EAORC BULLETIN 1,161 – 14 September 2025

CONTENTS

NOTICES

FORMATTED VERSION OF THIS BULLETIN

A pdf formatted version of this Bulletin is available for download at martinedwardes.me.uk/eaorc/eaorc_bulletins.htm.

PUBLICATION ALERTS

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

EDITORIAL INTERJECTIONS

Comments in curly brackets are editorial interjections. The Editor reserves the right to be wrong, and doesn't object to being called out on it.

NEWS

SCIENCEADVISER – It's easy seeing green

For 15 participants, patterns of brain activity when looking at colors suggested that color perception is indeed universal. "Now we know that when you see red or green or whatever color, that it activates your brain very similarly to my brain," one of the researchers explained. "Even at a very low level, things are represented similarly across different brains, and that is a fundamentally new discovery."
https://www.jneurosci.org/content/early/2025/08/29/JNEUROSCI.2717-20.2025

SCIENCENEWS – Your red is my red, at least to our brains

Brain scans reveal a common neural signature when people see red, green or yellow.

https://www.sciencenews.org/article/red-same-brain-activity-color

THE CONVERSATION – One queen ant, two species: what 'family' means in nature

One ant mother raises two species under the same roof.
https://theconversation.com/one-queen-ant-two-species-the-discovery-that-reshapes-what-family-means-in-nature-264384

PUBLICATIONS

Cortex

PAPERS

ADAM ZEMAN et al – Phantasia–The psychological significance of lifelong visual imagery vividness extremes

Visual imagery typically enables us to see absent items in the mind's eye. It plays a role in memory, day-dreaming and creativity. Since coining the terms aphantasia and hyperphantasia to describe the absence and abundance of visual imagery, we have been contacted by many thousands of people with extreme imagery abilities. Questionnaire data from 2000 participants with aphantasia and 200 with hyperphantasia indicate that aphantasia is associated with scientific and mathematical occupations, whereas hyperphantasia is associated with 'creative' professions. Participants with aphantasia report an elevated rate of difficulty with face recognition and autobiographical memory, whereas participants with hyperphantasia report an elevated rate of synaesthesia. Around half those with aphantasia describe an absence of wakeful imagery in all sense modalities, while a majority dream visually. Aphantasia appears to run within families more often than would be expected by chance. Aphantasia and hyperphantasia appear to be widespread but neglected features of human experience with informative psychological associations.
https://www.sciencedirect.com/science/article/abs/pii/S0010945220301404

Current Biology

ARTICLES

MICHAEL GROSS – Apes appreciate alcohol

Consumption of alcoholic food and drink was long considered a unique human trait. Recent research shows, however, that many species including our nearest relatives among primates seek out partially fermented food containing alcohol. In these species, the use of alcohol in metabolism is enabled by specific mutations in the alcohol dehydrogenase enzyme.
https://www.cell.com/current-biology/abstract/S0960-9822(25)01108-X

DAVID L. HU – Cooperative behavior: Superefficient weaver ants

Teamwork has long faced a dilemma: as team members are added, the effectiveness of each individual decreases — a phenomenon known as 'Ringelmann's effect'. A new study shows that weaver ants in pulling chains overcome Ringelmann's effect, a result that may inspire new ways to coordinate teams.
https://www.cell.com/current-biology/abstract/S0960-9822(25)01022-X

PAPERS

MADELYNE STEWARDSON et al – Superefficient teamwork in weaver ants

Teamwork is often assumed to enhance group performance, particularly for physical tasks. However, in both human and non-human animal teams, the effort contributed by each member may, in fact, decrease as team size grows. This counterintuitive phenomenon, known as the Ringelmann effect, is generally ascribed to poor coordination or differences in motivation. Weaver ants (Oecophylla smaragdina) display some of the most impressive feats of teamwork in the natural world, including self-assembly into pulling teams that fold leaves into nesting chambers. Here, we investigated whether weaver ant pulling teams suffer from the Ringelmann effect by measuring the force that weaver ant teams of varying sizes produce during nest construction. The average force contribution per individual almost doubled as team size increased, demonstrating that weaver ants not only avoid the Ringelmann effect but achieve the opposite—they are "superefficient" team workers. We propose that this superefficiency is facilitated by a division of labor within teams: "active pullers" work together to generate a pulling force that is stored in chains of "passive resisters," which capitalize on the remarkable frictional strength of weaver ant attachment organs; weaver ant teams thereby act as a "force ratchet." Our results highlight a novel mechanism of teamwork in a highly coordinated natural system and may inspire optimization algorithms for superefficient teams in distributed artificial systems, including swarm robotics.
https://www.cell.com/current-biology/fulltext/S0960-9822(25)00939-X

HIRONORI ISHII, AKIHIRO FUNAMIZU & KAE NAKAMURA – Monkeys adjust goals and strategies in a foraging task based on time constraints

Humans and animals often operate under varying time constraints that demand not only changes in action speed but also adjustments in how many tasks they pursue. These adjustments require fundamental reconstructions of goals and strategies. Additionally, finding a good "compromise" by reconciling goals with feasibility poses a complex optimization problem that

involves selecting an effective combination of tasks. Time constraints are ubiquitous across ecological contexts, yet little is known about what behavioral and neural bases support these flexible adaptations. To address this, we devised a behavioral paradigm in macaques, wherein they foraged for as many reward items as possible under various time constraints. The reward map (randomized reward sizes and spatial distributions) and the time limits were visually presented before the start of foraging. We found that the monkeys selected an effective route that maximized the total gain while avoiding time overruns by flexibly adjusting their action speed, the number of rewards to collect (goals), and which ones to prioritize (strategies). Specifically, under shorter time limits, they prioritized larger or more proximal rewards, enhancing time efficiency while accepting opportunity loss by skipping smaller or distant rewards. To further investigate the neural basis of these behavioral adjustments, we systemically manipulated dopamine, which plays a key role in both action and reward processing. Blockades of dopamine D1R prolonged action initiation, while blockades of D2R caused excessive acceptance of opportunity loss in a time limit-dependent manner. These results suggest that dopamine coordinates rapid action and reward compromise, supporting adaptive decision-making under time constraints.
https://www.cell.com/current-biology/fulltext/S0960-9822(25)01099-1

FELIX W. MOLL, JULIUS WÜRZLER & ANDREAS NIEDER – Learned precision tool use in carrion crows
Tool use is rare in the animal kingdom but relatively common among dexterous generalists such as primates, parrots, and corvid songbirds. New Caledonian (NC) crows, known for their instinctive tool-making abilities, have long intrigued researchers; however, the motor-cognitive skills underlying these behaviors—such as the level of cause-and-effect understanding and precise yet flexible motor control—remain unresolved. To investigate how learning shapes these skills, we studied carrion crows, an NC-crow-related corvid species with similar cognitive abilities but no tool-use-specific adaptations. We trained three tool-naive carrion crows to use a beak-held stick to retrieve food pellets from a transparent Plexiglas crack in an automated apparatus. Utilizing computational pose estimation, we tracked the crows' development of stick tool skills over thousands of trials. Our findings demonstrate that tool-naive carrion crows learn to handle tools with impressive skill, achieving dexterity similar to habitual tool users like NC crows. More notably, we observed that all the crows developed efficient, unique, and goal-directed movement patterns. Even after extensive training, the crows retained a remarkable level of flexibility, swiftly correcting errors and adjusting the orientation of the stick to maintain precise alignment. Our findings suggest that reinforcement learning alone can foster skilled tool use in dexterous, cognitively flexible corvids. This implies that only modest evolutionary changes—such as a predisposition to maneuver elongated objects when exploring crevices—may be needed to transform dexterous generalists into habitual tool users.
https://www.cell.com/current-biology/fulltext/S0960-9822(25)01100-5

eLife

ARTICLES

TOSHIYA MATSUSHIMA – Numerical Cognition: Is 'number sense' a sense?
Experiments on domestic chicks shed light on the links between brain lateralization and the left-to-right mental number line.
https://elifesciences.org/articles/108701

PAPERS

JUAN VIDAL-PEREZ, RAYMOND J DOLAN & RANI MORAN – Disinformation elicits learning biases
Reviewed Preprint
In open societies disinformation is often considered a threat to the very fabric of democracy. However, we know little about how disinformation exerts its impact, especially its influences on individual learning processes. Guided by the notion that disinformation exerts its pernicious effects by capitalizing on learning biases, we ask which aspects of learning from potential disinformation align with ideal "Bayesian" principles, and which exhibit biases deviating from these standards. To this end, we harnessed a reinforcement learning framework, offering computationally tractable models capable of estimating latent aspects of a learning process as well as identifying biases in learning. In two experiments, participants completed a two-armed bandit task, where they repeatedly chose between two lotteries and received outcome-feedback from sources of varying credibility, who occasionally disseminated disinformation by lying about true choice outcome (e.g., reporting non reward when a reward was truly earned or vice versa). Computational modelling indicated that learning increased in tandem with source credibility, consistent with ideal Bayesian principles. However, we also observed striking biases reflecting divergence from idealized Bayesian learning patterns. Notably, in one experiment individuals learned from sources that should have been ignored, as these were known to be fully unreliable. Additionally, the presence of disinformation elicited exaggerated learning from trustworthy information (akin to jumping to conclusions) and exacerbated a normalized measure of "positivity bias" whereby individuals self-servingly boost their learning from positive, relative to negative, choice-feedback. Thus, in the face of disinformation we identify specific cognitive mechanisms underlying learning biases, with potential implications for societal strategies aimed at mitigating its harmful impacts.
https://elifesciences.org/reviewed-preprints/106073

JI ZHOU et al – A Forebrain Hub for Cautious Actions via the Midbrain

Reviewed Preprint

Adaptive goal-directed behavior requires dynamic coordination of movement, motivation, and environmental cues. Among these, cautious actions, where animals adjust their behavior in anticipation of predictable threats, are essential for survival. Yet, their underlying neural mechanisms remain less well understood than those of appetitive behaviors. Using calcium imaging in freely moving mice, we show that glutamatergic neurons in the subthalamic nucleus (STN) are robustly engaged during cue-evoked avoidance and exploratory behavior, encoding both contraversive movement and cautious responding. Targeted lesions and optogenetic manipulations reveal that STN projections to the midbrain, but not to the globus pallidus, are necessary for executing cued avoidance. Moreover, the frequency of STN activation governs response timing, accelerating the initiation of goal-directed actions to the point that it becomes incompatible with passive response, without being aversive. These findings identify a critical role for the STN in orchestrating adaptive goal-directed behavior by directing timely actions via its midbrain projections.
https://elifesciences.org/reviewed-preprints/107796

AGUSTÍN FUENTES et al with LEE R BERGER – Meaning-making behavior in a small-brained hominin, Homo naledi, from the late Pleistocene: contexts and evolutionary implications

Explorations in the Dinaledi Subsystem of the Rising Star cave system have yielded some of the earliest evidence of a mortuary practice in hominins. Because the evidence is attributable to the small-brained Homo naledi, these analyses call into question several assumptions about behavioral and cognitive evolution in Pleistocene hominins. The evidence from the Dinaledi Subsystem, and at other locations across the Rising Star cave system may widen the phylogenetic breadth of mortuary, and possibly funerary, behaviors. These discoveries may also associate the creation of meaning-making and increased behavioral complexity with a small-brained hominin species, challenging certain assertions about the role of encephalization and cognition in hominin and human evolution. We suggest that the hominin socio-cognitive niche is more diverse than previously thought. If true, technological, meaning-making activities, and cognitive advances in human evolution are not associated solely with the evolution of larger-brained members of the genus Homo. Evidence for complex behaviors associated with a small-brained hominin suggests that large brains are not solely responsible for the manifestation of human-like behavioral complexity.
https://elifesciences.org/articles/89125

JASON DA SILVA CASTANHEIRA, NICHOLAS SHEA & STEPHEN M FLEMING – How attention simplifies mental representations for planning

Human planning is efficient—it frugally deploys limited cognitive resources to accomplish difficult tasks—and flexible—adapting to novel problems and environments. Computational approaches suggest that people construct simplified mental representations of their environment, balancing the complexity of a task representation with its utility. These models imply a nested optimisation in which planning shapes perception, and perception shapes planning - but the perceptual and attentional mechanisms governing how this interaction unfolds remain unknown. Here, we harness virtual maze navigation to characterise how spatial attention controls which aspects of a task representation enter subjective awareness and are available for planning. We find that spatial proximity governs which aspects of a maze are available for planning, and that when task-relevant information follows natural (lateralised) contours of attention, people can more easily construct simplified and useful maze representations. This influence of attention varies considerably across individuals, explaining differences in people's task representations and behaviour. Inspired by the 'spotlight of attention' analogy, we incorporate the effects of visuospatial attention into existing computational accounts of value-guided construal. Together, our work bridges computational perspectives on perception and decision-making to better understand how individuals represent their environments in aid of planning.
https://elifesciences.org/reviewed-preprints/108034

ROSA RUGANI et al – Prenatal light exposure affects number sense and the mental number line in young domestic chicks

Humans order numerosity along a left-to-right mental number line (MNL), traditionally considered culturally rooted. Yet, some species at birth show spatial-numerical associations (SNA), suggesting neural origins. Various accounts link SNA to brain lateralization but lack evidence. We investigated brain lateralization effects on numerical spatialization in 100 newborn domestic chicks. In ovo light exposure yielded strongly lateralized brains in half the chicks and weakly lateralized in the other half. Chicks learned to select the 4th item in a sagittal array. At the test, the array was rotated 90°, with left and right 4th items correct. Strongly lateralized chicks outperformed weakly lateralized ones when ordinal and spatial cues were reliable (experiment 1), but not with unreliable spatial cues (experiment 2). Moreover, only strongly lateralized chicks showed left-to-right directionality, suggesting the right hemisphere's key role in integrating spatial and numerical cues. We demonstrate that brain lateralization is fundamental for developing a left-to-right oriented SNA.
https://elifesciences.org/articles/106356

Evolutionary Anthropology

PAPERS

MARCO BOGGIONI et al – Neanderthal Cranio-Cervical Features: Morphological Integration and Functional Evaluation of Their Early Appearance

Neanderthals (Homo neanderthalensis) and their direct ancestors are characterized by a number of derived cranial and postcranial morphological features. Many of these traits first appear in European Middle Pleistocene populations, likely as a result of adaptation and/or genetic drift. According to the "accretion model," this accumulation of traits was shaped by repeated extreme glacial conditions and associated demographic bottlenecks. However, the functional significance of many of these features—particularly those related to the cervical spine, basal cranium, mandible, and face—remains controversial, in part because they have often been studied in isolation. This paper reviews a set of traits that emerged early in the Neanderthal lineage and attempts to interpret them as part of an integrated morpho-functional system. To our knowledge, this is one of the first studies to examine multiple cranio-cervical traits of Homo neanderthalensis within a coherent, functionally integrated analytical framework.

https://onlinelibrary.wiley.com/doi/abs/10.1002/evan.70013

Frontiers in Psychology

PAPERS

JORDANNA SMITH & MELANIE GLENWRIGHT – The importance of intonation for children's understanding of verbal irony

Verbal irony refers to any utterance in which the speaker's words mean something different from their intended meaning (e.g., "You're really on top of things" said to a disorganized person). For children who are just learning to recognize verbal irony, a crucial cue to the ironist's intended meaning is their intonation. In this narrative review, we describe research methods for examining how intonation influences children's understanding of verbal irony and the task demands researchers need to consider when designing these studies. Next, we examine how children weigh different cues to verbal irony as they grow older, and we identify cross-linguistic factors that can impact children's use of intonation for irony comprehension. We offer suggestions for planning future studies on this topic by stressing the importance of reducing task demands, acoustically analyzing directional frequency changes, examining children's intonation consideration in languages other than English, and comparing across tonal and non-tonal languages.

https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2025.1672104/full

Nature Communications

PAPERS

MELISSA JOHNSTON, MAXIMILIAN E. KIRSCHHOCK & ANDREAS NIEDER – A neuronal correlate for time interval estimation in the crow's telencephalon

Interval timing, the ability to perceive and estimate durations between events, is essential for many animal behaviors. In mammals, it is linked to specific cortical and sub-cortical brain regions, but its neural basis in birds remains unclear. We trained two male carrion crows on a time estimation task using visual stimuli, cueing them to wait for a minimum duration of 1500 ms, 3000 ms, or 6000 ms before responding to receive a reward. During the task, we recorded activity from single neurons in the nidopallium caudolaterale (NCL), the avian executive telencephalon. Many neurons showed tuning to specific durations, suggesting that time intervals are encoded as abstract magnitudes along an ordered scale. Population-level decoding revealed that NCL activity predicted the crows' intended wait time, independent of the sensory properties of the cues. These findings show that abstract time estimation can emerge from neural architectures different from the mammalian neocortex.

https://www.nature.com/articles/s41467-025-63820-5

Nature Human Behaviour

PAPERS

WEI LIU, MING XIANG & NAI DING – Active use of latent tree-structured sentence representation in humans and large language models

Understanding how sentences are represented in the human brain, as well as in large language models (LLMs), poses a substantial challenge for cognitive science. Here we develop a one-shot learning task to investigate whether humans and LLMs encode tree-structured constituents within sentences. Participants (total N = 372, native Chinese or English speakers, and bilingual in Chinese and English) and LLMs (for example, ChatGPT) were asked to infer which words should be deleted from a sentence. Both groups tend to delete constituents, instead of non-constituent word strings, following rules specific to Chinese and English, respectively. The results cannot be explained by models that rely only on word properties and word positions. Crucially, based on word strings deleted by either humans or LLMs, the underlying constituency tree structure can be successfully reconstructed. Altogether, these results demonstrate that latent tree-structured sentence representations emerge in both humans and LLMs.

https://www.nature.com/articles/s41562-025-02297-0

Nature Reviews Psychology

ARTICLES

CAROLYN QUAM & TERESA ROBERTS – Inclusive writing in the social sciences

Deficit-based narratives in social science use privileged identities as a reference, perpetuating societal biases that marginalize diverse communities. Researchers can promote a shift away from deficit-based narratives and support the development of generalizable social-science theories by writing inclusively.
https://www.nature.com/articles/s44159-025-00488-0

Nature Scientific Reports

PAPERS

ANGÈLE LOMBREY et al – Flexible use of multimodal communicative strategies in adult chimpanzees

Human communication is remarkable for its flexibility, a trait largely reflected in its multimodal nature and shared to some extent with nonhuman primates. Although individual differences in social behaviour are known to have evolutionary implications, their role in shaping primate communication remains largely unexplored. This study adopts a multimodal framework to partition variation in chimpanzees' use of multicomponent and multisensory communicative strategies into socio-environmental, between-individual, and within-individual sources. Results showed that research setting and signaller's sex affected communicative expression. Importantly, we also detected consistent between-individual differences in both strategies, independent of age, sex, or setting. While only multicomponent signal use was predicted by behavioural context at the population level, individuals varied in how they adjusted to context only in their use of multisensory acts. These findings reveal substantial flexibility in chimpanzee communication, highlighting individual-specific patterns and supporting a gradual evolutionary pathway toward the complexity of human multimodal communication.
https://www.nature.com/articles/s41598-025-14835-x

New Scientist

NEWS

Fossil teeth may come from a new species of early hominin

Some 2.6-million-year-old teeth found in Ethiopia hint that an unknown species from the Australopithecus genus coexisted with one of our Homo relatives, but it is hard to draw firm conclusions from the evidence.
https://www.newscientist.com/article/2492288-fossil-teeth-may-come-from-a-new-species-of-early-hominin/

ARTICLES

MICHAEL MARSHALL – How cosmic events may have influenced hominin evolution

Some cosmic events could have profoundly altered the lives of our ancient human relatives. Did Neanderthals go extinct, at least in part, due to changes in Earth's magnetic field? Did Australopithecus witness huge meteorite impacts?
https://www.newscientist.com/article/2495599-how-cosmic-events-may-have-influenced-hominin-evolution/

PLoS One

PAPERS

FRANZISKA WEGDELL et al with SIMON W. TOWNSEND – An updated vocal repertoire of wild adult bonobos (Pan paniscus)

Research over the last 20 years has shed important light on the vocal behaviour of our closest living relatives, bonobos and chimpanzees, but mostly relies on qualitative vocal repertoires, for which quantitative validations are absent. Such data are critical for a holistic understanding of a species` communication system and unpacking how these systems compare more broadly with other primate and non-primate species. Here we make key progress by providing the first quantitative validation of a Pan vocal repertoire, specifically for wild bonobos. Using data comprising over 1500 calls from 53 adult individuals collected over 33 months, we employ machine-learning-based random forest analyses and describe 11 acoustically distinguishable call types. We discuss issues associated with resolving vocal repertoires from wild data in great apes and highlight potential future approaches to further capture the complexity and gradedness of the bonobo vocal system.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0330250

EMILIE RAPPORT MUNRO et al with JOSEP CALL – Do chimpanzees (Pan troglodytes) attribute preferences to virtual competitors?

Many animal species live in multi-level societies regulated by complex patterns of dominance. Avoiding competition with dominant group-mates for resources such as food and mates is an important skill for subordinate individuals in these societies, if they wish to evade harassment and aggression. Chimpanzees (Pan troglodytes) are an example of such a species. This study investigated whether chimpanzees could understand the food preferences of their competitors, and make use of

this understanding to select non-contested food items. Fifteen chimpanzees were given thorough experience of the differing target preferences of two virtual competitors. In the test, subjects had to select which of the two targets to approach, based on which competitor was present. To choose correctly, they would have to integrate the competitors' preferences from across disparate observations, and then infer, before the competitor acted, what they would do in a novel situation. We also included a control condition featuring two targets for which subjects had no information about the competitors' potential biases. The chimpanzees rapidly learned to direct their virtual agent to collect the targets, and some responded with vocalizations and hard knocking against the screen when competitors "stole" targets from the agent the subject was guiding. However, statistical analyses showed that, both at the individual and the group level, they did not succeed in selecting the correct target item at above-chance levels. Additionally, there was no significant difference between their performance in the test and control. We identify theoretical and methodological discrepancies that could explain the contrasting results of this and other studies.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0329468

JAMES P. KENNETT et al – Shocked quartz at the Younger Dryas onset (12.8 ka) supports cosmic airbursts/impacts contributing to North American megafaunal extinctions and collapse of the Clovis technocomplex

Shocked quartz grains are an accepted indicator of crater-forming cosmic impact events, which also typically produce amorphous silica along the fractures. Furthermore, previous research has shown that shocked quartz can form when nuclear detonations, asteroids, and comets produce near-surface or "touch-down" airbursts. When cosmic airbursts detonate with enough energy and at sufficiently low altitude, the resultant relatively small, high-velocity fragments may strike Earth's surface with high enough pressures to generate thermal and mechanical shock that can fracture quartz grains and introduce molten silica into the fractures. Here, we report the discovery of shocked quartz grains in a layer dating to the Younger Dryas (YD) onset (12.8 ka) in three classic archaeological sequences in the Southwestern United States: Murray Springs, Arizona; Blackwater Draw, New Mexico; and Arlington Canyon, California. These sites were foundational in demonstrating that the extinction or observed population bottlenecks of many megafaunal species and the coeval collapse/reorganization of the Clovis technocomplex in North America co-occurred at or near the YD onset. Using a comprehensive suite of 10 analytical techniques, including electron microscopy (TEM, SEM, CL, and EBSD), we have identified grains with glass-filled fractures similar to shocked grains associated with nuclear explosions and 27 accepted impact craters of different ages (e.g., Meteor Crater, 50 ka; Chesapeake Bay, 35 Ma; Chicxulub, 66 Ma; Manicouagan, 214 Ma) and produced in 11 laboratory shock experiments. In addition, we used hydrocode modeling to explore the temperatures, pressures, and shockwave velocities associated with the airburst of a 100-m fragment of a comet and conclude that they are sufficient to produce shocked quartz. These shocked grains co-occur with previously reported peak concentrations in platinum, meltglass, soot, and nanodiamonds, along with microspherules, similar to those found in ~28 microspherule layers that are accepted as evidence for cosmic impact events, even in the absence of a known crater. The discovery of apparently thermally-altered shocked quartz grains at these three key archaeological sites supports a cosmic impact as a major contributing factor in the megafaunal extinctions and the collapse of the Clovis technocomplex at the YD onset.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0319840

JUNNING PENG et al – How facemasks shape trust in social interactions

Face coverings can potentially impact how trustworthy someone appears through two channels: by hiding important facial cues associated with trust; or by signalling the wearer's intentions or personal characteristics. The facemasks widely adopted during the COVID-19 pandemic both obscured the face and were associated with pro-social attitudes or intentions. The goal of this paper is to investigate how facemasks impact judgments about the trustworthiness of the wearer, and whether this would affect interactions with others. We report three experiments. Experiments 1 and 2 examined decisions in a two-player trust game when participants interacted with a single masked or unmasked counterpart. Experiment 3 explored whether participants were more likely to trust a masked or an unmasked person in a straight choice between them. In all experiments, masked faces were judged more trustworthy than unmasked ones. While in Experiments 1 and 2 this was not reflected in trust behaviour, in Experiment 3 over 70% of participants chose to trust the masked person, a decision predicted by the difference in perceived trustworthiness between the masked and unmasked counterparts. This suggests that in settings where facemasks or similar trust related cues are more salient, such as in joint evaluation, they can lead to enhanced trust.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0331918

ELADIO MONTERO-PORRAS et al – From self-interest to collective action: The role of defaults in governing common resources

Managing shared resources requires balancing personal profit and sustainability. This paper reports on a behavioural experiment testing how extraction defaults—either pro-social or exploitative—impact resource extraction in a common pool resource dilemma (CPRD). We find that an exploitative default increases average extraction compared to a control without a default, while a pro-social default temporarily reduces extraction. The effects of both defaults are temporary, and extraction levels converge to those in the control group, with the pro-social default fading faster. Notably, the influence of defaults depended on individual inclinations, with cooperative individuals extracting more under an exploitative default, and selfish

individuals less under a pro-social default. Our findings suggest that while defaults can promote short-term sustainability, their long-term effects are limited, and their effectiveness depends on individual traits.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0331348

Science

NEWS

First map of mammal brain activity may have shown intuition in action
Scientists have mapped the activity that takes place across a mouse's entire brain as it decides how to complete a task - and the results could explain the origin of our gut feelings.
https://www.newscientist.com/article/2494850-first-map-of-mammal-brain-activity-may-have-shown-intuition-in-action/

Queen ant makes males of another species for daughters to mate with
Bizarrely, Iberian harvester ant queens lay eggs that turn into male builder harvester ants, and some of her offspring are hybrids of the two species.
https://www.newscientist.com/article/2494855-queen-ant-makes-males-of-another-species-for-daughters-to-mate-with/

ARTICLES

YOSHUA BENGIO & ERIC ELMOZNINO – Illusions of AI consciousness
The belief that AI is conscious is not without risk.
{AI continues to share another AI with its human creators: Astonishing Incompetence. We continue to have no feasible definition of human consciousness, neither as a structure nor a process, and definitely not as a system; it is as much an "illusion" in humans as it is in AI. Personally, I think Gandhi's response to a different question is appropriate here: What do you think of human consciousness? I think it would be a good idea.}
https://www.science.org/doi/10.1126/science.adn4935

Trends in Cognitive Sciences

ARTICLES

MARTIN GIURFA – The cognitive side of communication in social insects
Social insects rely on multiple communication channels. These channels have traditionally been considered innate, eliciting stereotyped responses. However, recent research has shown that cognitive modulation occurs in communication contexts long assumed to be entirely genetically encoded, thus revealing a previously unrecognized cognitive plasticity in social insect communication.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(25)00227-X

PAPERS

ADAM ZEMAN – Aphantasia and hyperphantasia: exploring imagery vividness extremes
The vividness of imagery varies between individuals. However, the existence of people in whom conscious, wakeful imagery is markedly reduced, or absent entirely, was neglected by psychology until the recent coinage of 'aphantasia' to describe this phenomenon. 'Hyperphantasia' denotes the converse – imagery whose vividness rivals perceptual experience. Around 1% and 3% of the population experience extreme aphantasia and hyperphantasia, respectively. Aphantasia runs in families, often affects imagery across several sense modalities, and is variably associated with reduced autobiographical memory, face recognition difficulty, and autism. Visual dreaming is often preserved. Subtypes of extreme imagery appear to be likely but are not yet well defined. Initial results suggest that alterations in connectivity between the frontoparietal and visual networks may provide the neural substrate for visual imagery extremes.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(24)00034-2

COMMENTARIES

BENCE NANAY – Varieties of aphantasia
Close your eyes and visualize an apple. For most of us, this yields an experience of a faint image of an apple. However, for some people, there is no such experience. This is aphantasia. I have introduced aphantasia with the help of introspective criteria: close your eyes, try to visualize, and tell me about your experience. Indeed, this is the way in which aphantasics are identified: if you fill out a questionnaire (typically, but not exclusively, the Vividness of Visual Imagery Questionnaire), and you score below a certain value, you are an aphantasic. However, identifying aphantasia introspectively will group together very different underlying mental phenomena.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00154-8

IAN PHILLIPS – Spared spatial imagery solves the puzzle of aphantasia
The puzzle of aphantasia concerns how individuals reporting no visual imagery perform more-or-less normally on tasks presumed to depend on it. In his splendid recent review in TiCS, Zeman canvasses four 'cognitive explanations': (i) differences

in description; (ii) 'faulty introspection'; (iii) "unconscious or 'sub-personal' imagery"; and (iv) total lack of imagery. Difficulties beset all four. To make progress, we must recognize that imagery is a complex and multidimensional capacity and that aphantasia commonly reflects partial imagery loss with selective sparing. Specifically, I propose that aphantasia often involves a lack of visual-object imagery (explaining subjective reports and objective correlates) but selectively spared spatial imagery (explaining preserved task performance).
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00114-7

MATTHIAS MICHEL et al – Aphantasia as imagery blindsight
In a recent article in TiCS, Zeman provided a masterful and balanced review of aphantasia. However, in doing so, he might have been too generous to some accounts. Specifically, unlike Zeman, we consider the view that aphantasia involves nonconscious imagistic representations to be clearly superior to other views. Here, we argue against these other views as they were described by Zeman. In addition, we address some additional arguments that have been raised to counter the idea that aphantasia involves nonconscious imagistic representations, which were not addressed by Zeman in his review.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(24)00293-6

JIANGHAO LIU & PAOLO BARTOLOMEO – Aphantasia as a functional disconnection
Adam Zeman's recent review of mental imagery extremes offers a thorough and balanced synthesis of current perspectives on aphantasia. Among the findings he discusses is a recent connectivity study in which we found that individuals with aphantasia showed typical activation of high-level visual cortices during imagery tasks but reduced functional connectivity between the left fusiform imagery node (FIN) and left frontoparietal regions. Zeman suggests that such alterations in network interactions may provide a promising neural basis for aphantasia. Here, we build on this idea and link it to evidence for the causal role of the left prefrontal cortex (PFC) in visual awareness. We propose that such a disconnection may explain how aphantasic individuals retain accurate memory for the visual appearance of objects, despite lacking subjective imagery.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00124-X

CHRISTIAN O. SCHOLZ, MERLIN MONZEL & JIANGHAO LIU – Absence of shared representation in the visual cortex challenges unconscious imagery in aphantasia
Aphantasia is defined as the absence (or near-absence) of imagery experience, most commonly in but not necessarily limited to the visual modality. While the neural and cognitive underpinnings of aphantasia remain hotly debated (see Zeman1 for a recent review), a proposal that has recently gained attention is that people with aphantasia may have unconscious mental imagery2, meaning that despite lacking the experience associated with imagery, they may still possess the relevant neural activity. A recent article in Current Biology by Chang et al.3 reported finding 'imageless imagery' in aphantasic subjects, thus seemingly supporting this view. However, we argue here that the representations found in aphantasic subjects by Chang et al.3, as well as in other studies (e.g., by Liu et al.4,5), should not be viewed as unconscious imagery because they fail to show the perception-like pattern usually associated with mental imagery.
https://www.cell.com/current-biology/abstract/S0960-9822(25)00584-6

ADAM ZEMAN – Live questions about the mind's eye
We live much of our lives in our heads, detached from the here and now – as when we recollect the past, anticipate future possibilities, lose ourselves in a daydream, a novel, or our favourite corner of science: 'what sets us apart is…a life in the mind, the ability to imagine'. For most of us, sensory imagery, which allows us to experience the sensory properties of objects in their absence, is a central element of our imaginings. The realisation that ~4% of people lack visual imagery, facilitated by a term with which to describe this, aphantasia, while an even higher proportion, with hyperphantasia, enjoy imagery rivalling the vividness of perception, has triggered a recent surge of research. My attempt to survey the surge, a year ago, is already out of date. The letters published in response to this attempt point helpfully to promising directions for future work.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00238-4

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