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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.

EAORC NEWS – Replacing the Membership Page on the Website

The new membership page is now live. If you wish to add a comment, just send me a few kind words about EAORC and I’ll include them.

You can add a comment no matter how you receive the bulletin – first-hand by email every Sunday, by copied email, by ResearchGate notification, or any way you access the bulletin.

Many thanks in anticipation, and especial thanks to those who have already responded.

Martin

PUBLICATION ALERT – Ancient Human Studies: Patterns and Processes in Hominin Evolution

PNAS 2021 Call for Papers in Ancient Human Studies: Patterns and Processes in Hominin Evolution

Submissions will be considered on a rolling basis and successful manuscripts will publish when ready. Please submit your manuscript between July 1-December 30, 2021, for consideration.

We are currently seeking research papers and perspectives on ancient human studies relating to patterns and processes in hominin evolution that are of broad interest and significance to a general audience, such as:

- The role of novel approaches and technologies in reconstructing paleoecology, environments, and diets: Inferring hominin evolution, phylogeny, biology, behavior, diet, and environment, including how these approaches are changing views of human diversity and paleogeographic expansion.
- New findings using novel methods to infer behavior from human skeletal and material cultural remains: Understanding adaptations and adaptive change in human evolution, including expanded field evidence for human paleogeography and diversification and evaluations and perspectives on the intersection of genetic and material cultural evidence for reconstructing human behavior.
- The search for real taxonomic diversity in Plio-Pleistocene hominins: The role of natural selection in modifying morphology and determining species diversity.
- The role of the brain in human evolution: Comparative analysis of human cognitive evolution; the neurological evolution of hominins (both cortical/subcortical) and its role in the emergence of human behavior.
- Expanding inclusion in paleoanthropological field projects and the ethics of studying human skeletal remains: How local indigenous communities are involved in and/or benefit from paleoanthropological field projects and perspectives on repatriation.

<https://www.pnas.org/authors/call-for-papers/ancient-human-studies>

ACADEMIA.EDU – Reconsidering the Role of Manual Imitation in Language Evolution

In Topoi 37, 319-328 (2018).

ANTONELLA TRAMACERE & RICHARD MOORE – Reconsidering the Role of Manual Imitation in Language Evolution

In this paper, we distinguish between a number of different phenomena that have been called imitation, and identify one form—a high fidelity mechanism for social learning—considered to be crucial for the development of language.

Subsequently, we consider a common claim in the language evolution literature, which is that prior to the emergence of vocal language our ancestors communicated using a sophisticated gestural protolanguage (the ‘gesture-first view’), the learning of some parts of which required manual imitation. Drawing upon evidence from recent work in neuroscience, primatology, and archeology, we argue that while gestural communication undoubtedly played a crucial role in language evolution, the grounds for thinking that manual imitation did are currently unconvincing.

https://www.academia.edu/30058734/Reconsidering_the_Role_of_Manual_Imitation_in_Language_Evolution

CONFERENCE ALERT – Joint conference co-organized by Evolang, Protolang, and Evolving Linguistics

Scientific research on language evolution has been making remarkable progress for some decades now, leading to a rapid growth of interdisciplinary research communities with diverse thematic and methodological foci. Next year, for the first time and as a one-off, we will hold a joint conference co-organized by Evolang, Protolang, and Evolving Linguistics. This will provide an unprecedented opportunity to bring together all the language evolution research communities, enabling a global platform for interdisciplinary discussion. The conference will take place as a hybrid online & on-site conference from September 5th to 8th 2022 in Kanazawa, Japan. More details will follow soon!

For more information, please see: <https://sites.google.com/view/joint-conf-language-evolution/home>

NEWS

BREAKING SCIENCE – Sulphur-Crested Cockatoos Spread Bin-Opening Behavior through Social Learning

Ornithologists from Germany and Australia have documented the emergence of a cultural adaptation to urban environments — opening of household waste bins — in wild sulphur-crested cockatoos (*Cacatua galerita*) and found that the birds spread this behavior through social learning.

<http://feedproxy.google.com/~r/BreakingScienceNews/~3/iicpGliy5u4/sulphur-crested-cockatoos-bin-opening-behavior-09895.html>

BREAKING SCIENCE – Scientists Use DNA Barcoding to Identify Tool Materials of New Caledonian Crows

Using a taxonomic method called DNA barcoding, researchers have identified, from just a few recovered tool specimens, the plant species New Caledonian crows (*Corvus moneduloides*) use for crafting their elaborate hooked stick tools. New Caledonian crows — a species of oscine passerine bird found on the South Pacific island of New Caledonia — are renowned for their ability to manufacture complex foraging tools.

<http://feedproxy.google.com/~r/BreakingScienceNews/~3/6QJdBn0IYc/tool-materials-new-caledonian-crows-09899.html>

BREAKING SCIENCE – Neanderthals Hunted with Leaf-Shaped Spears, Archaeologists Say

Archaeologists say they have found a 65,000-year-old leaf point in a cave in the Swabian Jura, Germany. “This discovery represents the first time a leaf point has been recovered from a modern excavation, allowing us to study the fresh find with state-of-the-art methods,” said Professor Nicholas Conard, a researcher at the University of Tübingen and the Senckenberg Centre for Human Evolution and Palaeoenvironment.

<http://feedproxy.google.com/~r/BreakingScienceNews/~3/8Is2cTDNMhl/hohle-fels-leaf-point-09905.html>

BREAKING SCIENCE – Honeybees are Skilled Architects, New Research Confirms

Honeybees (*Apis mellifera*) are renowned for constructing perfect hexagonal honeycombs, hailed as the pinnacle of biological architecture for its ability to maximize storage area while minimizing building material. However, in natural nests, workers must regularly transition between different cell sizes, merge inconsistent combs, and optimize construction in constrained geometries.

<http://feedproxy.google.com/~r/BreakingScienceNews/~3/KK5MPUXz5zk/honeybees-skilled-architects-09903.html>

BREAKING SCIENCE – Researchers Decipher Blood Groups of Neanderthals and Denisovans

An analysis of the high-quality nuclear genomes previously published from three Neanderthals and one Denisovan shows that these extinct hominins were polymorphic for ABO blood groups and shared blood group alleles — different versions of the same gene — recurrent in modern sub-Saharan populations.

http://feedproxy.google.com/~r/BreakingScienceNews/~3/O-Zdjavfll/neanderthal-denisovan-blood-groups-09912.html?utm_source=feedburner&utm_medium=email

NATURE BRIEFING – Audio: How we learnt to love carbs

The people who built the ancient monumental structures at Turkey’s Göbekli Tepe were fuelled by vat-fulls of starchy porridge and stew, not just meaty feasts. Archaeologists are uncovering evidence that ancient people were grinding grains for hearty, starchy dishes long before we domesticated crops. These discoveries shred the long-standing idea that early people subsisted mainly on meat. Discover more in this audio feature read by Nature’s Nick Petric Howe.

<https://nature.us17.list-manage.com/track/click?u=2c6057c528fdc6f73fa196d9d&id=027c7bd557&e=1db4b9a19b>

SCIENCE DAILY – For animal societies, cohesion comes at a cost

In a first for wild primates, scientists use 'Fitbit' technology on a troop of baboons to reveal the price of sticking together -- and who pays the most.

<https://www.sciencedaily.com/releases/2021/07/210728105712.htm>

SCIENCE NEWS – More tolerant primates have a greater need to communicate vocally, new study shows

Primates who are more tolerant of each other use vocal communication more than their stricter counterparts, research shows.

<https://www.sciencedaily.com/releases/2021/07/210729143444.htm>

SCIENCE NEWS – Remember more by taking breaks

We remember things longer if we take breaks during learning, referred to as the spacing effect. Scientists gained deeper insight into the neuronal basis for this phenomenon in mice. With longer intervals between learning repetitions, mice reuse more of the same neurons as before -- instead of activating different ones. Possibly, this allows the neuronal connections to strengthen with each learning event, such that knowledge is stored for a longer time.

<https://www.sciencedaily.com/releases/2021/07/210729122037.htm>

SCIENCE NEWS – We are more forgiving when people close to us misbehave

When people behave badly or unethically, their loved ones may judge them less harshly than they would judge a stranger who committed the same transgressions, but that leniency may come at the cost of the judge's own sense of self-worth, according to new research.

<https://www.sciencedaily.com/releases/2021/07/210729095212.htm>

SCIENCE NEWS – Neanderthal and Denisovan blood groups deciphered

The blood groups of three Neanderthals one Denisovan have been determined by a team including a palaeoanthropologist, population geneticists, and haematologists. Their research provides new data for understanding the origins, history, and health of these extinct hominin lineages.

<https://www.sciencedaily.com/releases/2021/07/210728140345.htm>

SOCIETY FOR SCIENCE – Polar bears sometimes bludgeon walrus to death with stones or ice

Inuit reports of polar bears using tools to kill walrus were historically dismissed as stories, but new research suggests the behavior does occur.

<http://click.societyforscience-email.com/?qs=cfe84b12031076ff8d640c67fab90450a097dcaca1791ed52f8b3bf552a62774e58a2bee0870e6cfd6612f5d7fa2bec254b80bfbb8e347777cd4bf426c77dc7>

THE CONVERSATION – Children start trying to make us laugh from a surprisingly young age

The winners of Britain's Funniest Class contest show us that kids can be funny. But how early can they do it on purpose?

<https://theconversationuk.cmail19.com/t/r-l-tlkuhjuy-khhilalah-n/>

THE CONVERSATION – Why animals recognise numbers but only humans can do maths

A wide range of animals seem to have a grasp of numbers – but humans hold the trump card.

<https://theconversationuk.cmail19.com/t/r-l-tlurhyyk-khhilalah-n/>

PUBLICATIONS

Animal Behaviour

PAPERS

JILLIAN M. KUSCH & JEFFREY E. LANE – Determinants of social structure in a northern population of black-tailed prairie dogs, *Cynomys ludovicianus*

Animal sociality can vary in response to both biotic and abiotic factors, and variation in the rate and types of interactions that occur between individuals of a group can result in greatly differentiated social structure and ultimately social evolution. However, social structures are often generalized to the species or population level and do not consider potential shifts in structure over time. We used social network analysis to investigate the social structure of black-tailed prairie dogs (hereafter 'prairie dogs') and determine the demographic features that may underpin the observed social structures in a population that experiences increased seasonal shifts of environmental conditions compared to populations in the centre of the geographical range. Prairie dogs live in highly social colonies, display an elaborate range of social behaviours and experience very dynamic changes in body condition due to variable environmental conditions. We used exponential random graph models (ERGMs) to examine the effects of body condition, age, sex and spatial arrangement on static and temporal social networks. We expected that spatial arrangement would most strongly influence social structure given the delineated burrow systems of a prairie dog colony. We hypothesized that body condition influences social structure over time, where those in better body condition maintain the social structure. Prairie dogs associated preferentially with individuals near themselves and of the same age. Furthermore, we also determined that body condition correlated positively with maintaining social structure over time, where those in poorer body condition experienced an increase in the loss and gain of relationships compared to those in better body condition that maintained connections. Our study confirms previous conclusions of association based on age and also highlights the importance of considering dynamic individual traits such as body condition in the importance of long-term social structure. These results also show the promise of both static and temporal ERGMs in a biological system and demonstrate the potential for increased temporally driven hypothesis testing using this technique.

<https://www.sciencedirect.com/science/article/abs/pii/S0003347221001627>

MAXENCE DECELLIERES, KLAUS ZUBERBÜHLER & JULIÁN LEÓN – Habitat-dependent intergroup hostility in Diana monkeys, *Cercopithecus diana*

Territorial threat is costly and variable across contexts and behavioural flexibility is favoured to maximize any cost/benefit ratio. This is well illustrated in how animals react to familiar or unfamiliar outgroup members. In some situations, neighbours are better tolerated than strangers, resulting in a 'dear-enemy effect'; in other situations, the pattern is reversed, resulting in a 'nasty-neighbour effect'. Typically, the effects are species-specific traits, although both can also occur within the same species. Here, we investigated wild Diana monkeys of Tai Forest (Ivory Coast) in their reactions to outgroup individuals using playbacks of both familiar and unfamiliar male alarm calls to eagles. We found that groups living in primary forest (high group density, high food availability and low predation pressure) followed a 'nasty neighbour' strategy whereas groups living in secondary forest (low group density, low resources and high predation risk) followed a 'dear enemy' strategy, suggesting that group density, predation pressure and food availability can impact how hostile behaviour is displayed in nonhuman primates. Our results confirm a high behavioural flexibility in primate relationships between conspecifics of different identities depending on ecological traits of the habitat.

<https://www.sciencedirect.com/science/article/abs/pii/S0003347221001706>

LUCA G. HAHN et al – Cooperative nest building in wild jackdaw pairs

Animals create diverse structures, both individually and cooperatively, using materials from their environment. One striking example is the nests birds build for reproduction, which protect the offspring from external stressors such as predators and temperature, promoting reproductive success. To construct a nest successfully, birds need to make various decisions, for

example regarding the nest material and their time budgets. Research has focused mainly on species where one sex is primarily responsible for building the nest. In contrast, the cooperative strategies of monogamous species in which both sexes contribute to nest building are poorly understood. Here we investigated the role of both sexes in nest building and fitness correlates of behaviour in wild, monogamous jackdaw pairs, *Corvus monedula*. We show that both partners contributed to nest building and behaved similarly, with females and males present in the nestbox for a comparable duration and transporting material to the nest equally often. However, while females spent more time constructing the nest, males tended to invest more time in vigilance, potentially as a means of coping with competition for nest cavities. These findings suggest a moderate degree of division of labour, which may facilitate cooperation. Moreover, some aspects of behaviour were related to proxies of reproductive success (lay date and egg volume). Females that contributed relatively more to bringing material laid earlier clutches and pairs that spent less time together in the nestbox had larger eggs. Thus, selection pressures may act on how nest-building pairs spend their time and cooperatively divide the labour. We conclude that cooperative nest building in birds could be associated with monogamy and obligate biparental care and provides a vital but relatively untapped context through which to study the evolution of cooperation.

<https://www.sciencedirect.com/science/article/abs/pii/S0003347221001731>

Current Biology

ARTICLES

JULIANE KAMINSKI – Domestic dogs: Born human whisperers

Domestic dogs show socio-cognitive abilities that are not found in other species, including dogs' closest living relative, the wolf. Two new studies suggest that a heritable component to dogs' social cognitive skills exists and that selection during domestication must have played a role in enhancing dogs' social cognitive skills.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(21\)00761-2](https://www.cell.com/current-biology/fulltext/S0960-9822(21)00761-2)

PAPERS

EMILY E. BRAY et al – Early-emerging and highly heritable sensitivity to human communication in dogs

Human cognition is believed to be unique in part because of early-emerging social skills for cooperative communication. Comparative studies show that at 2.5 years old, children reason about the physical world similarly to other great apes, yet already possess cognitive skills for cooperative communication far exceeding those in our closest primate relatives. A growing body of research indicates that domestic dogs exhibit functional similarities to human children in their sensitivity to cooperative-communicative acts. From early in development, dogs flexibly respond to diverse forms of cooperative gestures. Like human children, dogs are sensitive to ostensive signals marking gestures as communicative, as well as contextual factors needed for inferences about these communicative acts. However, key questions about potential biological bases for these abilities remain untested. To investigate their developmental and genetic origins, we tested 375 8-week-old dog puppies on a battery of social-cognitive measures. We hypothesized that if dogs' skills for cooperating with humans are biologically prepared, then they should emerge robustly in early development, not require extensive socialization or learning, and exhibit heritable variation. Puppies were highly skillful at using diverse human gestures, and we found no evidence that their performance required learning. Critically, over 40% of the variation in dogs' point-following abilities and attention to human faces was attributable to genetic factors. Our results suggest that these social skills in dogs emerge early in development and are under strong genetic control.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(21\)00602-3](https://www.cell.com/current-biology/fulltext/S0960-9822(21)00602-3)

HANNAH SALOMONS et al with BRIAN HARE – Cooperative Communication with Humans Evolved to Emerge Early in Domestic Dogs

Although we know that dogs evolved from wolves, it remains unclear how domestication affected dog cognition. One hypothesis suggests dog domestication altered social maturation by a process of selecting for an attraction to humans. Under this account, dogs became more flexible in using inherited skills to cooperatively communicate with a new social partner that was previously feared and expressed these unusual social skills early in development. Here, we compare dog ($n = 44$) and wolf ($n = 37$) puppies, 5–18 weeks old, on a battery of temperament and cognition tasks. We find that dog puppies are more attracted to humans, read human gestures more skillfully, and make more eye contact with humans than wolf puppies. The two species are similarly attracted to familiar objects and perform similarly on non-social measures of memory and inhibitory control. These results are consistent with the idea that domestication enhanced the cooperative-communicative abilities of dogs as selection for attraction to humans altered social maturation.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(21\)00880-0](https://www.cell.com/current-biology/fulltext/S0960-9822(21)00880-0)

eLife

NEWS

The invisible gorilla and the cocktail party

In the midst of a difficult problem, our brains continue to react to task-irrelevant, basic sensory input but they may become oblivious to complex information.

<https://elifesciences.org/digests/64431/the-invisible-gorilla-and-the-cocktail-party>

JÖRG ZINKEN et al – Rule Talk: Instructing Proper Play With Impersonal Deontic Statements

The present paper explores how rules are enforced and talked about in everyday life. Drawing on a corpus of board game recordings across European languages, we identify a sequential and praxeological context for rule talk. After a game rule is breached, a participant enforces proper play and then formulates a rule with an impersonal deontic statement (e.g. “It’s not allowed to do this”). Impersonal deontic statements express what may or may not be done without tying the obligation to a particular individual. Our analysis shows that such statements are used as part of multi-unit and multi-modal turns where rule talk is accomplished through both grammatical and embodied means. Impersonal deontic statements serve multiple interactional goals: they account for having changed another’s behavior in the moment and at the same time impart knowledge for the future. We refer to this complex action as an “instruction.” The results of this study advance our understanding of rules and rule-following in everyday life, and of how resources of language and the body are combined to enforce and formulate rules.

<https://www.frontiersin.org/articles/10.3389/fcomm.2021.660394/full>

EMILY HOFSTETTER, LEELO KEEVALLIK & AGNES LÖFGREN – Suspending Syntax: Bodily Strain and Progressivity in Talk

People speak not only under relaxed conditions but also during strenuous activities, and grammatical resources can be used to achieve displays of strain. This study looks at the relationship between progressivity of talk and bodily strain, focusing on the practice of temporarily suspending syntax while the speaker is accomplishing a physically challenging task. Based on examples from two different physical activities, rock climbing and opera rehearsals, the paper argues that the practice of suspending syntax is a resource available across contexts to render prominence to the strained body and highlight ongoing movement or other bodily action. By placing the strain-based display of incapacity to talk at a moment when the emerging syntactic structure is incomplete, participants maintain rights to resume talk while also presenting themselves as possessing the physical capacity to do so. Suspending syntax is shown to be a minutely timed speakers’ technique that takes advantage of the emergent nature of syntax and that demonstrates how speakers organize language in relation to the sensing and moving body.

<https://www.frontiersin.org/articles/10.3389/fcomm.2021.663307/full>

FERENC KEMÉNY & ÁGNES LUKÁCS – The Role of Statistical Learning and Verbal Short-Term Memory in Impaired and Typical Lexical Development

Studies on the interface between statistical learning and language are dominated by its role in word segmentation and association with grammar skills, while research on its role in lexical development is scarce. The current study is aimed at exploring whether and how statistical learning and verbal short-term memory are associated with lexical skills in typically developing German-speaker primary school children (Experiment 1) and Hungarian-speaking children with developmental language disorder (DLD, Experiment 2).

We used the language-relevant Peabody Picture Vocabulary Tests to measure individual differences in vocabulary. Statistical learning skills were assessed with the Weather Prediction task, in which participants learn probabilistic cue-outcome associations based on item-based feedback. Verbal short-term memory span was assessed with the Forward digit span task. Hierarchical linear regression modelling was used to test the contribution of different functions to vocabulary size. In TD children, statistical learning skills had an independent contribution to vocabulary size over and above age, receptive grammatical abilities and short-term memory, whereas working memory did not have an independent contribution. The pattern was reverse in SLI: Vocabulary size was predicted by short-term memory skills over and above age, receptive grammar and statistical learning, whereas statistical learning had no independent contribution.

Our results suggest that lexical development rely on different underlying memory processes in typical development and in developmental language disorder to different degrees. This qualitative difference is discussed in the light of different stages of lexical development, as well as the contribution of the different human memory systems to vocabulary acquisition.

<https://www.frontiersin.org/articles/10.3389/fcomm.2021.700452/full>

DREW RENDALL – Aping Language: Historical Perspectives on the Quest for Semantics, Syntax, and Other Rarefied Properties of Human Language in the Communication of Primates and Other Animals

In 1980, Robert Seyfarth, Dorothy Cheney and Peter Marler published a landmark paper in *Science* claiming language-like semantic communication in the alarm calls of vervet monkeys. This article and the career research program it spawned for its authors catalyzed countless other studies searching for semantics, and then also syntax and other rarefied properties of language, in the communication systems of non-human primates and other animals. It also helped bolster a parallel tradition of teaching symbolism and syntax in artificial language systems to great apes. Although the search for language rudiments in the communications of primates long predates the vervet alarm call story, it is difficult to overstate the impact of the vervet research, for it fueled field and laboratory research programs for several generations of primatologists and kept busy an

equal number of philosophers, linguists, and cognitive scientists debating possible implications for the origins and evolution of language and other vaunted elements of the human condition. Now 40-years on, the original vervet alarm call findings have been revised and claims of semanticity recanted; while other evidence for semantics and syntax in the natural communications of non-humans is sparse and weak. Ultimately, we are forced to conclude that there are simply few substantive precedents in the natural communications of animals for the high-level informational and representational properties of language, nor its complex syntax. This conclusion does not mean primates cannot be taught some version of these elements of language in artificial language systems – in fact, they can. Nor does it mean there is no continuity between the natural communications of animals and humans that could inform the evolution of language – in fact, there is such continuity. It just does not lie in the specialized semantic and syntactic properties of language. In reviewing these matters, I consider why it is that primates do not evince high-level properties of language in their natural communications but why we so readily accepted that they did or should; and what lessons we might draw from that experience. In the process, I also consider why accounts of human-like characteristics in animals can be so irresistibly appealing.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.675172/full>

MINGYEONG CHOI & SANGSUK YOON – Asymmetric Underlying Mechanisms of Relation-Based and Property-Based Noun–Noun Conceptual Combination

Conceptual combination is a fundamental human cognitive ability by which people can experience infinite thinking by artfully combining finite knowledge. For example, one can instantly combine “cactus” and “fish” together as “prickly fish” even if one has never previously heard of a “cactus fish.” Although two major combinatorial types—property and relational combinations—have been identified, the underlying processes of each remain elusive. This study investigates the asymmetric processing mechanisms underlying property and relational combinations by examining differential semantic activation during noun–noun conceptual combination. Across two experiments utilizing each combinatorial process as semantic priming and implementing a lexical decision task immediately after combination, we measure and compare the semantic activation patterns of intrinsic and extrinsic semantic features in these two combinatorial types. We found converging evidence that property and relational combinations involve asymmetric semantic information and entail distinct processing mechanisms. In property combination, the intrinsic feature in the modifier concept showed greater activation than the semantic feature of the same dimension in the head concept. In contrast, in relational combination, the extrinsic semantic feature in the head concept and the whole modifier concept showed similar levels of activation. Moreover, our findings also showed that these patterns of semantic activation occurred only when the combinatorial process was complete, indicating that accessing the same lexical-semantic information is not sufficient to observe asymmetric patterns. These findings demonstrate that property combination involves replacing a specific semantic feature of the head noun with that of the modifier noun, whereas relational combination involves completing the semantic feature of the head noun with the whole modifier concept. We discuss the implications of these findings, research limitations, and future research directions.

{I can see what they are trying to achieve here, but I think they have assumed individual grammars follow the same rules as descriptive grammars. If we take the title, “Executive Officer”, then I can see that (for me) Executive is more informative than Officer, so probably has greater activation. But is Executive a noun or an adjective? That is a matter for ideogrammar, not descriptive grammar, as we can see in the title “Chief Executive Officer”. Is the head noun Officer or Executive Officer? Is the descriptor Chief or Chief Executive? Idiogrammar and context probably play a role here: does Chief in “the Chief Executive Officer says no” play the same role as in “they are not just any Executive Officer, they are the Chief Executive Officer”?}

<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.567971/full>

Nature

ARTICLES

NICK PETRIĆ HOWE – Audio long-read: How ancient people learned to love carbs

Archaeological evidence shows that ancient people ate bread, beer and other carbs, long before domesticated crops.

<https://www.nature.com/articles/d41586-021-01998-6>

Nature Communications

ARTICLES

ALI H. BRIVANLOU & NORBERT GLEICHER – The evolution of our understanding of human development over the last 10 years

As it fulfills an irresistible need to understand our own origins, research on human development occupies a unique niche in scientific and medical research. In this Comment, we explore the progress in our understanding of human development over the past 10 years. The focus is on basic research, clinical applications, and ethical considerations.

<https://www.nature.com/articles/s41467-021-24793-3>

PAPERS

MARLEN FRÖHLICH et al with CAREL P. VAN SCHAİK – Multicomponent and multisensory communicative acts in orang-utans may serve different functions

From early infancy, human face-to-face communication is multimodal, comprising a plethora of interlinked communicative and sensory modalities. Although there is also growing evidence for this in nonhuman primates, previous research rarely disentangled production from perception of signals. Consequently, the functions of integrating articulators (i.e. production organs involved in multicomponent acts) and sensory channels (i.e. modalities involved in multisensory acts) remain poorly understood. Here, we studied close-range social interactions within and beyond mother-infant pairs of Bornean and Sumatran orang-utans living in wild and captive settings, to examine use of and responses to multicomponent and multisensory communication. From the perspective of production, results showed that multicomponent acts were used more than the respective unicomponent acts when the presumed goal did not match the dominant outcome for a specific communicative act, and were more common among non-mother-infant dyads and Sumatran orang-utans. From the perception perspective, we found that multisensory acts were more effective than the respective unisensory acts, and were used more in wild compared to captive populations. We argue that multisensory acts primarily facilitate effectiveness, whereas multicomponent acts become relevant when interaction outcomes are less predictable. These different functions underscore the importance of distinguishing between production and perception in studies of communication.

<https://www.nature.com/articles/s42003-021-02429-y>

Nature Human Behaviour

PAPERS

CARLOS ALÓS-FERRER, JAUME GARCÍA-SEGARRA & ALEXANDER RITSCHEL – Generous with individuals and selfish to the masses

The seemingly rampant economic selfishness suggested by many recent corporate scandals is at odds with empirical results from behavioural economics, which demonstrate high levels of prosocial behaviour in bilateral interactions and low levels of dishonest behaviour. We design an experimental setting, the 'Big Robber' game, where a 'robber' can obtain a large personal gain by appropriating the earnings of a large group of 'victims'. In a large laboratory experiment (N = 640), more than half of all robbers took as much as possible and almost nobody declined to rob. However, the same participants simultaneously displayed standard, predominantly prosocial behaviour in Dictator, Ultimatum and Trust games. Thus, we provide direct empirical evidence showing that individual selfishness in high-impact decisions affecting a large group is compatible with prosociality in bilateral low-stakes interactions. That is, human beings can simultaneously be generous with others and selfish with large groups.

<https://www.nature.com/articles/s41562-021-01170-0>

Nature Scientific Reports

PAPERS

M. ALCARAZ-CASTAÑO et al – First modern human settlement recorded in the Iberian hinterland occurred during Heinrich Stadial 2 within harsh environmental conditions

As the south-westernmost region of Europe, the Iberian Peninsula stands as a key area for understanding the process of modern human dispersal into Eurasia. However, the precise timing, ecological setting and cultural context of this process remains controversial concerning its spatiotemporal distribution within the different regions of the peninsula. While traditional models assumed that the whole Iberian hinterland was avoided by modern humans due to ecological factors until the retreat of the Last Glacial Maximum, recent research has demonstrated that hunter-gatherers entered the Iberian interior at least during Solutrean times. We provide a multi-proxy geoarchaeological, chronometric and paleoecological study on human–environment interactions based on the key site of Peña Capón (Guadalajara, Spain). Results show (1) that this site hosts the oldest modern human presence recorded to date in central Iberia, associated to pre-Solutrean cultural traditions around 26,000 years ago, and (2) that this presence occurred during Heinrich Stadial 2 within harsh environmental conditions. These findings demonstrate that this area of the Iberian hinterland was recurrently occupied regardless of climate and environmental variability, thus challenging the widely accepted hypothesis that ecological risk hampered the human settlement of the Iberian interior highlands since the first arrival of modern humans to Southwest Europe.

<https://www.nature.com/articles/s41598-021-94408-w>

SAVERIO BARTOLINI-LUCENTI et al with DAVID LORDKIPANIDZE – The early hunting dog from Dmanisi with comments on the social behaviour in Canidae and hominins

The renowned site of Dmanisi in Georgia, southern Caucasus (ca. 1.8 Ma) yielded the earliest direct evidence of hominin presence out of Africa. In this paper, we report on the first record of a large-sized canid from this site, namely dentognathic remains, referable to a young adult individual that displays hypercarnivorous features (e.g., the reduction of the m1 metaconid and entoconid) that allow us to include these specimens in the hypodigm of the late Early Pleistocene species *Canis (Xenocyon) lycaonoides*. Much fossil evidence suggests that this species was a cooperative pack-hunter that, unlike other large-sized canids, was capable of social care toward kin and non-kin members of its group. This rather derived hypercarnivorous canid, which has an East Asian origin, shows one of its earliest records at Dmanisi in the Caucasus, at the

gates of Europe. Interestingly, its dispersal from Asia to Europe and Africa followed a parallel route to that of hominins, but in the opposite direction. Hominins and hunting dogs, both recorded in Dmanisi at the beginning of their dispersal across the Old World, are the only two Early Pleistocene mammal species with proved altruistic behaviour towards their group members, an issue discussed over more than one century in evolutionary biology.

<https://www.nature.com/articles/s41598-021-92818-4>

SAMANTHA BROWN et al – Zooarchaeology through the lens of collagen fingerprinting at Denisova Cave

Denisova Cave, a Pleistocene site in the Altai Mountains of Russian Siberia, has yielded significant fossil and lithic evidence for the Pleistocene in Northern Asia. Abundant animal and human bones have been discovered at the site, however, these tend to be highly fragmented, necessitating new approaches to identifying important hominin and faunal fossils. Here we report the results for 8253 bone fragments using ZooMS. Through the integration of this new ZooMS-based data with the previously published macroscopically-identified fauna we aim to create a holistic picture of the zooarchaeological record of the site. We identify trends associated with climate variability throughout the Middle and Upper Pleistocene as well as patterns explaining the process of bone fragmentation. Where morphological analysis of bones from the site have identified a high proportion of carnivore bones (30.2%), we find that these account for only 7.6% of the ZooMS assemblage, with large mammals between 3 and 5 more abundant overall. Our analysis suggests a cyclical pattern in fragmentation of bones which sees initial fragmentation by hominins using percussive tools and secondary carnivore action, such as gnawing and digestion, likely furthering the initial human-induced fragmentation.

<https://www.nature.com/articles/s41598-021-94731-2>

ROSALIA GALLOTTI et al – First high resolution chronostratigraphy for the early North African Acheulean at Casablanca (Morocco)

The onset of the Acheulean, marked by the emergence of large cutting tools (LCTs), is considered a major technological advance in the Early Stone Age and a key turning point in human evolution. The Acheulean originated in East Africa at ~ 1.8–1.6 Ma and is reported in South Africa between ~ 1.6 and > 1.0 Ma. The timing of its appearance and development in North Africa have been poorly known due to the near-absence of well-dated sites in reliable contexts. The ~ 1 Ma stone artefacts of Tighennif (Algeria) and Thomas Quarry I-Unit L (ThI-L) at Casablanca (Morocco) are thus far regarded as documenting the oldest Acheulean in North Africa but whatever the precision of their stratigraphical position, both deserve a better chronology. Here we provide a chronology for ThI-L, based on new magnetostratigraphic and geochemical data. Added to the existing lithostratigraphy of the Casablanca sequence, these results provide the first robust chronostratigraphic framework for the early North African Acheulean and firmly establish its emergence in this part of the continent back at least to ~ 1.3 Ma.

<https://www.nature.com/articles/s41598-021-94695-3>

JEFFREY C. SCHANK – A model of the evolution of equitable offers in n-person dictator games with interbirth intervals

People are often generous even when it is not in their apparent self-interest to do so as demonstrated by numerous experiments using the dictator game (DG). More recent research using DGs has varied the number of dictators and recipients and used these games to investigate the bystander effect and congestible altruism. These studies have found that people are less generous when there are others who could be generous (the bystander effect) and also less generous when there are multiple recipients (congestible altruism) though the sum of their generosity to all recipients increases. A working hypothesis is proposed that the context-sensitive generosity observed in n-person DGs can be explained as equitable behavior. From an evolutionary perspective, explaining the evolution of equitable behavior is challenging at best. To provide an evolutionary explanation, a second working hypothesis is proposed: equitable offers evolve because they reduce resource deficits produced by variability in the accumulation of resources and thereby minimize the length of interbirth intervals (IBIs) and increase fitness. Based on this working hypothesis, an evolutionary model was developed for n-person DGs to investigate the evolution of equitable offers as a resource allocation problem when reproduction is constrained by IBIs. Simulations demonstrated that equitable offers could evolve in group-structured populations when there is a cost (i.e., longer IBIs) to running resource deficits. Mean evolved offers also varied as a function of the number of dictators and recipients in patterns consistent with the bystander effect and congestible altruism. Equitable offers evolved because they reduced resource variability among group members and thereby reduced resource deficits, which insured higher average rates of reproduction for more equitable groups of agents. Implications of these results are discussed.

<https://www.nature.com/articles/s41598-021-94811-3>

New Scientist

NEWS

Dogs will ignore you if they know you are lying, unlike young children

Dogs tend to ignore suggestions from people who are lying, hinting that – unlike human infants and some non-human primates – they might recognise when a person is being deceptive.

<https://www.newscientist.com/article/2284611-dogs-will-ignore-you-if-they-know-you-are-lying-unlike-young-children/#ixzz721pVTD00>

ARTICLES

ALISON GEORGE – Lost art of the Stone Age: The cave paintings redrawing human history

IN 1879, an 8-year-old girl made a discovery that would rock our understanding of human history. On the walls of Altamira cave in northern Spain, she spotted stunning drawings of bison, painted in vivid red and black. More striking even than the images was their age: they were made thousands of years ago by modern humans' supposedly primitive ancestors. Today, nearly 400 caves across Europe have been found decorated with hand stencils, mysterious symbols and beautiful images of animals created by these accomplished artists.

<https://www.newscientist.com/article/mg25133450-700-lost-art-of-the-stone-age-the-cave-paintings-redrawing-human-history/#ixzz721pqVkpL>

PLoS One

PAPERS

SILVANA CONDEMI et al – Blood groups of Neandertals and Denisova decrypted

Blood group systems were the first phenotypic markers used in anthropology to decipher the origin of populations, their migratory movements, and their admixture. The recent emergence of new technologies based on the decoding of nucleic acids from an individual's entire genome has relegated them to their primary application, blood transfusion. Thus, despite the finer mapping of the modern human genome in relation to Neanderthal and Denisova populations, little is known about red cell blood groups in these archaic populations. Here we analyze the available high-quality sequences of three Neanderthals and one Denisovan individuals for 7 blood group systems that are used today in transfusion (ABO including H/Se, Rh (Rhesus), Kell, Duffy, Kidd, MNS, Diego). We show that Neanderthal and Denisova were polymorphic for ABO and shared blood group alleles recurrent in modern Sub-Saharan populations. Furthermore, we found ABO-related alleles currently preventing from viral gut infection and Neanderthal RHD and RHCE alleles nowadays associated with a high risk of hemolytic disease of the fetus and newborn. Such a common blood group pattern across time and space is coherent with a Neanderthal population of low genetic diversity exposed to low reproductive success and with their inevitable demise. Lastly, we connect a Neanderthal RHD allele to two present-day Aboriginal Australian and Papuan, suggesting that a segment of archaic genome was introgressed in this gene in non-Eurasian populations. While contributing to both the origin and late evolutionary history of Neanderthal and Denisova, our results further illustrate that blood group systems are a relevant piece of the puzzle helping to decipher it.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0254175>

Proceedings of the Royal Society B

PAPERS

ROI HAREL, J. CARTER LOFTUS & MARGARET C. CROFOOT – Locomotor compromises maintain group cohesion in baboon troops on the move

When members of a group differ in locomotor capacity, coordinating collective movement poses a challenge: some individuals may have to move faster (or slower) than their preferred speed to remain together. Such compromises have energetic repercussions, yet research in collective behaviour has largely neglected locomotor consensus costs. Here, we integrate high-resolution tracking of wild baboon locomotion and movement with simulations to demonstrate that size-based variation in locomotor capacity poses an obstacle to the collective movement. While all baboons modulate their gait and move-pause dynamics during collective movement, the costs of maintaining cohesion are disproportionately borne by smaller group members. Although consensus costs are not distributed equally, all group-mates do make locomotor compromises, suggesting a shared decision-making process drives the pace of collective movement in this highly despotic species. These results highlight the importance of considering how social dynamics and locomotor capacity interact to shape the movement ecology of group-living species.

<https://royalsocietypublishing.org/doi/full/10.1098/rspb.2021.0839>

LUCREZIA LONARDO et al – Dogs follow human misleading suggestions more often when the informant has a false belief

We investigated whether dogs (*Canis familiaris*) distinguish between human true (TB) and false beliefs (FB). In three experiments with a pre-registered change of location task, dogs (n = 260) could retrieve food from one of two opaque buckets after witnessing a misleading suggestion by a human informant (the 'communicator') who held either a TB or a FB about the location of food. Dogs in both the TB and FB group witnessed the initial hiding of food, its subsequent displacement by a second experimenter, and finally, the misleading suggestion to the empty bucket by the communicator. On average, dogs chose the suggested container significantly more often in the FB group than in the TB group and hence were sensitive to the experimental manipulation. Terriers were the only group of breeds that behaved like human infants and apes tested in previous studies with a similar paradigm, by following the communicator's suggestion more often in the TB than in the FB group. We discuss the results in terms of processing of goals and beliefs. Overall, we provide evidence that pet dogs distinguish between TB and FB scenarios, suggesting that the mechanisms underlying sensitivity to others' beliefs have not evolved uniquely in the primate lineage.

<https://royalsocietypublishing.org/doi/full/10.1098/rspb.2021.0906>

YE ZHANG et al – More than words: word predictability, prosody, gesture and mouth movements in natural language comprehension

The ecology of human language is face-to-face interaction, comprising cues such as prosody, co-speech gestures and mouth movements. Yet, the multimodal context is usually stripped away in experiments as dominant paradigms focus on linguistic processing only. In two studies we presented video-clips of an actress producing naturalistic passages to participants while recording their electroencephalogram. We quantified multimodal cues (prosody, gestures, mouth movements) and measured their effect on a well-established electroencephalographic marker of processing load in comprehension (N400). We found that brain responses to words were affected by informativeness of co-occurring multimodal cues, indicating that comprehension relies on linguistic and non-linguistic cues. Moreover, they were affected by interactions between the multimodal cues, indicating that the impact of each cue dynamically changes based on the informativeness of other cues. Thus, results show that multimodal cues are integral to comprehension, hence, our theories must move beyond the limited focus on speech and linguistic processing.

<https://royalsocietypublishing.org/doi/full/10.1098/rspb.2021.0500>

Trends in Cognitive Sciences

ARTICLES

ORI PLONSKY & IDO EREV – To predict human choice, consider the context

Choice prediction competitions suggest that popular models of choice, including prospect theory, have low predictive accuracy. Peterson et al. show the key problem lies in assuming each alternative is evaluated in isolation, independently of the context. This observation demonstrates how a focus on predictions can promote understanding of cognitive processes.

[https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613\(21\)00177-7](https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(21)00177-7)

REVIEWS

TOM V. SMULDERS – How to obtain satisfying explanations of brain evolution

Review of 'Adaptation and the Brain' by Susan D. Healy, Oxford University Press (2021).

[https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347\(21\)00190-7](https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347(21)00190-7)

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