-Aquatic Past of Human Ancestors to Explain the Origin of Human Musicality and Articulate Language**

Articulate language depends on very different abilities, such as vocal dexterity, vocal mimicking and the acquirement by children of the very different and arbitrary phonology and grammatical structure of any language.

A vast array of experiments confirm that children acquire grammar by the use of prosodic clues, basically intonation and pitch, in combination with, e.g., facial expression and gesture. Prosodic clues, provided by speech, are exaggerated in infant-directed speech (motherese). Moreover, strong overlap between musical and linguistic syntactic abilities in the temporal lobes of the brain has been established. A musical origin of language at the evolutionary level (for the species *Homo sapiens*) and at the ontogenetic level (for each newborn) is parsimonious and no longer refutable.

We then should ask why song, i.e., vocal dexterity and vocal learning, was evolved in our species and why it is largely absent from other ‘terrestrial’ animals, including other primates, but present in disjoint groups such as cetaceans, seals, bats and three orders of birds? I argue that this enigma, together with a long list of other specifically human characteristics, is best understood by assuming that our recent ancestors (from 3 million years ago onwards) adopted a shallow water diving lifestyle. The swimming and diving adaptations of the upper airway (and vocal) tract led to increased vocal dexterity and song, and to increased fine tuning of motoric and mimicking abilities. These are shared by creatures that can freely move in three dimensions (swimming and flying animals) and that can respond instantaneously to the behavioural changes of other animals. Increased bodily mimicking, together with increased vocal dexterity, both a consequence of a semi-aquatic lifestyle, led to integrated song and dance, which predisposed towards producing and mimicking speech and gesture, and to the ability to use prosodic clues to learn the grammar of whichever language.

[https://www.researchgate.net/publication/293029842\\_The\\_origin\\_of\\_articulate\\_language\\_revisited\\_The\\_potential\\_of\\_a\\_semi-Aquatic\\_past\\_of\\_human\\_ancestors\\_to\\_explain\\_the\\_origin\\_of\\_human\\_musicality\\_and\\_articulate\\_language](https://www.researchgate.net/publication/293029842_The_origin_of_articulate_language_revisited_The_potential_of_a_semi-Aquatic_past_of_human_ancestors_to_explain_the_origin_of_human_musicality_and_articulate_language)

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## LECTURE ALERT – Nominal labelling, word meaning, and the Conceptual-Intentional Interface

Spring and Summer 2021 Humor Webinars (sponsored by the International Society for Humor Studies (ISHS):

<http://www.humorstudies.org/>

April 23 2021: Comedy is Tragedy Plus Time? (Presenters & Panelists: Patrice Oppliger [oppliger@bu.edu](mailto:oppliger@bu.edu), Eric Shouse and Katie Mears, and Darren Valenta)

May 7, 2021: How Humorists Ascribe, Disguise, and Shift Stereotypes (Presenters & Panelists: Villy Tsakona [villytsa@otenet.gr](mailto:villytsa@otenet.gr), Jan Chovanec, Aleksandar Takovski, Anna Piata, Stavros Assimakopoulos, and Argiris Archakis)

May 21, 2021: Humor and Artificial Intelligence (Presenters & Panelists: Kiki Hempelmann [c.hempelmann@tamuc.edu](mailto:c.hempelmann@tamuc.edu), Julia Taylor Rayz, Tristan Miller, and Tiansi Dong)

June 4, 2021: Humor that Breaks Rules (Presenters & Panelists: Delia Chiaro [delia.chiaro@unibo.it](mailto:delia.chiaro@unibo.it), Giseline Kuipers, Nikita Lobanov and Dick Zijp)

June 18, 2021: Humor as a Personality Characteristic (Presenters & Panelists Jennifer Hofmann [j.hofmann@psychologie.uzh.ch](mailto:j.hofmann@psychologie.uzh.ch), Tracey Platt, Willibald Ruch, Sonja Heintz, Konstantine Edelmann, René Proyer, and Kay Brauer)

In order to attend one or more of these Webinars, you must become a member of the International Society for Humor Studies. Please check out this web site: <http://www.humorstudies.org/>.

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## NEWS

### BREAKING SCIENCE – New Research Explores Origins of Structurally Modern Human Brain

Modern human brain structures emerged later than the first dispersal of the genus Homo from Africa, and were probably in place by 1.7 to 1.5 million years ago in African Homo populations, according to new research led by the University of Zurich.

[http://feedproxy.google.com/~r/BreakingScienceNews/~3/LOEPKU\\_f3EA/structurally-modern-human-brain-origins-09539.html?utm\\_source=feedburner&utm\\_medium=email](http://feedproxy.google.com/~r/BreakingScienceNews/~3/LOEPKU_f3EA/structurally-modern-human-brain-origins-09539.html?utm_source=feedburner&utm_medium=email)

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### BREAKING SCIENCE – First European Homo sapiens Mixed with Neanderthals, DNA Study Shows

Scientists have extracted and analyzed DNA from three individuals of anatomically modern humans who lived between 45,930 and 42,580 years ago in what is now Bulgaria.

[http://feedproxy.google.com/~r/BreakingScienceNews/~3/BpOnS8H39xE/first-european-homo-sapiens-mixed-with-neanderthals-09537.html?utm\\_source=feedburner&utm\\_medium=email](http://feedproxy.google.com/~r/BreakingScienceNews/~3/BpOnS8H39xE/first-european-homo-sapiens-mixed-with-neanderthals-09537.html?utm_source=feedburner&utm_medium=email)

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### NATURE BRIEFING – Oldest Homo sapiens DNA tells human story

Scientists have sequenced the oldest Homo sapiens DNA on record, which showed that many of Europe's first humans had Neanderthals in their family trees. All present-day people whose ancestry isn't solely African carry Neanderthal DNA, but there are questions about when and how the genetic mixing occurred. Three individuals found in Bacho Kiro Cave in Bulgaria, dated to between 45,900 and 42,600 years old, had "huge chunks" of Neanderthal DNA and probably had Neanderthal ancestors as recently as the past six or seven generations. A woman found in the Zlatý kůň cave in the Czech Republic is thought to be well over 45,000 years old and has Neanderthal ancestry going back considerably longer: 70–80 generations. None of the individuals are related to later Europeans, but the Bacho Kiro people shared a connection with contemporary East Asians and Native Americans. The research adds to growing evidence that modern humans mixed regularly with Neanderthals and other extinct relatives.

<https://nature.us17.list-manage.com/track/click?u=2c6057c528fdc6f73fa196d9d&id=d74493ff4b&e=1db4b9a19b>

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### SCIAM NEWS – Forecast or Remember: The Brain Must Choose One

Trying to predict a situation impedes memory formation.

<http://links.email.scientificamerican.com/els/v2/krWeCGZ4bbQmP/YUY2TFhzN04xK0RvODh1SkRoRng0T01DcUJZQmtMK3EveWRtU2pLQVJrb3dCcEVXVXpRQVhXMC84cENRWwXmMhCWThYWVNscldQWHVrM3EwUUNtM0JzT3ZGVnZtUTY1SVp2dDQwNOVtTzQ9S0/>

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### SCIENCE DAILY – Being top baboon costs males their longevity

A male baboon's social dominance requires constant physical defense and leaves its mark on his genes. Tracing the activity of 500 methylation sites on the baboon genome, a team of researchers working with the famous Amboseli baboon troop has found that the dominant males trade longevity for fecundity. The dominant males get more babies, but they have fewer years. If a male drops in social status, his estimated rate of aging drops as well.

<https://www.sciencedaily.com/releases/2021/04/210406120701.htm>

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### SCIENCE DAILY – Genomes of the earliest Europeans

Ancient genomes shed new light on the earliest Europeans and their relationships with Neanderthals.

<https://www.sciencedaily.com/releases/2021/04/210407122217.htm>

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### SCIENCE DAILY – Neanderthal ancestry identifies oldest modern human genome

Researchers analyzed the genome of an almost complete skull first discovered in Czechia in the early 1950s and now stored in the National Museum in Prague. The segments of Neanderthal DNA in its genome were longer than those of the Ust'-Ishim individual from Siberia, the previous oldest modern human sequenced, suggesting modern humans lived in the heart of Europe more than 45,000 years ago.

<https://www.sciencedaily.com/releases/2021/04/210407114205.htm>

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### SCIENCE DAILY – Modern human brain originated in Africa around 1.7 million years ago

The human brain as we know it today is relatively young. It evolved about 1.7 million years ago when the culture of stone tools in Africa became increasingly complex. A short time later, the new Homo populations spread to Southeast Asia, researchers have now shown using computed tomography analyses of fossilized skulls.

<https://www.sciencedaily.com/releases/2021/04/210408153650.htm>

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### SCIENCE DAILY – Sign-language exposure impacts infants as young as 5 months old

While it isn't surprising that infants and children love to look at people's movements and faces, recent research studies exactly where they look when they see someone using sign language. The research uses eye-tracking technology that offers a non-invasive and powerful tool to study cognition and language learning in pre-verbal infants.

<https://www.sciencedaily.com/releases/2021/04/210408152244.htm>

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### SCIENCE DAILY – The truth about doublespeak: Is it lying or just being persuasive?

Doublespeak, or the use of euphemisms to sway opinion, lets leaders avoid the reputational costs of lying while still bringing people around to their way of thinking, a new study has found.

<https://www.sciencedaily.com/releases/2021/04/210408112412.htm>

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### SCIENCE DAILY – After Hurricane Maria, rhesus macaques in Puerto Rico sought new social relationships

Natural disasters have a way of bringing people together to rebuild. Now, researchers have found that the same is true for rhesus macaques. The new study reports that after a major hurricane hit Puerto Rico, macaques living on Cayo Santiago Island became more tolerant of each other and sought new social connections.

<https://www.sciencedaily.com/releases/2021/04/210408112409.htm>

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### SCIENCE DAILY – Gorillas do not bluff when they chest beat: Honest signalling indicates body size

The gorilla chest beat is one of the most emblematic sounds in the animal kingdom. However, until recently it was unclear what information gorillas were conveying when they gave these impressive displays. A team of international researchers show that chest beats reliably indicate the body size of the chest beater. Body size indicates competitive ability in gorillas. Therefore this information is likely to be crucial for rival males as well as females in influencing mate choice.

<https://www.sciencedaily.com/releases/2021/04/210408112358.htm>

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### SCIENCE NEWS – More than 45,000 years ago, modern humans ventured into Neanderthal territory

The four-story labyrinth of galleries in Bulgaria's Bacho Kiro cave has long been a magnet for all sorts of humans. Neanderthals came first, more than 50,000 years ago, and left their characteristic Mousterian stone tools among the stalagmites. Next came modern humans in at least two waves; the first littered the cave floor with beads and stone blades stained with ochre, about 45,000 years ago. Another group settled in about 36,000 years ago with even more sophisticated artifacts.

[https://www.sciencemag.org/news/2021/04/more-45000-years-ago-modern-humans-ventured-neanderthal-territory-here-s-what-happened?utm\\_campaign=news\\_daily\\_2021-04-07&et rid=17774313&et cid=3726929](https://www.sciencemag.org/news/2021/04/more-45000-years-ago-modern-humans-ventured-neanderthal-territory-here-s-what-happened?utm_campaign=news_daily_2021-04-07&et rid=17774313&et cid=3726929)

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### SCIENCE NEWS – Want other scientists to cite you? Drop the jargon

If you want your work to be highly cited, here's one simple tip that might help: Steer clear of discipline-specific jargon in the title and abstract. That's the conclusion of a new study of roughly 20,000 published papers about cave science, a multidisciplinary field that includes researchers who study the biology, geology, paleontology, and anthropology of caves. The most highly cited papers didn't use any terms specific to cave science in the title and kept jargon to less than 2% of the text in the abstract; jargon-heavy papers were cited far less often.

[https://www.sciencemag.org/careers/2021/04/want-other-scientists-cite-you-drop-jargon?utm\\_campaign=news\\_daily\\_2021-04-07&et rid=17774313&et cid=3726929](https://www.sciencemag.org/careers/2021/04/want-other-scientists-cite-you-drop-jargon?utm_campaign=news_daily_2021-04-07&et rid=17774313&et cid=3726929)

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### SCIENCE NEWS – Our earliest ancestors weren't as brainy as we thought, fossil skulls suggest

Pinpointing when our ancient ancestors evolved humanlike brains is a frustratingly difficult puzzle. Brains almost never fossilize, so researchers must scrutinize impressions in the skull left behind by the brain's grooves, folds, and bulges. A new

analysis of such imprints from five skulls suggests our genus, Homo, developed complex language and advanced toolmaking hundreds of thousands of years later than previously thought. Other researchers disagree with that interpretation, but say the study still sheds much-needed light on brain structures in our genus' earliest days.

[https://www.sciencemag.org/news/2021/04/our-earliest-ancestors-weren-t-brainy-we-thought-fossil-skulls-suggest?utm\\_campaign=news\\_daily\\_2021-04-08&et rid=17774313&et cid=3728462](https://www.sciencemag.org/news/2021/04/our-earliest-ancestors-weren-t-brainy-we-thought-fossil-skulls-suggest?utm_campaign=news_daily_2021-04-08&et rid=17774313&et cid=3728462)

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### SOCIETY FOR SCIENCE – New depictions of ancient hominids aim to overcome artistic biases

Artists' intuition instead of science drive most facial reconstructions of extinct species. Some researchers hope to change that.

<http://click.societyforscience->

[email.com/?qs=51e8fc13b166adb74d0fdb3ea67f2a44bca6f6710c3da821abd5f0da04fa08c02791e9ea68bda509f05ec930059982c25bb10cf1e5fc443592f6a64ae65642c3](http://click.societyforscience-email.com/?qs=51e8fc13b166adb74d0fdb3ea67f2a44bca6f6710c3da821abd5f0da04fa08c02791e9ea68bda509f05ec930059982c25bb10cf1e5fc443592f6a64ae65642c3)

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### SOCIETY FOR SCIENCE – Europe's oldest known humans mated with Neandertals surprisingly often

DNA from ancient fossils suggests interbreeding regularly occurred between the two species by about 45,000 years ago, two studies find.

<http://click.societyforscience->

[email.com/?qs=606c7e4ebd88f5efb846cd6a5d10093828bea347020b28040500e13f770df45efe11bc2e7cd50a308c3e6229b4f4c5d3d650d1770e1cc972d5b58afb5861494d](http://click.societyforscience-email.com/?qs=606c7e4ebd88f5efb846cd6a5d10093828bea347020b28040500e13f770df45efe11bc2e7cd50a308c3e6229b4f4c5d3d650d1770e1cc972d5b58afb5861494d)

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### SOCIETY FOR SCIENCE – Ancient humans may have had apelike brains even after leaving Africa

Modern humanlike brains may have evolved surprisingly late, about 1.7 million years ago, a new study suggests.

<http://click.societyforscience->

[email.com/?qs=0430dae5eba8ec757c42397c7682f4598b7524381203e27d49ecc3950cfc3f3360c61df0411ed5d7a8bf12313cb40f17661b0367a4b81655](http://click.societyforscience-email.com/?qs=0430dae5eba8ec757c42397c7682f4598b7524381203e27d49ecc3950cfc3f3360c61df0411ed5d7a8bf12313cb40f17661b0367a4b81655)

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### SOCIETY FOR SCIENCE – Yawning helps lions synchronize their groups' movements

A lion yawn is contagious, and when lions start yawning together, they start moving together. Synchronization may be key for group hunters like lions.

<http://click.societyforscience->

[email.com/?qs=0430dae5eba8ec759c9532b9fe43f106fa705d2c96289154db494d56fc1527cb9ea32d0e8283f42110551fca65770ff10f6328f57406f3ca](http://click.societyforscience-email.com/?qs=0430dae5eba8ec759c9532b9fe43f106fa705d2c96289154db494d56fc1527cb9ea32d0e8283f42110551fca65770ff10f6328f57406f3ca)

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## PUBLICATIONS

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### Current Biology

#### PAPERS

#### **CAMILLE TESTARD et al – Rhesus macaques build new social connections after a natural disaster**

Climate change is increasing the frequency and intensity of weather-related disasters such as hurricanes, wildfires, floods, and droughts. Understanding resilience and vulnerability to these intense stressors and their aftermath could reveal adaptations to extreme environmental change. In 2017, Puerto Rico suffered its worst natural disaster, Hurricane Maria, which left 3,000 dead and provoked a mental health crisis. Cayo Santiago island, home to a population of rhesus macaques (*Macaca mulatta*), was devastated by the same storm. We compared social networks of two groups of macaques before and after the hurricane and found an increase in affiliative social connections, driven largely by monkeys most socially isolated before Hurricane Maria. Further analysis revealed monkeys invested in building new relationships rather than strengthening existing ones. Social adaptations to environmental instability might predispose rhesus macaques to success in rapidly changing anthropogenic environments.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(21\)00368-7?dgcid=raven\\_jbs\\_aip\\_email](https://www.cell.com/current-biology/fulltext/S0960-9822(21)00368-7?dgcid=raven_jbs_aip_email)

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### eLife

#### PAPERS

#### **AVINASH R VAIDYA et al – Neural representation of abstract task structure during generalization**

Cognitive models in psychology and neuroscience widely assume that the human brain maintains an abstract representation of tasks. This assumption is fundamental to theories explaining how we learn quickly, think creatively, and act flexibly. However, neural evidence for a verifiably generative abstract task representation has been lacking. Here, we report an experimental paradigm that requires forming such a representation to act adaptively in novel conditions without feedback. Using functional magnetic resonance imaging, we observed that abstract task structure was represented within left mid-lateral prefrontal cortex, bilateral precuneus, and inferior parietal cortex. These results provide support for the neural instantiation of the long-supposed abstract task representation in a setting where we can verify its influence. Such a

representation can afford massive expansions of behavioral flexibility without additional experience, a vital characteristic of human cognition.

<https://elifesciences.org/articles/63226>

### **JUSTINE C CLÉRY et al – Neural network of social interaction observation in marmosets**

A crucial component of social cognition is to observe and understand the social interactions of other individuals. A promising nonhuman primate model for investigating the neural basis of social interaction observation is the common marmoset (*Callithrix jacchus*), a small New World primate that shares a rich social repertoire with humans. Here, we used functional magnetic resonance imaging acquired at 9.4 T to map the brain areas activated by social interaction observation in awake marmosets. We discovered a network of subcortical and cortical areas, predominately in the anterior lateral frontal and medial frontal cortex, that was specifically activated by social interaction observation. This network resembled that recently identified in Old World macaque monkeys. Our findings suggest that this network is largely conserved between New and Old World primates and support the use of marmosets for studying the neural basis of social cognition.

<https://elifesciences.org/articles/65012>

### **JORDAN A. ANDERSON et al – High social status males experience accelerated epigenetic aging in wild baboons**

Aging, for virtually all life, is inescapable. However, within populations, biological aging rates vary. Understanding sources of variation in this process is central to understanding the biodemography of natural populations. We constructed a DNA methylation-based age predictor for an intensively studied wild baboon population in Kenya. Consistent with findings in humans, the resulting 'epigenetic clock' closely tracks chronological age, but individuals are predicted to be somewhat older or younger than their known ages. Surprisingly, these deviations are not explained by the strongest predictors of lifespan in this population, early adversity and social integration. Instead, they are best predicted by male dominance rank: high-ranking males are predicted to be older than their true ages, and epigenetic age tracks changes in rank over time. Our results argue that achieving high rank for male baboons—the best predictor of reproductive success—imposes costs consistent with a 'live fast, die young' life history strategy.

<https://elifesciences.org/articles/66128>

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## Evolutionary Anthropology

### PAPERS

#### **GIANCARLO SCARDIA et al with IAN TATTERSALL – What kind of hominin first left Africa?**

Recent discoveries of stone tools from Jordan (2.5 Ma) and China (2.1 Ma) document hominin presence in Asia at the beginning of the Pleistocene, well before the conventional Dmanisi datum at 1.8 Ma. Although no fossil hominins documenting this earliest Out of Africa phase have been found, on chronological grounds a pre-*Homo erectus* hominin must be considered the most likely maker of those artifacts. If so, this sheds new light on at least two disputed subjects in paleoanthropology, namely the remarkable variation among the five Dmanisi skulls, and the ancestry of *Homo floresiensis*.

<https://onlinelibrary.wiley.com/doi/abs/10.1002/evan.21863?campaign=woletoc>

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## Evolutionary Human Sciences

### PAPERS

#### **RICHARD W. WRANGHAM – Targeted conspiratorial killing, human self-domestication and the evolution of groupishness**

Groupishness is a set of tendencies to respond to group members with prosociality and cooperation in ways that transcend apparent self-interest. Its evolution is puzzling because it gives the impression of breaking the ordinary rules of natural selection. Boehm's solution is that moral elements of groupishness originated and evolved as a result of group members becoming efficient executioners of antisocial individuals, and he noted that self-domestication would have proceeded from the same dynamic. Self-domestication is indicated first at ~300,000 years ago and has probably gathered pace ever since, suggesting selection for self-domestication and groupishness for at least 12,000 generations. Here I propose that a specifically human style of violence, targeted conspiratorial killing, contributed importantly to both self-domestication and to promoting groupishness. Targeted conspiratorial killing is unknown in chimpanzees or any other vertebrate, and is significant because it permits coalitions to kill antisocial individuals cheaply. The hypothesis that major elements of groupishness are due to targeted conspiratorial killing helps explain why they are much more elaborated in humans than in other species.

*{To me, the tenets of TCK seem to be incoherent. Prosociality and cooperation have, in a plethora of species, created "groupishness" without a need for intraspecies murder. The list of species includes the isoptera (termites), social aculeata (ants, wasps & bees), nonhuman hominoidea (other apes), naked and Damaraland mole rats (*Heterocephalus glaber* & *Fukomys damarensis*), and... well, every social species apart from (if we accept TCK) humans. If we don't accept TCK then that one exception disappears. There is even an anomaly in the terms themselves: to create groupishness (itself requiring a conspiracy) you need TCK (itself requiring groupishness). So which came first: the conspiracy of killers or the alliance of conspiracists? I find TCK to be unpalatable, but that is not what makes it hard to swallow. Alternatives for the rise of human pseudo-eusociality are available.}*

## Nature

### NEWS

#### **Oldest DNA from a *Homo sapiens* reveals surprisingly recent Neanderthal ancestry**

Ancient human lineages interbred commonly in Europe, as well as the Middle East.

<https://www.nature.com/articles/d41586-021-00916-0>

### ARTICLES

#### **PAMELA R. WILLOUGHBY – Early humans far from the South African coast collected unusual objects**

Ostrich eggshells and crystals gathered more than 100,000 years ago shed light on the cultural evolution of early humans. Found in South Africa's interior, they reveal that technological innovations occurred beyond its coast.

<https://www.nature.com/articles/d41586-021-00795-5>

### PAPERS

#### **JAYNE WILKINS et al – Innovative *Homo sapiens* behaviours 105,000 years ago in a wetter Kalahari**

The archaeological record of Africa provides the earliest evidence for the emergence of the complex symbolic and technological behaviours that characterize *Homo sapiens*. The coastal setting of many archaeological sites of the Late Pleistocene epoch, and the abundant shellfish remains recovered from them, has led to a dominant narrative in which modern human origins in southern Africa are intrinsically tied to the coast and marine resources, and behavioural innovations in the interior lag behind. However, stratified Late Pleistocene sites with good preservation and robust chronologies are rare in the interior of southern Africa, and the coastal hypothesis therefore remains untested. Here we show that early human innovations that are similar to those dated to around 105 thousand years ago (ka) in coastal southern Africa existed at around the same time among humans who lived over 600 km inland. We report evidence for the intentional collection of non-utilitarian objects (calcite crystals) and ostrich eggshell from excavations of a stratified rockshelter deposit in the southern Kalahari Basin, which we date by optically stimulated luminescence to around 105 ka. Uranium–thorium dating of relict tufa deposits indicates sporadic periods of substantial volumes of fresh, flowing water; the oldest of these episodes is dated to between 110 and 100 ka and is coeval with the archaeological deposit. Our results suggest that behavioural innovations among humans in the interior of southern Africa did not lag behind those of populations near the coast, and that these innovations may have developed within a wet savannah environment. Models that tie the emergence of behavioural innovations to the exploitation of coastal resources by our species may therefore require revision.

<https://www.nature.com/articles/s41586-021-03419-0>

#### **MATEJA HAJDINJAK et mul with JEAN-JACQUES HUBLIN & SVANTE PÄÄBO – Initial Upper Palaeolithic humans in Europe had recent Neanderthal ancestry**

Modern humans appeared in Europe by at least 45,000 years ago, but the extent of their interactions with Neanderthals, who disappeared by about 40,000 years ago, and their relationship to the broader expansion of modern humans outside Africa are poorly understood. Here we present genome-wide data from three individuals dated to between 45,930 and 42,580 years ago from Bacho Kiro Cave, Bulgaria. They are the earliest Late Pleistocene modern humans known to have been recovered in Europe so far, and were found in association with an Initial Upper Palaeolithic artefact assemblage. Unlike two previously studied individuals of similar ages from Romania and Siberia who did not contribute detectably to later populations, these individuals are more closely related to present-day and ancient populations in East Asia and the Americas than to later west Eurasian populations. This indicates that they belonged to a modern human migration into Europe that was not previously known from the genetic record, and provides evidence that there was at least some continuity between the earliest modern humans in Europe and later people in Eurasia. Moreover, we find that all three individuals had Neanderthal ancestors a few generations back in their family history, confirming that the first European modern humans mixed with Neanderthals and suggesting that such mixing could have been common.

<https://www.nature.com/articles/s41586-021-03335-3>

#### **GLENNIS A. LOGSDON et mul – The structure, function and evolution of a complete human chromosome 8**

The complete assembly of each human chromosome is essential for understanding human biology and evolution. Here we use complementary long-read sequencing technologies to complete the linear assembly of human chromosome 8. Our assembly resolves the sequence of five previously long-standing gaps, including a 2.08-Mb centromeric  $\alpha$ -satellite array, a 644-kb copy number polymorphism in the  $\beta$ -defensin gene cluster that is important for disease risk, and an 863-kb variable number tandem repeat at chromosome 8q21.2 that can function as a neocentromere. We show that the centromeric  $\alpha$ -satellite array is generally methylated except for a 73-kb hypomethylated region of diverse higher-order  $\alpha$ -satellites enriched with CENP-A nucleosomes, consistent with the location of the kinetochore. In addition, we confirm the overall organization and methylation pattern of the centromere in a diploid human genome. Using a dual long-read sequencing approach, we complete high-quality draft assemblies of the orthologous centromere from chromosome 8 in chimpanzee, orangutan and

macaque to reconstruct its evolutionary history. Comparative and phylogenetic analyses show that the higher-order  $\alpha$ -satellite structure evolved in the great ape ancestor with a layered symmetry, in which more ancient higher-order repeats locate peripherally to monomeric  $\alpha$ -satellites. We estimate that the mutation rate of centromeric satellite DNA is accelerated by more than 2.2-fold compared to the unique portions of the genome, and this acceleration extends into the flanking sequence.

<https://www.nature.com/articles/s41586-021-03420-7>

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## Nature Ecology & Evolution

### ARTICLES

#### **CARLES LALUEZA-FOX – Neanderthal assimilation?**

Four new Late Pleistocene European modern human genomes had Neanderthal ancestors in their immediate family history, suggesting that interbreeding with the last Neanderthals was common.

<https://www.nature.com/articles/s41559-021-01421-3>

### PAPERS

#### **STUART A. WEST et al – Ten recent insights for our understanding of cooperation**

Since Hamilton published his seminal papers in 1964, our understanding of the importance of cooperation for life on Earth has evolved beyond recognition. Early research was focused on altruism in the social insects, where the problem of cooperation was easy to see. In more recent years, research into cooperation has expanded across the entire tree of life, and has been revolutionized by advances in genetic, microbiological and analytical techniques. We highlight ten insights that have arisen from these advances, which have illuminated generalizations across different taxa, making the world simpler to explain. Furthermore, progress in these areas has opened up numerous new problems to solve, suggesting exciting directions for future research.

<https://www.nature.com/articles/s41559-020-01384-x>

#### **P. KENNEDY et al with A. N. RADFORD – Diminishing returns drive altruists to help extended family**

Altruism between close relatives can be easily explained. However, paradoxes arise when organisms divert altruism towards more distantly related recipients. In some social insects, workers drift extensively between colonies and help raise less related foreign brood, seemingly reducing inclusive fitness. Since being highlighted by W. D. Hamilton, three hypotheses (bet hedging, indirect reciprocity and diminishing returns to cooperation) have been proposed for this surprising behaviour. Here, using inclusive fitness theory, we show that bet hedging and indirect reciprocity could only drive cooperative drifting under improbable conditions. However, diminishing returns to cooperation create a simple context in which sharing workers is adaptive. Using a longitudinal dataset comprising over a quarter of a million nest cell observations, we quantify cooperative payoffs in the Neotropical wasp *Polistes canadensis*, for which drifting occurs at high levels. As the worker-to-brood ratio rises in a worker's home colony, the predicted marginal benefit of a worker for expected colony productivity diminishes. Helping related colonies can allow effort to be focused on related brood that are more in need of care. Finally, we use simulations to show that cooperative drifting evolves under diminishing returns when dispersal is local, allowing altruists to focus their efforts on related recipients. Our results indicate the power of nonlinear fitness effects to shape social organization, and suggest that models of eusocial evolution should be extended to include neglected social interactions within colony networks.

<https://www.nature.com/articles/s41559-020-01382-z>

#### **KAY PRÜFER et al with JOHANNES KRAUSE – A genome sequence from a modern human skull over 45,000 years old from Zlatý kůň in Czechia**

Modern humans expanded into Eurasia more than 40,000 years ago following their dispersal out of Africa. These Eurasians carried ~2–3% Neanderthal ancestry in their genomes, originating from admixture with Neanderthals that took place sometime between 50,000 and 60,000 years ago, probably in the Middle East. In Europe, the modern human expansion preceded the disappearance of Neanderthals from the fossil record by 3,000–5,000 years. The genetic makeup of the first Europeans who colonized the continent more than 40,000 years ago remains poorly understood since few specimens have been studied. Here, we analyse a genome generated from the skull of a female individual from Zlatý kůň, Czechia. We found that she belonged to a population that appears to have contributed genetically neither to later Europeans nor to Asians. Her genome carries ~3% Neanderthal ancestry, similar to those of other Upper Palaeolithic hunter-gatherers. However, the lengths of the Neanderthal segments are longer than those observed in the currently oldest modern human genome of the ~45,000-year-old Ust'-Ishim individual from Siberia, suggesting that this individual from Zlatý kůň is one of the earliest Eurasian inhabitants following the expansion out of Africa.

<https://www.nature.com/articles/s41559-021-01443-x>

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## Nature Science & Learning

### PAPERS

#### **TAMAR KRICHELI-KATZ & TALİ REGEV – The effect of language on performance: do gendered languages fail women in maths?**

Research suggests that gendered languages are associated with gender inequality. However, as languages are embedded in cultures, evidence for causal effects are harder to provide. We contribute to this ongoing debate by exploring the relationship between gendered languages and the gender gap in mathematics achievements. We provide evidence for causality by exploiting the prominent (but not exclusive) practice in gendered languages of using masculine generics to address women. In an experiment on a large representative sample of the Hebrew-speaking adult population in Israel, we show that addressing women in the feminine, compared to addressing them in the masculine, reduces the gender gap in mathematics achievements by a third. These effects are stronger among participants who acquired the Hebrew language early in childhood rather than later in life, suggesting that it is the extent of language proficiency that generates one's sensitivity to being addressed in the masculine or in the feminine. Moreover, when women are addressed in the masculine, their efforts (in terms of time spent on the maths test) decrease and they report feeling that "science is for men" more than when addressed in the feminine. We supplement the analysis with two experiments that explore the roles of general and task-specific stereotypes in generating these effects.

<https://www.nature.com/articles/s41539-021-00087-7>

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## Nature Scientific Reports

### PAPERS

#### **ARNO RIEDL, INGRID M. T. ROHDE & MARTIN STROBEL – Free neighborhood choice boosts socially optimal outcomes in stag-hunt coordination problem**

Situations where independent agents need to align their activities to achieve individually and socially beneficial outcomes are abundant, reaching from everyday situations like fixing a time for a meeting to global problems like climate change agreements. Often such situations can be described as stag-hunt games, where coordinating on the socially efficient outcome is individually optimal but also entails a risk of losing out. Previous work has shown that in fixed interaction neighborhoods agents' behavior mostly converges to the collectively inefficient outcome. However, in the field, interaction neighborhoods often can be self-determined. Theoretical work investigating such circumstances is ambiguous in whether the efficient or inefficient outcome will prevail. We performed an experiment with human subjects exploring how free neighborhood choice affects coordination. In a fixed interaction treatment, a vast majority of subjects quickly coordinates on the inefficient outcome. In a treatment with neighborhood choice, the outcome is dramatically different: behavior quickly converges to the socially desirable outcome leading to welfare gains 2.5 times higher than in the environment without neighborhood choice. Participants playing efficiently exclude those playing inefficiently who in response change their behavior and are subsequently included again. Importantly, this mechanism is effective despite that only few exclusions actually occur.

<https://www.nature.com/articles/s41598-021-87019-y>

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## New Scientist

### NEWS

#### **Ewes prefer to mate with submissive rams when given a choice**

When female sheep get the choice, they would rather mate with a subordinate male than a dominant one.

<https://www.newscientist.com/article/2273569-ewes-prefer-to-mate-with-submissive-rams-when-given-a-choice/#ixzz6rUFIFBav>

#### **Bronze Age dogs ate little meat and had to feed on cereals instead**

Many early domestic dogs ate almost no meat. Dogs living around 3000 years ago in what is now Spain were instead fed cereals, such as millet, by their owners.

<https://www.newscientist.com/article/2273158-bronze-age-dogs-ate-little-meat-and-had-to-feed-on-cereals-instead/#ixzz6rUFoAoi2>

#### **Lions use yawns to signal to others that it's time to get moving**

Lions have contagious yawns, and they seem to use the open-mouthed behaviour to send signals to each other. The observation provides the first concrete evidence that yawning can synchronise behaviour in an animal species. "Lions share a lot of things, like highly organised hunts and caring for [cubs]," says Elisabetta Palagi at the University of Pisa in Italy. "So obviously they need to synchronise movement, and they need to communicate and anticipate the actions of their companions."

<https://www.newscientist.com/article/2273522-lions-use-yawns-to-signal-to-others-that-its-time-to-get-moving/#ixzz6rUG1gcEm>

## People living 100,000 years ago spent time collecting crystals

A cache of beautiful crystals collected 105,000 years ago in South Africa is shedding new light on the emergence of complex behaviours in our species.

<https://www.newscientist.com/article/2273020-people-living-100000-years-ago-spent-time-collecting-crystals/#ixzz6rUGhUsZH>

## ARTICLES

### MICHAEL LE PAGE interviews ANDREW WHITEN – Animal culture is so common that even fish and flies have it

Culture was once thought to be restricted to humans. But we are discovering more and more examples in animals. In a paper reviewing evidence from several earlier studies that is published in Science this week, zoologist Andrew Whiten at the University of St Andrews, UK, writes that there has been “an explosion of discoveries” showing that animal culture is far more widespread and diverse than we imagined. New Scientist quizzed him about the work.

<https://www.newscientist.com/article/2273450-animal-culture-is-so-common-that-even-fish-and-flies-have-it/#ixzz6rUGIkAWX>

### DAVID ROBSON – Human-like intelligence in animals is far more common than we thought

Stories of clever animals abound, from pigs playing video games to monkeys trading mobile phones – now tests reveal that they don't merely act on instinct but can think flexibly, like us.

<https://www.newscientist.com/article/mg25033291-700-human-like-intelligence-in-animals-is-far-more-common-than-we-thought/#ixzz6rUGuGMZO>

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## PeerJ

### PAPERS

#### PATRICK L. KOHL & BENJAMIN RUTSCHMANN – Honey bees communicate distance via non-linear waggle duration functions

Honey bees (genus *Apis*) can communicate the approximate location of a resource to their nestmates via the waggle dance. The distance to a goal is encoded by the duration of the waggle phase of the dance, but the precise shape of this distance-duration relationship is ambiguous: earlier studies (before the 1990s) proposed that it is non-linear, with the increase in waggle duration flattening with distance, while more recent studies suggested that it follows a simple linear function (i.e. a straight line). Strikingly, authors of earlier studies trained bees to much longer distances than authors of more recent studies, but unfortunately they usually measured the duration of dance circuits (waggle phase plus return phase of the dance), which is only a correlate of the bees' distance signal. We trained honey bees (*A. mellifera carnica*) to visit sugar feeders over a relatively long array of distances between 0.1 and 1.7 km from the hive and measured the duration of both the waggle phase and the return phase of their dances from video recordings. The distance-related increase in waggle duration was better described by a non-linear model with a decreasing slope than by a simple linear model. The relationship was equally well captured by a model with two linear segments separated at a “break-point” at 1 km distance. In turn, the relationship between return phase duration and distance was sufficiently well described by a simple linear model. The data suggest that honey bees process flight distance differently before and beyond a certain threshold distance. While the physiological and evolutionary causes of this behavior remain to be explored, our results can be applied to improve the estimation of honey bee foraging distances based on the decoding of waggle dances.

<https://peerj.com/articles/11187/>

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## PNAS

### PAPERS

#### AJAY NADIG et al – Morphological integration of the human brain across adolescence and adulthood

Brain structural covariance norms capture the coordination of neurodevelopmental programs between different brain regions. We develop and apply anatomical imbalance mapping (AIM), a method to measure and model individual deviations from these norms, to provide a lifespan map of morphological integration in the human cortex. In cross-sectional and longitudinal data, analysis of whole-brain average anatomical imbalance reveals a reproducible tightening of structural covariance by age 25 y, which loosens after the seventh decade of life. Anatomical imbalance change in development and in aging is greatest in the association cortex and least in the sensorimotor cortex. Finally, we show that interindividual variation in whole-brain average anatomical imbalance is positively correlated with a marker of human prenatal stress (birthweight disparity between monozygotic twins) and negatively correlated with general cognitive ability. This work provides methods and empirical insights to advance our understanding of coordinated anatomical organization of the human brain and its interindividual variation.

<https://www.pnas.org/content/118/14/e2023860118.abstract?etoc>

## **BRYNN E. SHERMAN & NICHOLAS B. TURK-BROWNE – Statistical prediction of the future impairs episodic encoding of the present**

Memory is typically thought of as enabling reminiscence about past experiences. However, memory also informs and guides processing of future experiences. These two functions of memory are often at odds: Remembering specific experiences from the past requires storing idiosyncratic properties that define particular moments in space and time, but by definition such properties will not be shared with similar situations in the future and thus may not be applicable to future situations. We discovered that, when faced with this conflict, the brain prioritizes prediction over encoding. Behavioral tests of recognition and source recall showed that items allowing for prediction of what will appear next based on learned regularities were less likely to be encoded into memory. Brain imaging revealed that the hippocampus was responsible for this interference between statistical learning and episodic memory. The more that the hippocampus predicted the category of an upcoming item, the worse the current item was encoded. This competition may serve an adaptive purpose, focusing encoding on experiences for which we do not yet have a predictive model.

<https://www.pnas.org/content/117/37/22760>

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## Science

### NEWS

#### **When modern humans met Neanderthals**

The four-story labyrinth of galleries in Bulgaria's Bacho Kiro cave has long been a magnet for all sorts of humans. Neanderthals came first, more than 50,000 years ago, and left their characteristic Mousterian stone tools among the stalagmites. Next came modern humans in at least two waves; the first littered the cave floor with beads and stone blades stained with ochre, about 45,000 years ago. Another group settled in about 36,000 years ago with even more sophisticated artifacts.

<https://science.sciencemag.org/content/372/6538/115>

### ARTICLES

#### **AMÉLIE BEAUDET – The enigmatic origins of the human brain**

Tracking the emergence of humanlike cerebral features in the hominin fossil record could provide evidence of the timing and process of brain changes and offer a glimpse into the behavior of our ancestors and relatives. Because brain tissues rarely fossilize, changes in brain size, shape, and organization are gleaned from brain endocasts (replicas of the inner surface of the braincase). After his observations of brain imprints preserved in fossil cranial specimens from Olduvai (Tanzania), paleoanthropologist Phillip V. Tobias stated that "hominid evolution attained a new level of organization...with the emergence of the genus Homo." There have since been debates on whether humanlike brain organization emerged concomitantly with the appearance of the genus Homo. On page 165 of this issue, Ponce de León et al. challenge this view by suggesting that Homo in Dmanisi (foothills of the Georgian Caucasus) 1.85 to 1.77 million years (Ma) ago showed a primitive organization of the brain.

<https://science.sciencemag.org/content/372/6538/124>

### PAPERS

#### **MARCIA S. PONCE DE LEÓN et al with DAVID LORDKIPANIDZE – The primitive brain of early Homo**

The brains of modern humans differ from those of great apes in size, shape, and cortical organization, notably in frontal lobe areas involved in complex cognitive tasks, such as social cognition, tool use, and language. When these differences arose during human evolution is a question of ongoing debate. Here, we show that the brains of early Homo from Africa and western Asia (Dmanisi) retained a primitive, great ape–like organization of the frontal lobe. By contrast, African Homo younger than 1.5 million years ago, as well as all southeast Asian Homo erectus, exhibited a more derived, humanlike brain organization. Frontal lobe reorganization, once considered a hallmark of earliest Homo in Africa, thus evolved comparatively late, and long after Homo first dispersed from Africa.

<https://science.sciencemag.org/content/372/6538/165>

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