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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.

SCIENCE NEWS – Skeletal damage hints some hunter-gatherer women fought in battles

Contrary to traditional views, women in North American hunter-gatherer societies and Mongolian herding groups likely weren't all stay-at-home types.

<http://click.societyforscience-email.com/?qs=a54c0620dc548ed48afc6f8a69d3a8d321421765e7637ef06c23b8e74ced9e81f728e0b30a8220149ccef8e5c99d0df99c51ab9537a9358>

BREAKING SCIENCE – Researchers Track Spread of Dairy Production across Neolithic Atlantic Europe

In a study published in the journal Nature Communications, archaeologists analyzed the molecular remains of food preserved in 6,000-7,000-year-old pottery from 246 pottery sherds from 24 Neolithic sites situated between Portugal and Normandy as well as the Western Baltic.

http://feedproxy.google.com/~r/BreakingScienceNews/~3/aX-xJy5jbBA/dairy-production-neolithic-atlantic-europe-08365.html?utm_source=feedburner&utm_medium=email

SCIENCE DAILY – Diverse livelihoods helped resilient Levänluhta people survive a climate disaster

A multidisciplinary research group dated the bones of dozens of Iron Age residents of the Levänluhta site in Finland, and studied the carbon and nitrogen stable isotope ratios. The results provide an overview of the dietary habits based on terrestrial, marine and freshwater ecosystems, as well as of sources of livelihoods throughout the Levänluhta era.

<https://www.sciencedaily.com/releases/2020/04/200424132543.htm>

SCIENCE DAILY – Late Pleistocene human colonization of isolated islands beyond Wallace's Line

What makes our species unique compared to other hominins? High profile genetic, fossil and material culture discoveries present scientists working in the Late Pleistocene with an ever-more complex picture of interactions between early hominin populations. One distinctive characteristic of Homo sapiens, however, appears to be its global distribution. Exploring how Homo sapiens colonized most of the world's continents in a relatively short period could reveal the exceptional capacities of humans relative to other hominins.

<https://www.sciencedaily.com/releases/2020/04/200429075840.htm>

ACADEMIA.EDU – Evolution of the Genus Homo

Annu. Rev. Earth Planet. Sci. 2009. 37:67–92

IAN TATTERSALL & JEFFREY H. SCHWARTZ – Evolution of the Genus Homo

Definition of the genus Homo is almost as fraught as the definition of Homo sapiens. We look at the evidence for “early Homo,” finding little morphological basis for extending our genus to any of the ~2.5–1.6-myrr-old fossil forms assigned to “early Homo” or Homo habilis/rudolfensis. We also point to heterogeneity among “early African Homo erectus,” and the lack

of apomorphies linking these fossils to the Asian Homo erectus group, a cohesive regional clade that shows some internal variation, including brain size increase over time. The first truly cosmopolitan Homo species is Homo heidelbergensis, known from Africa, Europe, and China following 600 kyr ago. One species sympatric with it included the >500-kyr-old Sima de los Huesos fossils from Spain, clearly distinct from Homo heidelbergensis and the oldest hominids assignable to the clade additionally containing Homo neanderthalensis. This clade also shows evidence of brain size expansion with time; but although Homo neanderthalensis had a large brain, it left no unequivocal evidence of the symbolic consciousness that makes our species unique. Homo sapiens clearly originated in Africa, where it existed as a physical entity before it began (also in that continent) to show the first stirrings of symbolism. Most likely, the biological underpinnings of symbolic consciousness were exaptively acquired in the radical developmental reorganization that gave rise to the highly characteristic osteological structure of Homo sapiens, but lay fallow for tens of thousands of years before being “discovered” by a cultural stimulus, plausibly the invention of language.

https://www.academia.edu/5943725/Evolution_of_the_Genus_Homo?email_work_card=view-paper

THE CONVERSATION – Joseph Banks: traveller, botanist and agent of the British Empire

For celebrated botanist Joseph Banks, his voyage with James Cook was more about extending imperial power than simply discovery.

<https://theconversationuk.cmail19.com/t/r-l-jklldddd-khhllilahl-x/>

OTHER (OLD) NEWS – Blog - Chomsky now rejects universal grammar

MARTIN HASPELMATH – Chomsky now rejects universal grammar (and comments on alien languages)

That our colleague Noam A. Chomsky no longer argues for a rich innate universal grammar (UG), containing many dozens (or even hundreds) of substantive features or categories, is old news. In Hauser, Chomsky & Fitch (2002), the authors say that the domain-specific faculty of language (=FLN) comprises only the property of recursion, nothing more. (This may still be called “UG”, and the headline of this post may thus be a little imprecise – but what I focus on is that Chomsky no longer argues for a rich UG of the sort that would be relevant for the ordinary grammarian and, e.g., for syntax textbooks.)

<https://dlc.hypotheses.org/1269>

PUBLICATIONS

American Journal of Physical Anthropology

PAPERS

OMER GOKCUMEN – Archaic hominin introgression into modern human genomes

Ancient genomes from multiple Neanderthal and the Denisovan individuals, along with DNA sequence data from diverse contemporary human populations strongly support the prevalence of gene flow among different hominins. Recent studies now provide evidence for multiple gene flow events that leave genetic signatures in extant and ancient human populations. These events include older gene flow from an unknown hominin in Africa predating out-of-Africa migrations, and in the last 50,000–100,000 years, multiple gene flow events from Neanderthals into ancestral Eurasian human populations, and at least three distinct introgression events from a lineage close to Denisovans into ancestors of extant Southeast Asian and Oceanic populations. Some of these introgression events may have happened as late as 20,000 years before present and reshaped the way in which we think about human evolution. In this review, I aim to answer anthropologically relevant questions with regard to recent research on ancient hominin introgression in the human lineage. How have genomic data from archaic hominins changed our view of human evolution? Is there any doubt about whether introgression from ancient hominins to the ancestors of present-day humans occurred? What is the current view of human evolutionary history from the genomics perspective? What is the impact of introgression on human phenotypes?

<https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.23951?campaign=woletoc>

JADA BENN TORRES – Anthropological perspectives on genomic data, genetic ancestry, and race

Human variation, including questions about race, have been central to biological anthropology since its emergence as a professional discipline in the early 20th century. More recently, genomic data have been used to address open questions about the nature and scope of human variation. Results from genome-wide association studies and commercially available direct-to-consumer genetic ancestry tests have also kindled scholarly debate about the relationship between genetics/genomics and race. Such discussions among scholars and other stakeholders, illustrates that there are still many open issues about how genomic data influence the ways that people think about and debate race and racism. Genetic ancestry remains particularly contentious because of a complicated history of race within anthropology and other human sciences. In this article, I provide a broad overview on understandings of race given the new discoveries in genetics/genomics and provide examples of how these types of data continue to impact social and legal understandings of race. Ultimately, given that a primary focus of biological anthropology is to query human experience from a biological perspective, it will remain critical that biological anthropologists uphold the anti-racist tradition of modern anthropology and diligently work to shape narratives about human difference.

<https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.23979?campaign=woletoc>

EDUARDO FERNANDEZ-DUQUE et al – The evolution of pair-living, sexual monogamy, and cooperative infant care: Insights from research on wild owl monkeys, titis, sakis, and tamarins

“Monogamy” and pair bonding have long been of interest to anthropologists and primatologists. Their study contributes to our knowledge of human evolutionary biology and social evolution without the cultural trappings associated with studying human societies directly. Here, we first provide an overview of theoretical considerations, followed by an evaluation of recent comparative studies of the evolution of “social monogamy”; we are left with serious doubts about the conclusions of these studies that stem from the often poor quality of the data used and an overreliance on secondary sources without vetting the data therein. We then describe our field research program on four “monogamous” platyrrhines (owl monkeys, titis, sakis, and tamarins), evaluate how well our data support various hypotheses proposed to explain “monogamy,” and compare our data to those reported on the same genera in comparative studies. Overall, we found a distressing lack of agreement between the data used in comparative studies and data from the literature for the taxa that we work with. In the final section, we propose areas of research that deserve more attention. We stress the need for more high-quality natural history data, and we urge researchers to be cautious about the uncritical use of variables of uncertain internal validity. Overall, it is imperative that biological anthropologists establish and follow clear criteria for comparing and combining results from published studies and that researchers, reviewers, and editors alike comply with these standards to improve the transparency, reproducibility, and interpretability of causal inferences made in comparative studies.

<https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.24017?campaign=wolletoc>

Current Anthropology

PAPERS

BURTON VOORHEES, DWIGHT READ & LIANE GABORA – Identity, Kinship, and the Evolution of Cooperation

Extensive cooperation among biologically unrelated individuals is uniquely human. It would be surprising if this uniqueness were not related to other uniquely human characteristics, yet current theories of human cooperation tend to ignore the human aspects of human behavior. This paper presents a theory of cooperation that draws on social, cultural, and psychological aspects of human uniqueness for which current theories have little or no explanation. We propose that the evolution of human cooperative behavior required (1) a capacity for self-sustained, self-referential thought manifested as an integrated worldview, including a sense of identity and point of view, and (2) the cultural formation of kinship-based social organizational systems within which social identities can be established and transmitted through enculturation. Human cooperative behavior arose, we argue, through the acquisition of a culturally grounded social identity that included the expectation of cooperation among kin. This identity is linked to basic survival instincts by emotions that are mentally experienced as culture-laden feelings. As a consequence, individuals are motivated to cooperate with those perceived culturally as kin, while deviations from expected social behavior are experienced as a threat to one’s social identity, leading to punishment of those seen as violating cultural expectations regarding socially proper behavior.

<https://www.journals.uchicago.edu/doi/abs/10.1086/708176>

Evolutionary Human Sciences

COMMENTARY

MATTHIJS VAN VEELLEN – The group selection–inclusive fitness equivalence claim: not true and not relevant

The debate on (cultural) group selection regularly suffers from an inclusive fitness overdose. The classical view is that all group selection is kin selection, and that Hamilton's rule works for all models. I claim that not all group selection is kin selection, and that Hamilton's rule does not always get the direction of selection right. More importantly, I will argue that the paper by Smith (2020; Cultural group selection and human cooperation: a conceptual and empirical review. *Evolutionary Human Sciences*, 2) shows that inclusive fitness is not particularly relevant for much of the empirical evidence relating to the question whether or not cultural group selection shaped human behaviour.

<https://www.cambridge.org/core/journals/evolutionary-human-sciences/article/group-selectioninclusive-fitness-equivalence-claim-not-true-and-not-relevant/89224BA8AC224877F3A22127762668F4>

ALBERTO J. C. MICHELETTI – Modelling cultural selection on biological fitness to integrate social transmission and adaptive explanations for human behaviour

One of the difficulties with cultural group selection theory highlighted in the review by Smith (2020, *Evol. Hum. Sci.*, 2, e7) is its inability to separate the evolutionary effects of selection of cultural traits based on biological fitness (Cultural Selection 1) from the effects of selection based on cultural fitness (Cultural Selection 2). Confusing these two processes can hinder the integration of adaptive explanations for human behaviour, which focus on biological fitness, and cultural evolution explanations, which often focus on social transmission. Recent empirical work is starting to bridge this gap, but progress in mathematical modelling has been considerably slower. Here, I suggest that modellers can contribute to achieving this integration by further developing models of Cultural Selection 1, where behaviours are influenced by culturally inherited traits selected on the basis of their effects on biological fitness. These models should build on existing social evolution theory methods and replace genetic relatedness with cultural relatedness, that is the probability that two individuals share a cultural variant.

Frontiers in Neuroscience

PAPERS

R. JARRETT RUSHMORE et al – How Human Is Human Connectional Neuroanatomy?

The structure of the human brain has been studied extensively. Despite all the knowledge accrued, direct information about connections, from origin to termination, in the human brain is extremely limited. Yet there is a widespread misperception that human connectional neuroanatomy is well-established and validated. In this article, we consider what is known directly about human structural and connectional neuroanatomy. Information on neuroanatomical connections in the human brain is derived largely from studies in non-human experimental models in which the entire connectional pathway, including origins, course, and terminations, is directly visualized. Techniques to examine structural connectivity in the human brain are progressing rapidly; nevertheless, our present understanding of such connectivity is limited largely to data derived from homological comparisons, particularly with non-human primates. We take the position that an in-depth and more precise understanding of human connectional neuroanatomy will be obtained by a systematic application of this homological approach.

https://www.frontiersin.org/articles/10.3389/fnana.2020.00018/full?utm_source=F-AAE&utm_medium=EMLF&utm_campaign=MRK_1313244_55_Neuro_20200428_arts_A

Frontiers in Psychology

PAPERS

CHAO HU et al – Truthful but Misleading: Advanced Linguistic Strategies for Lying Among Children

We explored whether children could apply linguistic strategies for lying, i.e., manipulating linguistic content of speech to mislead others. We announced a knowledge-test entailing prizes in the classrooms of a primary school and a middle school. Altogether 79 Chinese children (6–18 years) voluntarily participated in the test: listening to a series of animal sounds before guessing the names of the animals. Meanwhile, behind the participants, a video was playing images that ostensibly corresponded to the sounds being played. In fact, this was not necessarily the case, i.e., some items cannot be solved because the sounds played are not from any animal but machine-synthesized. Participants were instructed not to look back at the video. However, 51 children peeked at the video for the unsolvable items, although the peeking behavior decreased with age. Moreover, when explaining how they correctly guessed the unsolvable items, children as young as 6 years old were able to apply a linguistic strategy (i.e., “capability attribution”) for lying. Besides “capability attribution,” Children also applied “fortune attribution” and “topic shift” for lying. Finally, “fortune attribution” and “topic shift” increased with age. Therefore, educators need to be aware that children are able to apply verbal strategies for lying that could involve truthful statements (i.e., “topic shift”) or statements that are difficult to be proved as untruthful (i.e., “fortune attribution”).

https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00676/full?utm_source=F-AAE&utm_medium=EMLF&utm_campaign=MRK_1313244_69_Psycho_20200428_arts_A

MICHAEL C. CORBALLIS – Crossing the Rubicon: Behaviorism, Language, and Evolutionary Continuity

Euan Macphail’s work and ideas captured a pivotal time in the late 20th century when behavioral laws were considered to apply equally across vertebrates, implying equal intelligence, but it was also a time when behaviorism was challenged by the view that language was unique to humans, and bestowed a superior mental status. Subsequent work suggests greater continuity between humans and their forebears, challenging the Chomskyan assumption that language evolved in a single step (“the great leap forward”) in humans. Language is now understood to be based on an amalgam of cognitive functions, including mental time travel, theory of mind, and what may be more broadly defined as imagination. These functions probably evolved gradually in hominin evolution and are present in varying degrees in non-human species. The blending of language into cognition provides for both interspecies differences in mental function, and continuity between humans and other species. What does seem to be special to humans is the ability to communicate the contents of imagination, although even this is not absolute, and is perhaps less adaptive than we like to think.

https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00653/full?utm_source=F-AAE&utm_medium=EMLF&utm_campaign=MRK_1313244_69_Psycho_20200428_arts_A

Nature Communications

PAPERS

RYAN W. CARLSON et al with ERNST FEHR – Motivated misremembering of selfish decisions

People often prioritize their own interests, but also like to see themselves as moral. How do individuals resolve this tension? One way to both pursue personal gain and preserve a moral self-image is to misremember the extent of one’s selfishness. Here, we test this possibility. Across five experiments (N = 3190), we find that people tend to recall being more generous in the past than they actually were, even when they are incentivized to recall their decisions accurately. Crucially, this motivated misremembering effect occurs chiefly for individuals whose choices violate their own fairness standards,

irrespective of how high or low those standards are. Moreover, this effect disappears under conditions where people no longer perceive themselves as responsible for their fairness violations. Together, these findings suggest that when people's actions fall short of their personal standards, they may misremember the extent of their selfishness, thereby potentially warding off threats to their moral self-image.

<https://www.nature.com/articles/s41467-020-15602-4>

PATRICK ROBERTS et al – Isotopic evidence for initial coastal colonization and subsequent diversification in the human occupation of Wallacea

The resource-poor, isolated islands of Wallacea have been considered a major adaptive obstacle for hominins expanding into Australasia. Archaeological evidence has hinted that coastal adaptations in *Homo sapiens* enabled rapid island dispersal and settlement; however, there has been no means to directly test this proposition. Here, we apply stable carbon and oxygen isotope analysis to human and faunal tooth enamel from six Late Pleistocene to Holocene archaeological sites across Wallacea. The results demonstrate that the earliest human forager found in the region c. 42,000 years ago made significant use of coastal resources prior to subsequent niche diversification shown for later individuals. We argue that our data provides clear insights into the huge adaptive flexibility of our species, including its ability to specialize in the use of varied environments, particularly in comparison to other hominin species known from Island Southeast Asia.

<https://www.nature.com/articles/s41467-020-15969-4>

MIRIAM CUBAS et al with JOÃO ZILHÃO – Latitudinal gradient in dairy production with the introduction of farming in Atlantic Europe

The introduction of farming had far-reaching impacts on health, social structure and demography. Although the spread of domesticated plants and animals has been extensively tracked, it is unclear how these nascent economies developed within different environmental and cultural settings. Using molecular and isotopic analysis of lipids from pottery, here we investigate the foods prepared by the earliest farming communities of the European Atlantic seaboard. Surprisingly, we find an absence of aquatic foods, including in ceramics from coastal sites, except in the Western Baltic where this tradition continued from indigenous ceramic using hunter-gatherer-fishers. The frequency of dairy products in pottery increased as farming was progressively introduced along a northerly latitudinal gradient. This finding implies that early farming communities needed time to adapt their economic practices before expanding into more northerly areas. Latitudinal differences in the scale of dairy production might also have influenced the evolution of adult lactase persistence across Europe.

<https://www.nature.com/articles/s41467-020-15907-4>

J. P. LEWIS et al – Marine resource abundance drove pre-agricultural population increase in Stone Age Scandinavia

How climate and ecology affect key cultural transformations remains debated in the context of long-term socio-cultural development because of spatially and temporally disjunct climate and archaeological records. The introduction of agriculture triggered a major population increase across Europe. However, in Southern Scandinavia it was preceded by ~500 years of sustained population growth. Here we show that this growth was driven by long-term enhanced marine production conditioned by the Holocene Thermal Maximum, a time of elevated temperature, sea level and salinity across coastal waters. We identify two periods of increased marine production across trophic levels (P1 7600–7100 and P2 6400–5900 cal. yr BP) that coincide with markedly increased mollusc collection and accumulation of shell middens, indicating greater marine resource availability. Between ~7600–5900 BP, intense exploitation of a warmer, more productive marine environment by Mesolithic hunter-gatherers drove cultural development, including maritime technological innovation, and from ca. 6400–5900 BP, underpinned a ~four-fold human population growth.

<https://www.nature.com/articles/s41467-020-15621-1>

Nature Scientific Reports

PAPERS

JIE GAO, FUMITO KAWAKAMI & MASAKI TOMONAGA – Body perception in chimpanzees and humans: The expert effect

Both humans and chimpanzees have better performances when recognizing faces or bodies when the stimuli are upright compared to inverted. This is called the inversion effect. It suggests that these two species use a specific way to process faces and bodies. Previous research has suggested that humans also show the inversion effect to objects that they have expertise about, and this is called the expert effect. We investigated whether chimpanzees show the expert effect and how humans and chimpanzees differ by testing chimpanzees (human experts) with human body stimuli and testing humans (chimpanzee experts) with chimpanzee and human body stimuli in body recognition tasks. The main finding was that humans (chimpanzee experts) showed the expert effect to chimpanzee bodies, while chimpanzees partially showed it to human bodies. This suggests that compared with chimpanzees, the special processing in humans can be more flexibly tuned for other objects. We also tested humans that were not chimpanzee experts using chimpanzee body stimuli. Although they showed similar performances as the chimpanzee experts, the two groups had differences in some situations, indicating the effect of expertise. This study revealed the important role of experience in object processing in humans, and our evolutionary relatives, chimpanzees.

<https://www.nature.com/articles/s41598-020-63876-x>

LOÏC POUIGNAULT et al – Breaking conversational rules matters to captive gorillas: A playback experiment

Across human cultures, conversations are regulated by temporal and social rules. The universality of conversational rules suggests possible biological bases and encourages comparisons with the communicative interactions of nonhuman animals. Unexpectedly, few studies have focused on other great apes despite evidence of proto-conversational rules in monkeys, thus preventing researchers from drawing conclusions on potential evolutionary origins of this behaviour. A previous study showed however that western lowland gorillas engage in soft call interactions that seem temporally- and socially-ruled. Indeed, interactions occurred mainly between individuals close in age who followed a preset response delay, thus preventing call overlap. Here, we experimentally investigated the presence of these rules in a captive gorilla group, using a violation-of-expectation paradigm. Head orientation responses suggest that the respect of response delay matters to subjects, but the importance of the interlocutors' age proximity appeared less clear. The intensity of the response varied with subjects' age in a context-dependent way, supporting a possible role of learning. Our findings support the growing number of studies highlighting the importance of vocal turn-taking in animals and a possible sociogenesis of this ability. The capacity to "converse" might have been a key step in the co-evolution of communication and complex sociality.

<https://www.nature.com/articles/s41598-020-63923-7>

ETHAN G. HARROD, CHRISTOPHER L. COE & PAULA M. NIEDENTHAL – Social Structure Predicts Eye Contact Tolerance in Nonhuman Primates: Evidence from a Crowd-Sourcing Approach

In most primates, eye contact is an implicit signal of threat, and often connotes social status and imminent physical aggression. However, in humans and some of the gregarious nonhuman primates, eye contact is tolerated more and may be used to communicate other emotional and mental states. What accounts for the variation in this critical social cue across primate species? We crowd-sourced primatologists and found a strong linear relationship between eye contact tolerance and primate social structure such that eye contact tolerance increased as social structures become more egalitarian. In addition to constituting the first generalizable demonstration of this relationship, our findings serve to inform the related question of why eye contact is deferentially avoided in some human cultures, while eye contact is both frequent and even encouraged in others.

<https://www.nature.com/articles/s41598-020-63884-x>

JORDI MARCÉ-NOGUÉ et al – Broad-scale morpho-functional traits of the mandible suggest no hard food adaptation in the hominin lineage

An on-going debate concerning the dietary adaptations of archaic hominins and early Homo has been fuelled by contradictory inferences obtained using different methodologies. This work presents an extensive comparative sample of 30 extant primate species that was assembled to perform a morpho-functional comparison of these taxa with 12 models corresponding to eight fossil hominin species. Finite Element Analysis and Geometric Morphometrics were employed to analyse chewing biomechanics and mandible morphology to, firstly, establish the variation of this clade, secondly, relate stress and shape variables, and finally, to classify fossil individuals into broad ingesta related hardness categories using a support vector machine algorithm. Our results suggest that some hominins previously assigned as hard food consumers (e.g. the members of the Paranthropus clade) in fact seem to rely more strongly on soft foods, which is consistent with most recent studies using either microwear or stable isotope analyses. By analysing morphometric and stress results in the context of the comparative framework, we conclude that in the hominin clade there were probably no hard-food specialists. Nonetheless, the biomechanical ability to comminute harder items, if required as fallback option, adds to their strategy of increased flexibility.

<https://www.nature.com/articles/s41598-020-63739-5>

New Scientist

ARTICLES

MICHAEL BROOKS – Is the universe conscious? It seems impossible until you do the maths

The question of how the brain gives rise to subjective experience is the hardest of all. Mathematicians think they can help, but their first attempts have thrown up some eye-popping conclusions.

{What load of taradiddle! Quantum waves collapse to particles when they are measured, not when they are measured by a conscious mind. In this definition, "measured" means given attention, or noticed; and this does not need consciousness. If two wave forms interact, they "notice" each other and can resolve into particles. Now, put the entire universe into a post-big-bang thimble, and there's a lot of noticing going on. Wigner's Interpretation of the Copenhagen Interpretation is the only one that insists on a conscious observer, and it was debunked by Penrose: "[T]he evolution of conscious life on this planet is due to appropriate mutations having taken place at various times. These, presumably, are quantum events, so they would exist only in linearly superposed form until they finally led to the evolution of a conscious being—whose very existence depends on all the right mutations having 'actually' taken place!"

Panpsychism is an attempt to get round this obstacle; but a universe in which everything is conscious cannot explain consciousness, any more than a universe in which everything is red can explain redness. If you take a word with no clear definition, like consciousness, then you cannot define it by making it universal – however, you can prove it does not actually exist by doing so:

Consciousness (x) is a subset of everything (z), so it is different from z because $x=z-y$; which means that x cannot be universal because it does not contain y; and if $y=0$ then $x=z$ and you don't need a separate term for x.

Panpsychism also doesn't trouble itself about where the consciousness of a fundamental wave-particle could be. A wave-particle's "consciousness" would need to be changeable if it is to measure and cause a quantum wave collapse; but where is its physicality to make it susceptible to change? And if it has no physicality, how can it be changed? Basically, you would need a quantum wave collapse to generate a quantum wave collapse; in which case, is it wave collapses all the way down? If you start with an underdefined word like consciousness then you can do anything you want with language; and, apparently, people do. Next week's letters page should be lively.}

<https://www.newscientist.com/article/mg24632800-900-is-the-universe-conscious-it-seems-impossible-until-you-do-the-maths/#ixzz6LChBC5JB>

PLoS One

PAPERS

LAURÈNE VUILLAUME et al with AXEL CLEEREMANS – Comparing self- and hetero-metacognition in the absence of verbal communication

The ability to infer how confident other people are in their decisions is crucial for regulating social interactions. In many cooperative situations, verbal communication enables one to communicate one's confidence and to appraise that of others. However, in many circumstances, people either cannot explicitly communicate their confidence level (e.g., in an emergency situation) or may be intentionally deceitful (e.g., when playing poker). It is currently unclear whether one can read others' confidence in the absence of verbal communication, and whether one can infer it as accurately as for one's own confidence. To explore these questions, we used an auditory task in which participants either had to guess the confidence of someone else performing the task or to judge their own confidence, in different conditions (i.e., while performing the task themselves or while watching themselves perform the task on a pre-recorded video). Results demonstrate that people can read the confidence someone else has in their decision as accurately as they evaluate their own uncertainty in their decision. Crucially, we show that hetero-metacognition is a flexible mechanism that relies on different cues according to the context. Our results support the idea that metacognition leverages the same inference mechanisms as those involved in theory of mind.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0231530>

PNAS

PAPERS

CLARE A. M. SUTHERLAND et al – Individual differences in trust evaluations are shaped mostly by environments, not genes

People evaluate a stranger's trustworthiness from their facial features in a fraction of a second, despite common advice "not to judge a book by its cover." Evaluations of trustworthiness have critical and widespread social impact, predicting financial lending, mate selection, and even criminal justice outcomes. Consequently, understanding how people perceive trustworthiness from faces has been a major focus of scientific inquiry, and detailed models explain how consensus impressions of trustworthiness are driven by facial attributes. However, facial impression models do not consider variation between observers. Here, we develop a sensitive test of trustworthiness evaluation and use it to document substantial, stable individual differences in trustworthiness impressions. Via a twin study, we show that these individual differences are largely shaped by variation in personal experience, rather than genes or shared environments. Finally, using multivariate twin modeling, we show that variation in trustworthiness evaluation is specific, dissociating from other key facial evaluations of dominance and attractiveness. Our finding that variation in facial trustworthiness evaluation is driven mostly by personal experience represents a rare example of a core social perceptual capacity being predominantly shaped by a person's unique environment. Notably, it stands in sharp contrast to variation in facial recognition ability, which is driven mostly by genes. Our study provides insights into the development of the social brain, offers a different perspective on disagreement in trust in wider society, and motivates new research into the origins and potential malleability of face evaluation, a critical aspect of human social cognition.

<https://www.pnas.org/content/early/2020/04/24/1920131117.abstract?etoc>

Royal Society Open Science

PAPERS

BLANDINE COUREL et al – Organic residue analysis shows sub-regional patterns in the use of pottery by Northern European hunter-gatherers

The introduction of pottery vessels to Europe has long been seen as closely linked with the spread of agriculture and pastoralism from the Near East. The adoption of pottery technology by hunter-gatherers in Northern and Eastern Europe does not fit this paradigm, and its role within these communities is so far unresolved. To investigate the motivations for hunter-gatherer pottery use, here, we present the systematic analysis of the contents of 528 early vessels from the Baltic Sea region, mostly dating to the late 6th–5th millennium cal BC, using molecular and isotopic characterization techniques. The results demonstrate clear sub-regional trends in the use of ceramics by hunter-gatherers; aquatic resources in the Eastern Baltic, non-ruminant animal fats in the Southeastern Baltic, and a more variable use, including ruminant animal

products, in the Western Baltic, potentially including dairy. We found surprisingly little evidence for the use of ceramics for non-culinary activities, such as the production of resins. We attribute the emergence of these sub-regional cuisines to the diffusion of new culinary ideas afforded by the adoption of pottery, e.g. cooking and combining foods, but culturally contextualized and influenced by traditional practices.

<https://royalsocietypublishing.org/doi/full/10.1098/rsos.192016>

DENA J. CLINK, ABDUL HAMID AHMAD & HOLGER KLINCK – Brevity is not a universal in animal communication: evidence for compression depends on the unit of analysis in small ape vocalizations

Evidence for compression, or minimization of code length, has been found across biological systems from genomes to human language and music. Two linguistic laws—Menzerath's Law (which states that longer sequences consist of shorter constituents) and Zipf's Law of abbreviation (a negative relationship between signal length and frequency of use)—are predictions of compression. It has been proposed that compression is a universal in animal communication, but there have been mixed results, particularly in reference to Zipf's Law of abbreviation. Like songbirds, male gibbons (*Hylobates muelleri*) engage in long solo bouts with unique combinations of notes which combine into phrases. We found strong support for Menzerath's Law as the longer a phrase, the shorter the notes. To identify phrase types, we used state-of-the-art affinity propagation clustering, and were able to predict phrase types using support vector machines with a mean accuracy of 74%. Based on unsupervised phrase type classification, we did not find support for Zipf's Law of abbreviation. Our results indicate that adherence to linguistic laws in male gibbon solos depends on the unit of analysis. We conclude that principles of compression are applicable outside of human language, but may act differently across levels of organization in biological systems.

<https://royalsocietypublishing.org/doi/full/10.1098/rsos.200151>

YUKIKO OGURA, TAKU MASAMOTO & TATSUYA KAMEDA – Mere presence of co-eater automatically shifts foraging tactics toward 'Fast and Easy' food in humans

Competition for food resources is widespread in nature. The foraging behaviour of social animals should thus be adapted to potential food competition. We conjectured that in the presence of co-foragers, animals would shift their tactics to forage more frequently for smaller food. Because smaller foods are more abundant in nature and allow faster consumption, such tactics should allow animals to consume food more securely against scrounging. We experimentally tested whether such a shift would be triggered automatically in human eating behaviour, even when there was no rivalry about food consumption. To prevent subjects from having rivalry, they were instructed to engage in a 'taste test' in a laboratory, alone or in pairs. Even though the other subject was merely present and there was no real competition for food, subjects in pairs immediately exhibited a systematic behavioural shift to reaching for smaller food amounts more frequently, which was clearly distinct from their reaching patterns both when eating alone and when simply weighing the same food without eating any. These patterns suggest that behavioural shifts in the presence of others may be built-in tactics in humans (and possibly in other gregarious animals as well) to adapt to potential food competition in social foraging.

<https://royalsocietypublishing.org/doi/full/10.1098/rsos.200044>

RACHAEL MILLER et al – A novel test of flexible planning in relation to executive function and language in young children

In adult humans, decisions involving the choice and use of tools for future events typically require episodic foresight. Previous studies suggest some non-human species are capable of future planning; however, these experiments often cannot fully exclude alternative learning explanations. Here, we used a novel tool-use paradigm aiming to address these critiques to test flexible planning in 3- to 5-year-old children, in relation to executive function and language abilities. In the flexible planning task, children were not verbally cued during testing, single trials avoided consistent exposure to stimulus–reward relationships, and training trials provided experience of a predictable return of reward. Furthermore, unlike most standard developmental studies, we incorporated short delays before and after tool choice. The critical test choice included two tools with equal prior reward experience—each only functional in one apparatus. We tested executive function and language abilities using several standardized tasks. Our results echoed standard developmental research: 4- and 5-year-olds outperformed 3-year-olds on the flexible planning task, and 5-year-old children outperformed younger children in most executive function and language tasks. Flexible planning performance did not correlate with executive function and language performance. This paradigm could be used to investigate flexible planning in a tool-use context in non-human species.

<https://royalsocietypublishing.org/doi/full/10.1098/rsos.192015>

LAURA SCHLINGLOFF, GERGELY CSIBRA & DENIS TATONE – Do 15-month-old infants prefer helpers? A replication of Hamlin et al. (2007)

Hamlin et al. found in 2007 that preverbal infants displayed a preference for helpers over hinderers. The robustness of this finding and the conditions under which infant sociomoral evaluation can be elicited has since been debated. Here, we conducted a replication of the original study, in which we tested 14- to 16-month-olds using a familiarization procedure with three-dimensional animated video stimuli. Unlike previous replication attempts, ours uniquely benefited from detailed procedural advice by Hamlin. In contrast with the original results, only 16 out of 32 infants (50%) in our study reached for the helper; thus, we were not able to replicate the findings. A possible reason for this failure is that infants' preference for

prosocial agents may not be reliably elicited with the procedure and stimuli adopted. Alternatively, the effect size of infants' preference may be smaller than originally estimated. The study addresses ongoing methodological debates on the replicability of influential findings in infant cognition.

<https://royalsocietypublishing.org/doi/full/10.1098/rsos.191795>

Trends in Neurosciences

PAPERS

KATE J. JEFFERY & CARLO ROVELLI – Transitions in brain evolution: space, time and entropy

How did brains evolve to become so complex, and what is their future? Brains pose an explanatory challenge because entropy, which inexorably increases over time, is commonly associated with disorder and simplicity. Recently we showed how evolution is an entropic process, building structures – organisms – which themselves facilitate entropy growth. Here we suggest that key transitional points in evolution extended organisms' reach into space and time, opening channels into new regions of a complex multi-dimensional state space that also allow entropy to increase. Brain evolution enabled representation of space and time, which vastly enhances this process. Some of these channels lead to tiny, dead-ends in the state space: the persistence of complex life is thus not thermodynamically guaranteed.

[https://www.cell.com/trends/neurosciences/fulltext/S0166-2236\(20\)30099-0?dgcid=raven_jbs_aip_email](https://www.cell.com/trends/neurosciences/fulltext/S0166-2236(20)30099-0?dgcid=raven_jbs_aip_email)

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