EAORC BULLETIN 955 – 3 October 2021

CONTENTS

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.

ACADEMIA.EDU – The evolution of handedness in humans and great apes

In Journal of Anthropological Sciences 86, pp. 7-35 (2008)

LISA CASHMORE, NATALIE UOMINI & AMANDINE CHAPELAIN – The evolution of handedness in humans and great apes: a review and current issues

Population-level right-handedness is a defining characteristic of humans. Despite extensive research, we still do not know the conditions or timing of its emergence in human evolution. We present a review of research into the origins of handedness, based on fossil and archaeological data for hand preference and great ape hand-use. The data show that skeletal asymmetries in arm and hand bones supporting a right-sided dominance were present at least in the genus Homo, although data are more robust for Neanderthals. The evidence from tool-use, production, and cave art confirms that right-hand preference was established in Neanderthals and was maintained until the present. The great apes can provide real-life models for testing the conditions that facilitate or enhance hand preference at both the individual and group levels. The database on great ape hand-use indicates that they do exhibit hand preferences, especially in complex tasks. However, their preferences vary between tasks, and while group-level biases have occasionally been reported, no human-like handedness bias has been found. We discuss the methodological problems encountered in these approaches. Shared problems include a lack of agreed terminology both within and between disciplines, small sample sizes, interpretation biases and a failure to replicate experiments. In general, there is a paucity of fossil material, with poor preservation hampering traditional metric methods. The archaeological data are often founded on unreliable methods. The primate database is plagued by the use of measures that could be inappropriate for revealing hand preference, and by methodological inconsistencies between studies. We emphasise the need to standardise the methods to allow between studies and species comparisons. We propose that when referring to 'handedness' it is more appropriate to use the terms 'hand preference' and 'hand use', to avoid confusion with each discipline's own definition of handedness.
https://www.academia.edu/965042/The_evolution_of_handedness_in_humans_and_great_apes_a_review_and_current_issues

ACADEMIA.EDU – First communions: Mimetic sharing without theory of mind

Jordan Zlatev, Timothy P. Racine, Chris Sinha and Esa Itkonen (Eds.), In The Shared Mind: Perspectives on intersubjectivity. John Benjamins (2008)

DANIEL D. HUTTO – First communions: Mimetic sharing without theory of mind

It is widely held that the gradual development of metarepresentational Theory of Mind (ToM) abilities constituted at least one important hominid upgrade. Are such abilities really needed to explain hominid (i) tool-making, (ii) social cohesion, or even (iii) basic interpretative and language formation/learning capabilities? I propose an alternative explanation of what underlies these sophisticated capacities – the Mimetic Ability Hypothesis (MAH). MAH claims that a vastly increased capacity for recreative imagination best explains the kinds of sophisticated intersubjective engagements of which hominids would have been capable – and that these constituted an important basis for the development of complex language. This proposal puts the idea of the evolution of ToM devices under considerable strain.
https://www.academia.edu/347253/First_Communions_Mimetic_Sharing_without_Theory_of_Mind

RESEARCHGATE – What Do Creoles and Pidgins Tell Us About the Evolution of Language?

In Language Evolution: Contact, competition and change. Continuum Press (2008)

SALIKOKO SANGOL MUFWENE – What Do Creoles and Pidgins Tell Us About the Evolution of Language?

Bickerton (1990) and Givón (1998) claim that the development of creoles and pidgins can provide insights about how language has evolved in mankind. This extrapolation has been encouraged by the position (disputed below) that creoles were typically developed from erstwhile pidgins by children who transformed them from syntaxless protolinguistic means of communication to full-fledged languages (endowed with complex syntactic systems).Underlying this position in the literature which assumes that creoles have pidgin ancestors is the unarticulated assumption that systems evolve from simpler to more complex structures. It has mattered very little that over the past few millennia the inflectional systems of many Indo-European languages (e.g., English and French) have likewise evolved from rich to poor ones, and their syntactic structures into increasingly analytical ones in which the position of syntactic constituents is critical to determining their functions.

I argue that what little the development of creoles and pidgins tells us about the evolution of language in mankind is largely not what has been claimed by Bickerton and Givón. It has to do with competition and selection during the said evolution, with how gradual the process was, and with how communal norms arise through the action of the "invisible hand." The histories of the development of creoles and pidgins in, respectively, the European plantation and trade colonies of the seventeenth to nineteenth centuries present nothing that comes close to replicating the ecological conditions under which modern language emerged in the hominid-to-human phylogeny. Nor are there any conceivable parallels between, on the one hand, the early hominids' brains and minds that produced the proto-language posited by Bickerton (1990, 2000) and Givón (1998) and, on the other, those of both the modern adults who generated (incipient) pidgins and the modern children who produce child language, even if one subscribes to the ontogeny-recapitulates-phylogeny thesis.
https://www.researchgate.net/publication/354423275_What_Do_Creoles_and_Pidgins_Tell_Us_About_the_Evolution_of_Language

RESEARCHGATE – Human larynx motor cortices coordinate respiration for vocal-motor control

NeuroImage 239:118326 (article in Press) (2021)

MICHEL BELYK et al – Human larynx motor cortices coordinate respiration for vocal-motor control

Vocal flexibility is a hallmark of the human species, most particularly the capacity to speak and sing. This ability is supported in part by the evolution of a direct neural pathway linking the motor cortex to the brainstem nucleus that controls the larynx - the primary sound source for communication. Early brain imaging studies demonstrated that larynx motor cortex at the dorsal end of the orofacial division of motor cortex (dLMC) integrated laryngeal and respiratory control, thereby coordinating two major muscular systems that are necessary for vocalization. Neurosurgical studies have since demonstrated the existence of a second larynx motor area at the ventral extent of the orofacial motor division (vLMC) of motor cortex. The vLMC has been presumed to be less relevant to speech motor control, but its functional role remains unknown. We employed a novel ultra-high field (7T) magnetic resonance imaging paradigm that combined singing and whistling simple melodies to localise the larynx motor cortices and test their involvement in respiratory motor control. Surprisingly, whistling activated both 'larynx areas' more strongly than singing despite the reduced involvement of the larynx during whistling. We provide further evidence for the existence of two larynx motor areas in the human brain, and the first evidence that laryngeal-respiratory integration is a shared property of both larynx motor areas. We outline explicit predictions about the descending motor pathways that give these cortical areas access to both the laryngeal and respiratory systems and discuss the implications for the evolution of speech.
https://www.researchgate.net/publication/352893124_Human_larynx_motor_cortices_coordinate_respiration_for_vocal-motor_control

CONFERENCE ALERT – From Fossils to Mind – 30 Nov to 1 Dec 2021

We are pleased to announce that our workshop, "From Fossils to Mind", will take place on the 30th of November and 1st of December 2021, online.
The overall objective of the workshop is to better extract information about the minds of fossil species and discuss applications in neuro and behavioral sciences. In 1925, Raymond Dart stirred a great debate when he suggested that the Taung child, an Australopithecus africanus fossil specimen discovered in South Africa, had a modern human-like brain and cognitive capacities. Yet the question stands: how do human brain size and structure relate to the evolution of our behavior? The "From Fossils to Mind" workshop will bring together key scientific researchers from different disciplines for an in-depth discussion on what is currently done to draw relationships between the fossil record and brain function, what could be done in the future, and what the broader implications for anthropology are.

Registration and abstract submission is now open!
Please find all the information on the website: https://saneurosoc.co.za/fromfossilstomind/.

NEWS

BREAKING SCIENCE – Prehistoric New Guineans May Have Collected Cassowary Eggs to Hatch & Rear

As early as 18,000 years ago, early foragers in the montane rainforests of New Guinea preferentially collected eggs of cassowaries (Casuarius sp.) in late stages of embryonic growth and may have hatched them to rear chicks, according to an analysis of ancient eggshells from two Late Pleistocene/Early Holocene rock shelter sites in eastern New Guinea.
http://feedproxy.google.com/~r/BreakingScienceNews/~3/EUrh__lwkI0/prehistoric-new-guineans-cassowary-eggs-10111.html?utm_source=feedburner&utm_medium=email

SCIENCE DAILY – Late Pleistocene humans may have hatched and raised cassowary chicks

As early as 18,000 years ago, humans in New Guinea may have collected cassowary eggs near maturity and then raised the birds to adulthood, according to an international team of scientists, who used eggshells to determine the developmental stage of the ancient embryos/chicks when the eggs cracked.
https://www.sciencedaily.com/releases/2021/09/210927150526.htm

SCIENCE DAILY – Elephants strive to cooperate with allies, until the stakes get too high

Asian elephants are keen to cooperate with friends and have evolved strategies to mitigate competition in their social groups, but cooperation breaks down when food resources are limited, according to new research. The study sheds light on the evolution of cooperative behavior in mammals.
https://www.sciencedaily.com/releases/2021/09/210928141845.htm

SCIENCE DAILY – Male giraffes are more socially connected than females

Although female giraffes have closer 'friends' than male giraffes, male giraffes have more 'acquaintances' than females, according to new research. The study demonstrates that giraffes form a complex multilevel society that is driven by differences in the social connections among individuals, which could have conservation implications for the endangered giraffes.
https://www.sciencedaily.com/releases/2021/09/210927132029.htm

SCIENCE DAILY – Great apes' consonant & vowel-like sounds travel over distance without losing meaning

Scientists have shown that orangutan call signals believed to be closest to the precursors to human language, travel through forest over long distances without losing their meaning. This throws into question the accepted mathematical model on the evolution of human speech.
https://www.sciencedaily.com/releases/2021/09/210928193837.htm

SCIENCE DAILY – Our choices may be making us more individualistic

While having a variety of choices is widely seen as a positive consequence of economic development, what impact does this explosion of choice have on the psyche of the individual, and further, society as a whole?
https://www.sciencedaily.com/releases/2021/09/210930104832.htm

SCIENCE DAILY – Morality demonstrated in stories can alter judgement for early adolescents

A new study looks at how exposure to media content featuring specific moral values (care, fairness, loyalty and authority) might influence the weight kids place on those values. The main study showed that exposure to books emphasizing four separate moral values increased salience of their respective intuitions in early adolescents.
https://www.sciencedaily.com/releases/2021/10/211001130254.htm

SCIENCE NEWS – Sunlight affects whether languages have a word for 'blue'

Color is a spectrum: Red fades from orange to yellow, whereas green merges to turquoise, then blue. Languages treat this spectrum in different ways: Some have separate words for "green" and "blue," others lump the two together. Some barely bother with color terms at all. "The question is, why?" says Dan Dediu, an evolutionary linguist at Lumière University Lyon 2. Now, he and his colleagues have found evidence for an unexpected answer: People with more exposure to sunlight are more likely to speak languages that lump green and blue together, under a term that linguists dub "grue." That's because of the effects of a lifetime of light exposure, the team speculates: Lots of Sun causes a condition called "lens brunescence" that makes it harder to distinguish the two hues.
https://www.science.org/content/article/sunlight-affects-whether-languages-have-word-blue

SOCIETY FOR SCIENCE – 'Ghost tracks' suggest people came to the Americas earlier than once thought

Prehistoric people's footprints show that humans were in North America during the height of the last ice age, researchers say.
http://click.societyforscience-email.com/?qs=8790b516e0444c5f94ba9b4060b87bd53c40760c821d8626d37c80048b7812a7627b15c83bf22eb991efba03aa771ce06af4b1872d0b2294

OTHER NEWS – GUARDIAN – Oh my days: linguists lament slang ban in London school

Exclusive: 'like', 'bare', 'that's long' and 'cut eyes at me' among terms showing up in pupils' work now vetoed in classroom.
https://www.theguardian.com/education/2021/sep/30/oh-my-days-linguists-lament-slang-ban-in-london-school

PUBLICATIONS

American Journal of Physical Anthropology

PAPERS

LINDA M. FEDIGAN et al – Costs of male infanticide for female capuchins: When does an adaptive male reproductive strategy become costly for females and detrimental to population viability?

Infanticide in white-faced capuchins (Cebus capucinus imitator) typically occurs in association with alpha male replacements (AMRs). Although infanticide is likely adaptive for males, it imposes costs on females that are difficult to quantify without long-term demographic data. Here we investigate effects of AMRs and infanticide on female reproductive success and how these costs affect capuchin groups. We investigate (1) effects of AMR frequency on the production of surviving infants; (2) energetic and (3) temporal "opportunity costs" of infant loss; and (4) how AMR frequency impacts capuchin group sizes. We censused six groups (7–33 years/group, 74 adult females). We modeled surviving infant production in relation to AMR. We estimated a female's energy requirements for lost infants and the temporal cost relative to the median reproductive window. We simulated how varying AMR rates would affect future capuchin group sizes.

Females exposed to more frequent AMR tended to produce fewer surviving offspring. We estimate the average lost infant requires approximately 33% additional energy intake for its mother and represents 10% of the average reproductive opportunity window available to females. Simulated populations remain viable at the observed rate of AMR occurrence but decrease in size at even slightly higher rates.

While infanticide is adaptive for males, for females it affects lifetime reproductive success and imposes energetic and opportunity costs. Although capuchin populations have evolved with AMRs and infanticide, small increases in AMR frequency may lead to population decline/extinction. Infanticide likely plays a large role in population maintenance for capuchins.

https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.24354

ELIZABETH A. MOFFETT – Sexual dimorphism in the size and shape of the non-obstetric pelvis across anthropoids

The presence of sexual dimorphism in the birth canals of anthropoid primates is well documented, and birth canal dimorphism tends to be especially robust among species that give birth to relatively large neonates. However, it is less clear whether birth canal dimorphism is accompanied by dimorphism in parts of the pelvis not directly under selection for birth, particularly including bi-iliac breadth, biactetabular breadth, lengths of the ischium and ilium, and 3D shape. This study investigates the patterns of dimorphism among anthropoid primates in those parts of the pelvis which do not directly contribute to the bony birth canal, here termed the non-obstetric pelvis.

3D landmark data were collected on the bony pelves of 899 anthropoid primates. Specifically, landmark data were collected on parts of the pelvis not thought to be directly involved in selection for parturition, including portions of the posterior and superior ilium, acetabulum, and lateral ischium. Principal components analysis and Euclidean distance matrix analysis were used to ascertain sexual dimorphism in pelvic sizes and shapes within each species.

Results show that dimorphism in non-obstetric pelvic size and shape exists across anthropoids, just as is seen in the birth canal. However, the magnitude of dimorphism in non-obstetric pelvic shape tends to be greater among anthropoid species that give birth to relatively large neonates compared with those birthing smaller neonates relative to maternal pelvic size. Though all anthropoids included in the study show some degree of sexual dimorphism in non-obstetric pelvic size and/or shape, species which give birth to large neonates relative to maternal pelvic size have the highest levels of dimorphism in pelvic shape. Moreover, the magnitude of dimorphism in certain parts of the non-obstetric pelvis mirrors patterns seen in the birth canal. The results of this study are promising for ascertaining pelvic dimorphism and relative neonate size in fossil primates, particularly in fragmentary remains which do not preserve a complete bony birth canal.

https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.24398

REVIEWS

CHARLES C. ROSEMAN – A most interesting problem: What Darwin's descent of man got right and wrong about human evolution , Jeremy DeSilva Princeton, NJ: Princeton University Press. (2021) ISBN 9780691191140

No abstract/summary. This is what happens when you let an Accountant do a Marketer's job.

https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.24361

JONATHAN MARKS – Human. Edited by , Rees, Amanda and Sleigh, Charlotte. London: Reaktion Books. 208 pp. ISBN 9781789142143. $19.95 (hardback).

No abstract/summary. It's mind over matter: AJPA don't mind, and the readership don't matter.

https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.24367

ALEX J. PELISSERO – Ancestors: A creative and immersive game based on human evolution , ANCESTORS: THE HUMANKIND ODYSSEY By Panache Digital Games. , Private Division. 2019. $39.99 (Windows/PlayStation 4/Xbox One).

No abstract/summary. They have learned from their mistakes and, when called upon, know how to repeat them exactly.

https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.24382

Animal Behaviour

PAPERS

KARA K. WALKER et al – Evaluating adaptive hypotheses for female-led infanticide in wild chimpanzees

Although rare among group-living primates, infanticide by females has been reported in several chimpanzee, Pan troglodytes, populations. We examined 13 infanticidal attacks over 47 years at Gombe National Park, Tanzania to evaluate three adaptive hypotheses. (1) Exploitation of the infant as a food resource – by eating a vulnerable neonate, attackers gain calories that may be important during periods of food scarcity or energetic stress. (2) Resource competition – Gombe females concentrate their foraging in overlapping core areas and dominance rank influences foraging success. By killing the infant of a female with high core area overlap, the perpetrator removes a current and future competitor, improving her access to food. (3) Low cost – female chimpanzees mature and reproduce slowly, and longevity increases reproductive success. Physical aggression causes risk of severe injury or death, so females will only mount attacks when risks to the perpetrator are low. In support of hypothesis 1, females usually consumed the carcass. However, attacks were not more likely in times of resource or energy scarcity. In support of hypothesis 2, females attacked others with whom they shared core areas, but attacks did not cause shifts in ranging patterns. In support of hypothesis 3, one or more attackers always outranked the victim, the attacks often involved coalitions and victims usually lacked kin support. Attacks were more likely to be successful when attackers were not hindered by clinging infants and victims could not retreat. Our results provide further evidence for female competition and the adaptive value of female-led infanticide in this species.
https://www.sciencedirect.com/science/article/abs/pii/S0003347221002505

Biology Letters

PAPERS

KATARZYNA PISANSKI, AGATA GROYECKA-BERNARD & PIOTR SOROKOWSKI – Human voice pitch measures are robust across a variety of speech recordings: methodological and theoretical implications

Fundamental frequency (fo), perceived as voice pitch, is the most sexually dimorphic, perceptually salient and intensively studied voice parameter in human nonverbal communication. Thousands of studies have linked human fo to biological and social speaker traits and life outcomes, from reproductive to economic. Critically, researchers have used myriad speech stimuli to measure fo and infer its functional relevance, from individual vowels to longer bouts of spontaneous speech. Here, we acoustically analysed fo in nearly 1000 affectively neutral speech utterances (vowels, words, counting, greetings, read paragraphs and free spontaneous speech) produced by the same 154 men and women, aged 18–67, with two aims: first, to test the methodological validity of comparing fo measures from diverse speech stimuli, and second, to test the prediction that the vast inter-individual differences in habitual fo found between same-sex adults are preserved across speech types. Indeed, despite differences in linguistic content, duration, scripted or spontan--eous production and within-individual variability, we show that 42–81% of inter-individual differences in fo can be explained between any two speech types. Beyond methodological implications, together with recent evidence that inter-individual differences in fo are remarkably stable across the lifespan and generalize to emotional speech and nonverbal vocalizations, our results further substantiate voice pitch as a robust and reliable biomarker in human communication.
https://royalsocietypublishing.org/doi/abs/10.1098/rsbl.2021.0356

AMALIA P. M. BASTOS, PATRICK M. WOOD & ALEX H. TAYLOR – Are parrots naive realists? Kea behave as if the real and virtual worlds are continuous

Human psychology and animal cognition have increasingly used virtual stimuli to test cognitive abilities, with the expectation that participants are 'naive realists', that is, that they perceive virtual environments as both equivalent and continuous with real-life equivalents. However, there have been no attempts to investigate whether nonhuman subjects in fact behave as if physical processes in the virtual and real worlds are continuous. As kea parrots have previously shown the ability to transfer knowledge between real stimuli and both images on paper and images on touchscreens, here we test whether kea behave as naive realists and so expect physical processes to be continuous between the physical and virtual worlds. We find that, unlike infants, kea do not discriminate between these two contexts, and that they do not exhibit a preference for either. Our findings therefore validate the use of virtual stimuli as a powerful tool for testing the cognition of nonhuman animal species.
https://royalsocietypublishing.org/doi/full/10.1098/rsbl.2021.0298

ADRIANO R. LAMEIRA et al – Orangutan information broadcast via consonant-like and vowel-like calls breaches mathematical models of linguistic evolution

The origin of language is one of the most significant evolutionary milestones of life on Earth, but one of the most persevering scientific unknowns. Two decades ago, game theorists and mathematicians predicted that the first words and grammar emerged as a response to transmission errors and information loss in language's precursor system, however, empirical proof is lacking. Here, we assessed information loss in proto-consonants and proto-vowels in human pre-linguistic ancestors as proxied by orangutan consonant-like and vowel-like calls that compose syllable-like combinations. We played back and re-recorded calls at increasing distances across a structurally complex habitat (i.e. adverse to sound transmission). Consonant-like and vowel-like calls degraded acoustically over distance, but no information loss was detected regarding three distinct classes of information (viz. individual ID, context and population ID). Our results refute prevailing mathematical predictions

and herald a turning point in language evolution theory and heuristics. Namely, explaining how the vocal–verbal continuum was crossed in the hominid family will benefit from future mathematical and computational models that, in order to enjoy empirical validity and superior explanatory power, will be informed by great ape behaviour and repertoire.
https://royalsocietypublishing.org/doi/full/10.1098/rsbl.2021.0302

POPPY J. LAMBERT et al – Goffin's cockatoos discriminate objects based on weight alone
Paying attention to weight is important when deciding upon an object's efficacy or value in various contexts (e.g. tool use, foraging). Proprioceptive discrimination learning, with objects that differ only in weight, has so far been investigated almost exclusively in primate species. Here, we show that while Goffin's cockatoos learn faster when additional colour cues are used, they can also quickly learn to discriminate between objects on the basis of their weight alone. Ultimately, the birds learned to discriminate between visually identical objects on the basis of weight much faster than primates, although methodological differences between tasks should be considered.
https://royalsocietypublishing.org/doi/full/10.1098/rsbl.2021.0250

MARISKA E. KRET et al – The ontogeny of human laughter
Human adult laughter is characterized by vocal bursts produced predominantly during exhalation, yet apes laugh while exhaling and inhaling. The current study investigated our hypothesis that laughter of human infants changes from laughter similar to that of apes to increasingly resemble that of human adults over early development. We further hypothesized that the more laughter is produced on the exhale, the more positively it is perceived. To test these predictions, novice (n = 102) and expert (phonetician, n = 15) listeners judged the extent to which human infant laughter (n = 44) was produced during inhalation or exhalation, and the extent to which they found the laughs pleasant and contagious. Support was found for both hypotheses, which were further confirmed in two pre-registered replication studies. Likely through social learning and the anatomical development of the vocal production system, infants' initial ape-like laughter transforms into laughter similar to that of adult humans over the course of ontogeny.
https://royalsocietypublishing.org/doi/abs/10.1098/rsbl.2021.0319

Current Biology

ARTICLES

JULIE M. KERN – Animal cooperation: Context-specific helping benefits
In cooperatively breeding animals, much of the variation in the quantity of help provided by group members remains unexplained. A new study on an Australian songbird suggests we need to look to the context-specific benefits of helping for new insights.
https://www.cell.com/current-biology/fulltext/S0960-9822(21)00969-6

PAPERS

NIKI TEUNISSEN et al – Context-dependent social benefits drive cooperative predator defense in a bird
Understanding the major evolutionary transition from solitary individuals to complex societies is hampered by incomplete insight into the drivers of living in cooperative groups. This may be because the benefits of sociality can derive from group living itself (e.g., dilution of predation risk), or depend on social context (e.g., kin or potential mates represent beneficial group members). Cooperative breeders, where non-breeding subordinates assist breeders, have provided important insights into the drivers of cooperation, but comprehensive assessment of diverse potential benefits has been hindered by a prevailing focus on benefits deriving from raising offspring. We propose a novel paradigm to tease apart different benefits by comparing cooperative responses to predators threatening dependent young and adult group members according to their value for the responding individual. Applying this approach in purple-crowned fairy-wrens, Malurus coronatus, we show that non-breeding subordinates are more responsive to nest predators—a threat to offspring—when their probability of inheriting a breeding position is greater—irrespective of group size, relatedness to offspring, or opportunity to showcase individual quality to potential mates. This suggests that offspring defense is modulated according to the benefits of raising future helpers. Conversely, when predators pose a threat to adults, responsiveness depends on social context: subordinates respond more often when kin or potential mates are under threat, or when group members are associated with mutualistic social bonds, indirect genetic benefits, and future reproductive benefits. Our results demonstrate that direct and kin-selected benefits of sociality are context dependent, and highlight the importance of predation risk in driving complex sociality.
https://www.cell.com/current-biology/fulltext/S0960-9822(21)00899-X

BRENDAN I. COHN-SHEEHY et al – The hippocampus constructs narrative memories across distant events
Life's events are scattered throughout time, yet we often recall different events in the context of an integrated narrative. Prior research suggests that the hippocampus, which supports memory for past events, can support the integration of overlapping associations or separate events in memory. However, the conditions that lead to hippocampus-dependent memory integration are unclear. We used functional brain imaging to test whether the opportunity to form a larger narrative (narrative coherence) drives hippocampal memory integration. During encoding of fictional stories, patterns of hippocampal activity, including activity at boundaries between events, were more similar between distant events that formed one coherent narrative, compared with overlapping events taken from unrelated narratives. One day later, the hippocampus

preferentially supported detailed recall of coherent narrative events, through reinstatement of hippocampal activity patterns from encoding. These findings demonstrate a key function of the hippocampus: the integration of events into a narrative structure for memory.
https://www.cell.com/current-biology/fulltext/S0960-9822(21)01253-7

Frontiers in Psychology

PAPERS

MAREIKE KLAFKA & ULF LISZKOWSKI – The Emergence of Lying for Reputational Concerns in 5-Year-Olds

Research suggests that even young children engage in strategic behaviors to manipulate the impressions others form of them and that they manage their reputation in order to cooperate with others. The current study investigated whether young children also lie in order to manage their, or their group's, reputation in front of ingroup and outgroup members. Five-year old children (n=55) were randomly assigned to an individual reputation condition or a group reputation condition. Then, they played a mini dictator game in which they could share privately any number of their or their group's stickers with an anonymous child. Participants then met ingroup and outgroup members, established through a minimal group design, via a pre-recorded, staged Skype call. Group members asked the participant how many stickers she, or her group, had donated. Results revealed that children stated to peers to have donated more than their actual donation, with no differences between conditions and no difference toward ingroup and outgroup members. Findings suggest that by 5years of age, children use lying as a strategy to manage their reputation.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.700695/full

ZHENG ZHOU & WAN-CHI WONG – Young Children's Understanding of Restorative Justice

The present study investigated how young children understand the sophisticated concept of restorative justice in unintentional moral transgressions. A sex-balanced sample of 5-year-old (M = 5.67, SD = 0.34, 49.3% girls) and 8-year-old (M = 7.86, SD = 0.29, 46.0% girls) Chinese children (N = 193) participated in the study. In designing the materials, we distilled the multidimensional meanings of restorative justice into two stories, one addressing the theme of property violation and the other physical harm; both stories were set in an animal community. We then engaged the children in joint reading and an interview, during which they showed preference for the given treatments for the transgressor (two restorative treatments vs. two retributive treatments) and ranked two further sets of restorative vs. retributive treatments at the community level. The results indicated that most children favored restorative treatments over retributive treatments for a transgressor, and the 8-year-olds viewed psychological restoration more favorably and behavioral punishment less favorably than the 5-year-olds. The children also tended to endorse restorative treatments at the community level, revealing an understanding of the needs, and obligations of all parties concerned. Notably, more 8- than 5-year-olds showed a consistency in restorative orientation at this level. Interpreting our data through the lens of the Representational Redescription model, we attained a more refined account of young children's levels of understanding regarding restorative justice. These results provide insights for the early cultivation of restorative justice among young children, which is a cornerstone for its successful practice in any society.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.715279/full

JON MALLATT & TODD E. FEINBERG – Multiple Routes to Animal Consciousness: Constrained Multiple Realizability Rather Than Modest Identity Theory

The multiple realizability thesis (MRT) is an important philosophical and psychological concept. It says any mental state can be constructed by multiple realizability (MR), meaning in many distinct ways from different physical parts. The goal of our study is to find if the MRT applies to the mental state of consciousness among animals. Many things have been written about MRT but the ones most applicable to animal consciousness are by Shapiro in a 2004 book called The Mind Incarnate and by Polger and Shapiro in their 2016 work, The Multiple Realization Book. Standard, classical MRT has been around since 1967 and it says that a mental state can have very many different physical realizations, in a nearly unlimited manner. To the contrary, Shapiro's book reasoned that physical, physiological, and historical constraints force mental traits to evolve in just a few, limited directions, which is seen as convergent evolution of the associated neural traits in different animal lineages. This is his mental constraint thesis (MCT). We examined the evolution of consciousness in animals and found that it arose independently in just three animal clades—vertebrates, arthropods, and cephalopod mollusks—all of which share many consciousness-associated traits: elaborate sensory organs and brains, high capacity for memory, directed mobility, etc. These three constrained, convergently evolved routes to consciousness fit Shapiro's original MCT. More recently, Polger and Shapiro's book presented much the same thesis but changed its name from MCT to a "modest identity thesis." Furthermore, they argued against almost all the classically offered instances of MR in animal evolution, especially against the evidence of neural plasticity and the differently expanded cerebrums of mammals and birds. In contrast, we argue that some of these classical examples of MR are indeed valid and that Shapiro's original MCT correction of MRT is the better account of the evolution of consciousness in animal clades. And we still agree that constraints and convergence refute the standard, nearly unconstrained, MRT.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.732336/full

IRENE M. PEPPERBERG – Nonhuman and Nonhuman-Human Communication: Some Issues and Questions
Deciphering nonhuman communication – particularly nonhuman vocal communication – has been a longstanding human quest. We are, for example, fascinated by the songs of birds and whales, the grunts of apes, the barks of dogs, and the croaks of frogs; we wonder about their potential meaning and their relationship to human language. Do these utterances express little more than emotional states, or do they convey actual bits and bytes of concrete information? Humans' numerous attempts to decipher nonhuman systems have, however, progressed slowly. We still wonder why only a small number of species are capable of vocal learning, a trait that, because it allows for innovation and adaptation, would seem to be a prerequisite for most language-like abilities. Humans have also attempted to teach nonhumans elements of our system, using both vocal and nonvocal systems. The rationale for such training is that the extent of success in instilling symbolic reference provides some evidence for, at the very least, the cognitive underpinnings of parallels between human and nonhuman communication systems. However, separating acquisition of reference from simple object-label association is not a simple matter, as reference begins with such associations, and the point at which true reference emerges is not always obvious. I begin by discussing these points and questions, predominantly from the viewpoint of someone studying avian abilities. I end by examining the question posed by Premack: do nonhumans that have achieved some level of symbolic reference then process information differently from those that have not? I suggest the answer is likely "yes," giving examples from my research on Grey parrots (Psittacus erithacus).
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.647841/full

ANTTI O. TANSKANEN et al – Does Transition to Retirement Promote Grandchild Care? Evidence From Europe
Evolutionary theory posits that grandparents can increase their inclusive fitness by investing in their grandchildren. This study explored whether the transition to retirement affected the amount of grandchild care that European grandparents provided to their descendants. Data from five waves of the longitudinal Survey of Health, Aging, and Retirement in Europe collected between 2004 and 2015 from 15 countries were used. We executed within-person (or fixed-effect) regression models, which considered individual variations and person-specific changes over time. It was detected that transition to retirement was associated with increased grandchild care among both grandmothers and grandfathers. However, the effect of retirement was stronger for grandfathers than for grandmothers. Moreover, transition to retirement was associated with increased grandchild care among both maternal and paternal grandparents, but there was no significant difference between lineages in the magnitude of the effect of transition to retirement on grandchild care. In public debate retirees are often considered a burden to society but the present study indicated that when grandparents retire, their investment in grandchildren increased. The findings are discussed with reference to key evolutionary theories that consider older adults' tendency to invest time and resources in their grandchildren.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.738117/full

JULIEN MEYER, MARCELO O. MAGNASCO & DIANA REISS – The Relevance of Human Whistled Languages for the Analysis and Decoding of Dolphin Communication
Humans use whistled communications, the most elaborate of which are commonly called "whistled languages" or "whistled speech" because they consist of a natural type of speech. The principle of whistled speech is straightforward: people articulate words while whistling and thereby transform spoken utterances by simplifying them, syllable by syllable, into whistled melodies. One of the most striking aspects of this whistled transformation of words is that it remains intelligible to trained speakers, despite a reduced acoustic channel to convey meaning. It constitutes a natural traditional means of telecommunication that permits spoken communication at long distances in a large diversity of languages of the world. Historically, birdsong has been used as a model for vocal learning and language. But conversely, human whistled languages can serve as a model for elucidating how information may be encoded in dolphin whistle communication. In this paper, we elucidate the reasons why human whistled speech and dolphin whistles are interesting to compare. Both are characterized by similar acoustic parameters and serve a common purpose of long distance communication in natural surroundings in two large brained social species. Moreover, their differences – e.g., how they are produced, the dynamics of the whistles, and the types of information they convey – are not barriers to such a comparison. On the contrary, by exploring the structure and attributes found across human whistle languages, we highlight that they can provide an important model as to how complex information is and can be encoded in what appears at first sight to be simple whistled modulated signals. Observing details, such as processes of segmentation and coarticulation, in whistled speech can serve to advance and inform the development of new approaches for the analysis of whistle repertoires of dolphins, and eventually other species. Human whistled languages and dolphin whistles could serve as complementary test benches for the development of new methodologies and algorithms for decoding whistled communication signals by providing new perspectives on how information may be encoded structurally and organizationally.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.689501/full

BRUCE CROSSON – The Role of the Thalamus in Declarative and Procedural Linguistic Memory Processes
Typically, thalamic aphasias appear to be primarily lexical-semantic disorders representing difficulty using stored declarative memories for semantic information to access lexical word forms. Yet, there also is reason to believe that the thalamus might play a role in linguistic procedural memory. For more than two decades, we have known that basal ganglia dysfunction is associated with difficulties in procedural learning, and specific thalamic nuclei are the final waypoint back to the cortex in

cortico-basal ganglia-cortical loops. Recent analyses of the role of the thalamus in lexical-semantic processes and of the role of the basal ganglia in linguistic processes suggest that thalamic participation is not simply a matter of declarative vs. procedural memory, but a matter of how the thalamus participates in lexical-semantic processes and in linguistic procedural memory, as well as the interaction of these processes. One role for the thalamus in accessing lexical forms for semantic concepts relates to the stabilization of a very complex semantic-lexical interface with thousands of representations on both sides of the interface. Further, the possibility is discussed that the thalamus, through its participation in basal ganglia loops, participates in two linguistic procedural memory processes: syntactic/grammatical procedures and procedures for finding words to represent semantic concepts, with the latter interacting intricately with declarative memories. These concepts are discussed in detail along with complexities that can be addressed by future research.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.682199/full

LYNN S. EEKHOF et al – Reading Minds, Reading Stories: Social-Cognitive Abilities Affect the Linguistic Processing of Narrative Viewpoint

Although various studies have shown that narrative reading draws on social-cognitive abilities, not much is known about the precise aspects of narrative processing that engage these abilities. We hypothesized that the linguistic processing of narrative viewpoint—expressed by elements that provide access to the inner world of characters—might play an important role in engaging social-cognitive abilities. Using eye tracking, we studied the effect of lexical markers of perceptual, cognitive, and emotional viewpoint on eye movements during reading of a 5,000-word narrative. Next, we investigated how this relationship was modulated by individual differences in social-cognitive abilities. Our results show diverging patterns of eye movements for perceptual viewpoint markers on the one hand, and cognitive and emotional viewpoint markers on the other. Whereas the former are processed relatively fast compared to non-viewpoint markers, the latter are processed relatively slow. Moreover, we found that social-cognitive abilities impacted the processing of words in general, and of perceptual and cognitive viewpoint markers in particular, such that both perspective-taking abilities and self-reported perspective-taking traits facilitated the processing of these markers. All in all, our study extends earlier findings that social cognition is of importance for story reading, showing that individual differences in social-cognitive abilities are related to the linguistic processing of narrative viewpoint.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.698986/full

AMELIA COURTNEY HRITZ & STEPHEN J. CECI – Lie for Me: Developmental Trends in Acquiescing to a Blatantly False Statement

A pair of studies demonstrates that simply asking children to make a blatantly false accusation in the guise of helping others can result in both immediate and long-term false claims. In the pilot study, the initial willingness to make a blatantly false statement was associated with some children making false statements a week later despite being told that the first interviewer had made mistakes during the initial interview. On a positive note, the majority of participants accurately stated that they did not have first-hand knowledge of their accusation's accuracy. Across both studies, the rate of false accusation rates was high. The main experiment demonstrated that children who were young, possessed the lowest verbal intelligence or who were from the lowest SES homes made the most accusations. These findings illustrate not only the dangers of encouraging children to make false statements, but the ease and durability of making such false statements.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.691276/full

RICHARD N. WILLIAMS, EDWIN E. GANTT & LANE FISCHER – Agency: What Does It Mean to Be a Human Being?

This paper will look at the results of what has been termed “the crisis of modernism” and the related rise of postmodern perspectives in the 19th and 20th centuries. It concentrates on what is arguably the chief casualty of this crisis – human agency – and the social science that has developed out of the crisis. We argue that modern and postmodern social science ultimately obviate human agency in the understanding of what it means to be a human being. Attention is given to the contemporary intellectual world and the way in which it has been deeply informed by neo-Hegelian and other postmodern scholarly trends, particularly in accounting for how agency has come to play little role in social science understanding of human action. The paper also offers an alternative conception of human agency to the commonly endorsed libertarian model of free choice. Finally, the paper argues that this view of agency preserves meaning and purpose in human action and counters the pervasive social science worldview that sacrifices agency and meaning to powerful invisible abstractions.
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.693077/full

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Nature Cerebral Cortex

PAPERS

XI YU et al – Functional Connectivity in Infancy and Toddlerhood Predicts Long-Term Language and Preliteracy Outcomes

Functional connectivity (FC) techniques can delineate brain organization as early as infancy, enabling the characterization of early brain characteristics associated with subsequent behavioral outcomes. Previous studies have identified specific functional networks in infant brains that underlie cognitive abilities and pathophysiology subsequently observed in toddlers and preschoolers. However, it is unknown whether and how functional networks emerging within the first 18 months of life contribute to the development of higher order, complex functions of language/literacy at school-age. This 5-year longitudinal

imaging project starting in infancy, utilized resting-state functional magnetic resonance imaging and demonstrated prospective associations between FC in infants/toddlers and subsequent language and foundational literacy skills at 6.5 years old. These longitudinal associations were shown independently of key environmental influences and further present in a subsample of infant imaging data (≤12 months), suggesting early emerged functional networks specifically linked to high-order language and preliteracy skills. Moreover, emergent language skills in infancy and toddlerhood contributed to the prospective associations, implicating a role of early linguistic experiences in shaping the FC correlates of long-term oral language skills. The current results highlight the importance of functional organization established in infancy and toddlerhood as a neural scaffold underlying the learning process of complex cognitive functions.
https://academic.oup.com/cercor/advance-article/doi/10.1093/cercor/bhab230/6339270

SIMONE ANZÀ, ELISA DEMURU & ELISABETTA PALAGI – Sex and grooming as exchange commodities in female bonobos' daily biological market
The Biological Market Theory (BMT) posits that cooperation between non-human animals can be seen as a mutually beneficial exchange of commodities similarly to what observed in human economic markets. Positive social interactions are commodities in non-human animals, and mutual exchanges fulfilling the criteria of the BMT have been shown in several species. However, the study of biological markets suffers from methodological limitations that are mainly linked to the difficulty of clearly identifying the currencies and their exchanges in the short-term. Here, we test whether bonobo females are more attractive during their maximum swelling phase, whether they exchange grooming and Genito-Genital Rubbing (GGR) on a daily level of analysis, and whether these daily exchanges fulfil the BMT criteria. Females engaged more in GGR when their sexual swelling was in the maximum phase. Moreover, they exchanged grooming and sex according to the daily "market fluctuations" associated with swelling status. Females in the minimum phase (low-value) increased their probability to engage in GGR with females in the maximum phase (high-value) by grooming them preferentially. In line with the supply/demand law, the female grooming strategy varied depending on the daily number of swollen females present: the higher the number of swollen females, the lower the individual grooming preference. As a whole, our study confirms BMT as a valid model to explain daily commodity exchanges as a function of the temporary value of traders, and underlines the importance of a day-by-day approach to unveil the presence of a biological market when the value of traders frequently changes.
https://www.nature.com/articles/s41598-021-98894-w

Nature Communications
PAPERS
BRIAN D. EARP et al – How social relationships shape moral wrongness judgments
Judgments of whether an action is morally wrong depend on who is involved and the nature of their relationship. But how, when, and why social relationships shape moral judgments is not well understood. We provide evidence to address these questions, measuring cooperative expectations and moral wrongness judgments in the context of common social relationships such as romantic partners, housemates, and siblings. In a pre-registered study of 423 U.S. participants nationally representative for age, race, and gender, we show that people normatively expect different relationships to serve cooperative functions of care, hierarchy, reciprocity, and mating to varying degrees. In a second pre-registered study of 1,320 U.S. participants, these relationship-specific cooperative expectations (i.e., relational norms) enable highly precise out-of-sample predictions about the perceived moral wrongness of actions in the context of particular relationships. In this work, we show that this 'relational norms' model better predicts patterns of moral wrongness judgments across relationships than alternative models based on genetic relatedness, social closeness, or interdependence, demonstrating how the perceived morality of actions depends not only on the actions themselves, but also on the relational context in which those actions occur.
https://www.nature.com/articles/s41467-021-26067-4

New Scientist
NEWS
How our ape ancestors suddenly lost their tails 25 million years ago
Around 25 million years ago, our ancestors lost their tails. Now geneticists may have found the exact mutation that prevents apes like us growing tails – and if they are right, this loss happened suddenly rather than tails gradually shrinking.
https://www.newscientist.com/article/2291130-how-our-ape-ancestors-suddenly-lost-their-tails-25-million-years-ago/#ixzz785e2acj1

PLoS Biology
PAPERS
LI-LI LI et al – Cooperating elephants mitigate competition until the stakes get too high
Cooperation is ubiquitous in the animal kingdom as it aims to maximize benefits through joint action. Selection, however, may also favor competitive behaviors that could violate cooperation. How animals mitigate competition is hotly debated, with particular interest in primates and little attention paid thus far to nonprimates. Using a loose-string pulling apparatus,

we explored cooperative and competitive behavior, as well as mitigation of the latter, in semi-wild Asian elephants (Elephas maximus). Our results showed that elephants first maintained a very high cooperation rate (average = 80.8% across 45 sessions). Elephants applied "block," "fight back," "leave," "move side," and "submission" as mitigation strategies and adjusted these strategies according to their affiliation and rank difference with competition initiators. They usually applied a "fight back" mitigation strategy as a sanction when competition initiators were low ranking or when they had a close affiliation, but were submissive if the initiators were high ranking or when they were not closely affiliated. However, when the food reward was limited, the costly competitive behaviors ("monopoly" and "fight") increased significantly, leading to a rapid breakdown in cooperation. The instability of elephant cooperation as a result of benefit reduction mirrors that of human society, suggesting that similar fundamental principles may underlie the evolution of cooperation across species.
https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3001391

PLoS Genetics

PAPERS

ANTHONY S. FINDLEY et al – A signature of Neanderthal introgression on molecular mechanisms of environmental responses

This is an uncorrected proof.

Ancient human migrations led to the settlement of population groups in varied environmental contexts worldwide. The extent to which adaptation to local environments has shaped human genetic diversity is a longstanding question in human evolution. Recent studies have suggested that introgression of archaic alleles in the genome of modern humans may have contributed to adaptation to environmental pressures such as pathogen exposure. Functional genomic studies have demonstrated that variation in gene expression across individuals and in response to environmental perturbations is a main mechanism underlying complex trait variation. We considered gene expression response to in vitro treatments as a molecular phenotype to identify genes and regulatory variants that may have played an important role in adaptations to local environments. We investigated if Neanderthal introgression in the human genome may contribute to the transcriptional response to environmental perturbations. To this end we used eQTLs for genes differentially expressed in a panel of 52 cellular environments, resulting from 5 cell types and 26 treatments, including hormones, vitamins, drugs, and environmental contaminants. We found that SNPs with introgressed Neanderthal alleles (N-SNPs) disrupt binding of transcription factors important for environmental responses, including ionizing radiation and hypoxia, and for glucose metabolism. We identified an enrichment for N-SNPs among eQTLs for genes differentially expressed in response to 8 treatments, including glucocorticoids, caffeine, and vitamin D. Using Massively Parallel Reporter Assays (MPRA) data, we validated the regulatory function of 21 introgressed Neanderthal variants in the human genome, corresponding to 8 eQTLs regulating 15 genes that respond to environmental perturbations. These findings expand the set of environments where archaic introgression may have contributed to adaptations to local environments in modern humans and provide experimental validation for the regulatory function of introgressed variants.
https://journals.plos.org/plosgenetics/article?id=10.1371/journal.pgen.1009493

PLoS One

PAPERS

ADAM BRUMM et al – Skeletal remains of a Pleistocene modern human (Homo sapiens) from Sulawesi

Major gaps remain in our knowledge of the early history of Homo sapiens in Wallacea. By 70–60 thousand years ago (ka), modern humans appear to have entered this distinct biogeographical zone between continental Asia and Australia. Despite this, there are relatively few Late Pleistocene sites attributed to our species in Wallacea. H. sapiens fossil remains are also rare. Previously, only one island in Wallacea (Alor in the southeastern part of the archipelago) had yielded skeletal evidence for pre-Holocene modern humans. Here we report on the first Pleistocene human skeletal remains from the largest Wallacean island, Sulawesi. The recovered elements consist of a nearly complete palate and frontal process of a modern human right maxilla excavated from Leang Bulu Bettue in the southwestern peninsula of the island. Dated by several different methods to between 25 and 16 ka, the maxilla belongs to an elderly individual of unknown age and sex, with small teeth (only M1 to M3 are extant) that exhibit severe occlusal wear and related dental pathologies. The dental wear pattern is unusual. This fragmentary specimen, though largely undiagnostic with regards to morphological affinity, provides the only direct insight we currently have from the fossil record into the identity of the Late Pleistocene people of Sulawesi.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0257273

PNAS

PAPERS

IRIS BERENT – Can we get human nature right?

Few questions in science are as controversial as human nature. At stake is whether our basic concepts and emotions are all learned from experience, or whether some are innate. Here, I demonstrate that reasoning about innateness is biased by the basic workings of the human mind. Psychological science suggests that newborns possess core concepts of "object" and "number." Laypeople, however, believe that newborns are devoid of such notions but that they can recognize emotions. Moreover, people presume that concepts are learned, whereas emotions (along with sensations and actions) are innate. I trace these beliefs to two tacit psychological principles: intuitive dualism and essentialism. Essentialism guides tacit reasoning

about biological inheritance and suggests that innate traits reside in the body; per intuitive dualism, however, the mind seems ethereal, distinct from the body. It thus follows that, in our intuitive psychology, concepts (which people falsely consider as disembodied) must be learned, whereas emotions, sensations, and emotions (which are considered embodied) are likely innate; these predictions are in line with the experimental results. These conclusions do not speak to the question of whether concepts and emotions are innate, but they suggest caution in its scientific evaluation.
https://www.pnas.org/content/118/39/e2108274118.abstract

TATIANA R. FEUERBORN et mul with ESKE WILLERSLEV – Modern Siberian dog ancestry was shaped by several thousand years of Eurasian-wide trade and human dispersal

Dogs have been essential to life in the Siberian Arctic for over 9,500 y, and this tight link between people and dogs continues in Siberian communities. Although Arctic Siberian groups such as the Nenets received limited gene flow from neighboring groups, archaeological evidence suggests that metallurgy and new subsistence strategies emerged in Northwest Siberia around 2,000 y ago. It is unclear if the Siberian Arctic dog population was as continuous as the people of the region or if instead admixture occurred, possibly in relation to the influx of material culture from other parts of Eurasia. To address this question, we sequenced and analyzed the genomes of 20 ancient and historical Siberian and Eurasian Steppe dogs. Our analyses indicate that while Siberian dogs were genetically homogenous between 9,500 to 7,000 y ago, later introduction of dogs from the Eurasian Steppe and Europe led to substantial admixture. This is clearly the case in the Iamal-Nenets region (Northwestern Siberia) where dogs from the Iron Age period (∼2,000 y ago) possess substantially less ancestry related to European and Steppe dogs than dogs from the medieval period (∼1,000 y ago). Combined with findings of nonlocal materials recovered from these archaeological sites, including glass beads and metal items, these results indicate that Northwest Siberian communities were connected to a larger trade network through which they acquired genetically distinctive dogs from other regions. These exchanges were part of a series of major societal changes, including the rise of large-scale reindeer pastoralism ∼800 y ago.
https://www.pnas.org/content/118/39/e2100338118.abstract

COLIN R. TWOMEY et al with JOSHUA B. PLOTKIN – What we talk about when we talk about colors

Names for colors vary widely across languages, but color categories are remarkably consistent. Shared mechanisms of color perception help explain consistent partitions of visible light into discrete color vocabularies. But the mappings from colors to words are not identical across languages, which may reflect communicative needs—how often speakers must refer to objects of different color. Here we quantify the communicative needs of colors in 130 different languages by developing an inference algorithm for this problem. We find that communicative needs are not uniform: Some regions of color space exhibit 30-fold greater demand for communication than other regions. The regions of greatest demand correlate with the colors of salient objects, including ripe fruits in primate diets. Our analysis also reveals a hidden diversity in the communicative needs of colors across different languages, which is partly explained by differences in geographic location and the local biogeography of linguistic communities. Accounting for language-specific, nonuniform communicative needs improves predictions for how a language maps colors to words, and how these mappings vary across languages. Our account closes an important gap in the compression theory of color naming, while opening directions to study cross-cultural variation in the need to communicate different colors and its impact on the cultural evolution of color categories.
https://www.pnas.org/content/118/39/e2109237118.abstract

FRANSISCA TING & RENÉE BAILLARGEON – Toddlers draw broad negative inferences from wrongdoers' moral violations

By 2 y of age, children possess expectations about several different moral principles. Building on these results, we asked whether children who observed a wrongdoer violate a principle would draw negative inferences from this violation about how the wrongdoer was likely to behave in other contexts. In four experiments, 25-mo-old toddlers (n = 152) first saw a wrongdoer harm a protagonist. When toddlers judged the wrongdoer's behavior to violate the principle of ingroup support or harm avoidance, they did not find it unexpected if the wrongdoer next violated the principle of fairness by dividing resources unfairly between two other protagonists (Exps. 2 and 3), but they did find it unexpected if the wrongdoer next acted generously by giving another protagonist most of a resource to be shared between them (Exp. 4). When toddlers did not construe the wrongdoer's harmful behavior as a moral violation, these responses reversed: They found it unexpected if the wrongdoer next acted unfairly (Exp. 1) but not if the wrongdoer next acted generously (Exp. 4). Detecting a moral violation thus lowered toddlers' assessment of the wrongdoer's moral character and brought down their expectations concerning the likelihood that the wrongdoer would perform: 1) obligatory actions required by other principles and 2) supererogatory or virtuous actions not required by the principles. Together, these findings expand our understanding of how young children evaluate others' moral characters, and they reveal how these evaluations, in turn, enable children to form sophisticated expectations about others' behavior in new contexts.
https://www.pnas.org/content/118/39/e2109045118.abstract

JAE-YOUNG SON, APOORVA BHANDARI & ORIEL FELDMANHALL – Cognitive maps of social features enable flexible inference in social networks

In order to navigate a complex web of relationships, an individual must learn and represent the connections between people in a social network. However, the sheer size and complexity of the social world makes it impossible to acquire firsthand knowledge of all relations within a network, suggesting that people must make inferences about unobserved relationships to fill in the gaps. Across three studies (n = 328), we show that people can encode information about social features (e.g., hobbies, clubs) and subsequently deploy this knowledge to infer the existence of unobserved friendships in the network. Using computational models, we test various feature-based mechanisms that could support such inferences. We find that people's ability to successfully generalize depends on two representational strategies: a simple but inflexible similarity heuristic that leverages homophily, and a complex but flexible cognitive map that encodes the statistical relationships between social features and friendships. Together, our studies reveal that people can build cognitive maps encoding arbitrary patterns of latent relations in many abstract feature spaces, allowing social networks to be represented in a flexible format. Moreover, these findings shed light on open questions across disciplines about how people learn and represent social networks and may have implications for generating more human-like link prediction in machine learning algorithms.
https://www.pnas.org/content/118/39/e2021699118.abstract

Proceedings of the Royal Society B

PAPERS

ELISA FERNÁNDEZ-FUEYO et al – Why do some primate mothers carry their infant's corpse? A cross-species comparative study

Non-human primates respond to the death of a conspecific in diverse ways, some of which may present phylogenetic continuity with human thanatological responses. Of these responses, infant corpse carrying by mothers (ICC) is the most frequently reported. Despite its prevalence, quantitative analyses of this behaviour are scarce and inconclusive. We compiled a database of 409 published cases across 50 different primate species of mothers' responses to their infants' deaths and used Bayesian phylogenetic regressions with an information-theoretic approach to test hypotheses proposed to explain between- and within-species variation in ICC. We found that ICC was more likely when the infant's death was non-traumatic (e.g. illness) versus traumatic (e.g. infanticide), and when the mother was younger. These results support the death detection hypothesis, which proposes that ICC occurs when there are fewer contextual or sensory cues indicating death. Such an interpretation suggests that primates are able to attain an awareness of death. In addition, when carried, infant age affected ICC duration, with longer ICC observed for younger infants. This result suggests that ICC is a by-product of strong selection on maternal behaviour. The findings are discussed in the context of the evolution of emotion, and implications for evolutionary thanatology are proposed.
https://royalsocietypublishing.org/doi/abs/10.1098/rspb.2021.0590

Royal Society Open Science

PAPERS

ŞTEFAN SARKADI, et al – The evolution of deception

Deception plays a critical role in the dissemination of information, and has important consequences on the functioning of cultural, market-based and democratic institutions. Deception has been widely studied within the fields of philosophy, psychology, economics and political science. Yet, we still lack an understanding of how deception emerges in a society under competitive (evolutionary) pressures. This paper begins to fill this gap by bridging evolutionary models of social good—public goods games (PGGs)—with ideas from interpersonal deception theory and truth-default theory. This provides a well-founded analysis of the growth of deception in societies and the effectiveness of several approaches to reducing deception. Assuming that knowledge is a public good, we use extensive simulation studies to explore (i) how deception impacts the sharing and dissemination of knowledge in societies over time, (ii) how different types of knowledge sharing societies are affected by deception and (iii) what type of policing and regulation is needed to reduce the negative effects of deception in knowledge sharing. Our results indicate that cooperation in knowledge sharing can be re-established in systems by introducing institutions that investigate and regulate both defection and deception using a decentralized case-by-case strategy. This provides evidence for the adoption of methods for reducing the use of deception in the world around us in order to avoid a Tragedy of the Digital Commons.
https://royalsocietypublishing.org/doi/full/10.1098/rsos.201032

Trends in Cognitive Sciences

PAPERS

R. NATHAN SPRENG & GARY R. TURNER – From exploration to exploitation: a shifting mental mode in late life development

Changes in cognition, affect, and brain function combine to promote a shift in the nature of mentation in older adulthood, favoring exploitation of prior knowledge over exploratory search as the starting point for thought and action. Age-related exploitation biases result from the accumulation of prior knowledge, reduced cognitive control, and a shift toward affective goals. These are accompanied by changes in cortical networks, as well as attention and reward circuits. By incorporating

these factors into a unified account, the exploration-to-exploitation shift offers an integrative model of cognitive, affective, and brain aging. Here, we review evidence for this model, identify determinants and consequences, and survey the challenges and opportunities posed by an exploitation-biased mental mode in later life.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(21)00228-X

Trends in Ecology and Evolution

PAPERS

STUART SEMPLE, RAMON FERRER-I-CANCHO & MORGAN L. GUSTISON – Linguistic laws in biology

Linguistic laws, the common statistical patterns of human language, have been investigated by quantitative linguists for nearly a century. Recently, biologists from a range of disciplines have started to explore the prevalence of these laws beyond language, finding patterns consistent with linguistic laws across multiple levels of biological organisation, from molecular (genomes, genes, and proteins) to organismal (animal behaviour) to ecological (populations and ecosystems). We propose a new conceptual framework for the study of linguistic laws in biology, comprising and integrating distinct levels of analysis, from description to prediction to theory building. Adopting this framework will provide critical new insights into the fundamental rules of organisation underpinning natural systems, unifying linguistic laws and core theory in biology.
{According to most linguists there are no linguistic laws; according to Chomsky there is one linguistic law, MERGE. What are the "linguistic laws" invoked here, other than "common statistical patterns" (a description which covers pretty much every natural system out there)? I'm not paying $31 to find out.}
https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347(21)00230-5

Trends in Neurosciences

PAPERS

KLÁRA Z. GERLEI et al – Deep entorhinal cortex: from circuit organization to spatial cognition and memory

The deep layers of the entorhinal cortex are important for spatial cognition, as well as memory storage, consolidation and retrieval. A long-standing hypothesis is that deep-layer neurons relay spatial and memory-related signals between the hippocampus and telencephalon. We review the implications of recent circuit-level analyses that suggest more complex roles. The organization of deep entorhinal layers is consistent with multi-stage processing by specialized cell populations; in this framework, hippocampal, neocortical, and subcortical inputs are integrated to generate representations for use by targets in the telencephalon and for feedback to the superficial entorhinal cortex and hippocampus. Addressing individual sublayers of the deep entorhinal cortex in future experiments and models will be important for establishing systems-level mechanisms for spatial cognition and episodic memory.
https://www.cell.com/trends/neurosciences/fulltext/S0166-2236(21)00162-4

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