EAORC BULLETIN 719 – 26 March 2017

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.

SCIENCE NEWS – San people of Africa draft code of ethics for researchers

Scientists have studied the San people of Southern Africa for decades, intrigued by their age-old rituals and ancient genetic fingerprints. Now, after more than a century of being scrutinized by science, the San are demanding something back. Earlier this month the group unveiled a code of ethics for researchers wishing to study their culture, genes, or heritage.
http://www.sciencemag.org/news/2017/03/san-people-africa-draft-code-ethics-researchers?utm_campaign=news_daily_2017-03-21&et_rid=17774313&et_cid=1229219

SCI-NEWS.COM – 'Laughter' is Catching in New Zealand's Kea Parrots

The kea (Nestor notabilis) — a large species of parrot endemic to the Southern Alps of New Zealand — has become the first non-mammal to show signs of 'emotionally contagious' vocalization.
http://feedproxy.google.com/~r/BreakingScienceNews/~3/8rHWyJuX3VY/laughter-kea-parrots-04720.html?utm_source=feedburner&utm_medium=email

SCI-NEWS.COM – Uganda's Ngogo Chimpanzees Have Surprisingly Long Life Expectancies

A 20-year demographic study of a relatively undisturbed and exceptionally large community of eastern chimpanzees (Pan troglodytes schweinfurthii) at Ngogo, Kibale National Park, southwestern Uganda, has revealed that our close primate relatives can lead surprisingly long lives in the wild. The study, led by Yale University researcher Brian Wood, establishes an average life expectancy of about 33 years in its sample of 306 chimpanzees, nearly twice as high as that of other chimpanzee communities and within the 27- to 37-year range of life expectancy at birth of human hunter-gatherers.
http://www.sci-news.com/biology/ugandas-ngogo-chimpanzees-life-expectancies-04719.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+BreakingScienceNews+%28Breaking+Science+News%29

SCIENCE DAILY – People often use the word 'you' rather than 'I' to cope with negative experiences

Researchers say it may seem contradictory that a means of generalizing to people at large is used when reflecting on one's most personal and idiosyncratic experiences.
https://www.sciencedaily.com/releases/2017/03/170323141411.htm

SCIENCE DAILY – First mutations in human life discovered

The earliest mutations of human life have been observed by researchers. Analyzing genomes from adult cells, the scientists could look back in time to reveal how each embryo developed. The study shows that from the two-cell stage of the human embryo, one of these cells becomes more dominant than the other and leads to a higher proportion of the adult body.
https://www.sciencedaily.com/releases/2017/03/170322143205.htm

SCIENCE DAILY – Study identifies brain cells involved in Pavlovian response

A new study has traced the Pavlovian response to a small cluster of brain cells -- the same neurons that go awry during Huntington's disease, Parkinson's disease and Tourette's syndrome. The research could one day help neuroscientists find new approaches to diagnosing and treating these disorders.
https://www.sciencedaily.com/releases/2017/03/170322122645.htm

SCIENCE DAILY – For this New Zealand parrot, 'laughter' is contagious

When people are feeling playful, they giggle and laugh, making others around them want to laugh and play too. Now, researchers have found that the particularly playful kea parrot from New Zealand has a 'play call' with a similarly powerful influence. When other kea hear that call, it puts them into a playful mood.
https://www.sciencedaily.com/releases/2017/03/170320122838.htm

OTHER NEWS – Find Gnome a Home

Noam Chomsky continues to be one of the most influential intellectual figures of modern times. To celebrate all things Chomsky in eager anticipation of the new Cambridge Companion to Chomsky we've decided to offer our followers a chance to win this excellent Gnome Noam.
Enter the competition here: http://www.cambridge.org/gb/academic/terms-and-conditions-gnome-chomsky-competition

PUBLICATIONS

New Scientist

ARTICLES

CAROLINE WILLIAMS – Mind the gaps: the holes in your brain that make you smart

A map of the brain's wiring reveals the spaces may be just as important as the connections – and you have the holes to thank for your most impressive mental feats.

https://www.newscientist.com/article/mg23331180-300-mind-the-gaps-the-holes-in-your-brain-that-make-you-smart/?cmpid=nlc%7cnsns%7c2017-2303-new-oldtemplateglobal&utm_medium=nlc&utm_source=nsns

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Science

PAPERS

ARIANA ORVELL, ETHAN KROSS & SUSAN A. GELMAN – How "you" makes meaning

"You" is one of the most common words in the English language. Although it typically refers to the person addressed ("How are you?"), "you" is also used to make timeless statements about people in general ("You win some, you lose some."). Here, we demonstrate that this ubiquitous but understudied linguistic device, known as "generic-you," has important implications for how people derive meaning from experience. Across six experiments, we found that generic-you is used to express norms in both ordinary and emotional contexts and that producing generic-you when reflecting on negative experiences allows people to "normalize" their experience by extending it beyond the self. In this way, a simple linguistic device serves a powerful meaning-making function.
http://science.sciencemag.org/content/355/6331/1299

Nature

NEWS

South Africa's San people issue ethics code to scientists

The indigenous people — known for their click languages — are the first in Africa to draft guidelines for researchers.
http://links.ealert.nature.com/ctt?kn=115&ms=NTM2ODI5ODMS1&r=MjA1NTkxNTc2NAS2&b=0&j=MTEyMzgyMTYyNQS2&mt=1&rt=0

Nature Communications

PAPERS

CHARLOTTE GROSSE WIESMANN et al with ANGELA D. FRIEDERICI – White matter maturation is associated with the emergence of Theory of Mind in early childhood

The ability to attribute mental states to other individuals is crucial for human cognition. A milestone of this ability is reached around the age of 4, when children start understanding that others can have false beliefs about the world. The neural basis supporting this critical step is currently unknown. Here, we relate this behavioural change to the maturation of white matter structure in 3- and 4-year-old children. Tract-based spatial statistics and probabilistic tractography show that the developmental breakthrough in false belief understanding is associated with age-related changes in local white matter structure in temporoparietal regions, the precuneus and medial prefrontal cortex, and with increased dorsal white matter connectivity between temporoparietal and inferior frontal regions. These effects are independent of co-developing cognitive abilities. Our findings show that the emergence of mental state representation is related to the maturation of core belief processing regions and their connection to the prefrontal cortex.
http://www.nature.com/articles/ncomms14692?WT.ec_id=NCOMMS-20170322&spMailingID=53678856&spUserID=MTA5NjM3MTAyODYxS0&spJobID=1123757038&spReportId=MTEyMzc1NzAzOAS2

Nature Scientific Reports

PAPERS

R. RAUBER & M. B. MANSER – Discrete call types referring to predation risk enhance the efficiency of the meerkat sentinel system

Sentinel behaviour, a form of coordinated vigilance, occurs in a limited range of species, mostly in cooperative breeders. In some species sentinels confirm their presence vocally by giving a single sentinel call type, whereby the rate and subtle acoustic changes provide graded information on the variation of perceived predation risk. In contrast, meerkat (Suricata suricatta) sentinels produce six different sentinel call types. Here we show that manipulation of perception of danger has different effects on the likelihood of emitting these different call types, and that these call types affect foraging individuals differently. Increasing the perceived predation risk by playing back alarm calls decreased the production rate of the common short note calls and increased the production rate of the rare long calls. Playbacks of short note calls increased foraging behaviour and decreased vigilance in the rest of the group, whereas the opposite was observed when playing long calls. This suggests that the common call types act as all-clear signals, while the rare call types have a warning function. Therefore, meerkats increase the efficiency of their sentinel system by producing several discrete call types that represent changes in predation risk and lead to adjustments of the group's vigilance behaviour.
http://www.nature.com/articles/srep44436?WT.ec_id=SREP-20170321&spMailingID=53671122&spUserID=ODY4NjU1NzU3NQS2&spJobID=1123588329&spReportId=MTEyMzU4ODMyOQS2

BRIGGS BUCHANAN et al with METIN I. EREN – Environment-induced changes in selective constraints on social learning during the peopling of the Americas

The weaponry technology associated with Clovis and related Early Paleoindians represents the earliest well-defined evidence of humans in Pleistocene North America. We assess the technological diversity of these fluted stone points found at archaeological sites in the western and eastern halves of North America by employing statistical tools used in the quantification of ecological biodiversity. Our results demonstrate that the earliest hunters in the environmentally heterogeneous East used a more diverse set of points than those in the environmentally homogenous West. This and other evidence shows that environmental heterogeneity in the East promoted the relaxation of selective constraints on social learning and increased experimentation with point designs.
http://www.nature.com/articles/srep44431?WT.ec_id=SREP-20170321&spMailingID=53671122&spUserID=ODY4NjU1NzU3NQS2&spJobID=1123588329&spReportId=MTEyMzU4ODMyOQS2

WENJUN YU et al – Humans Conceptualize Victory and Defeat in Body Size

Size matters considerably for victory and defeat during competitive situations. Drawing on the embodied theory of cognition, we examined the reciprocal association between size and competition outcomes. To do so, we used the 'rock-paper-scissors game', whose outcome is not contingent on apparent physical size. In Experiment 1, participants were asked to judge whether the target gesture was a winning or a losing one. Compared to responses in the incompatible condition (small-winner and large-loser), those in the compatible condition (large-winner and small-loser) were quicker. In Experiment 2, we asked participants to adjust the size of gestures to correspond to gestures previously presented, and found that the winning gesture was estimated as much larger than the losing one. In line with our main hypothesis, size information can interfere with judgments about competition outcomes, and vice versa, even when the outcome is unrelated to body size.
http://www.nature.com/articles/srep44136?WT.ec_id=SREP-20170321&spMailingID=53671122&spUserID=ODY4NjU1NzU3NQS2&spJobID=1123588329&spReportId=MTEyMzU4ODMyOQS2

HARVEY WHITEHOUSE et al with SERGEY GAVRILETS – The evolution of extreme cooperation via shared dysphoric experiences

Willingness to lay down one's life for a group of non-kin, well documented historically and ethnographically, represents an evolutionary puzzle. Building on research in social psychology, we develop a mathematical model showing how conditioning cooperation on previous shared experience can allow individually costly pro-group behavior to evolve. The model generates a series of predictions that we then test empirically in a range of special sample populations (including military veterans, college fraternity/sorority members, football fans, martial arts practitioners, and twins). Our empirical results show that sharing painful experiences produces "identity fusion" – a visceral sense of oneness – which in turn can motivate self-sacrifice, including willingness to fight and die for the group. Practically, our account of how shared dysphoric experiences produce identity fusion helps us better understand such pressing social issues as suicide terrorism, holy wars, sectarian violence, gang-related violence, and other forms of intergroup conflict.
http://www.nature.com/articles/srep44292?WT.ec_id=SREP-20170321&spMailingID=53671122&spUserID=ODY4NjU1NzU3NQS2&spJobID=1123588329&spReportId=MTEyMzU4ODMyOQS2

LUCIANO SIMONE et al – Action observation activates neurons of the monkey ventrolateral prefrontal cortex

Prefrontal cortex is crucial for exploiting contextual information for the planning and guidance of behavioral responses. Among contextual cues, those provided by others' behavior are particularly important, in primates, for selecting appropriate reactions and suppressing the inappropriate ones. These latter functions deeply rely on the ability to understand others' actions. However, it is largely unknown whether prefrontal neurons are activated by action observation. To address this issue, we recorded the activity of ventrolateral prefrontal (VLPF) neurons of macaque monkeys during the observation of videos depicting biological movements performed by a monkey or a human agent, and object motion. Our results show that a population of VLPF neurons respond to the observation of biological movements, in particular those representing goal directed actions. Many of these neurons also show a preference for the agent performing the action. The neural response is present also when part of the observed movement is obscured, suggesting that these VLPF neurons code a high order representation of the observed action rather than a simple visual description of it.
http://www.nature.com/articles/srep44378?WT.ec_id=SREP-20170321&spMailingID=53671122&spUserID=ODY4NjU1NzU3NQS2&spJobID=1123588329&spReportId=MTEyMzU4ODMyOQS2

PLoS One

PAPERS

DAVID RODRIGUES, DINIZ LOPES & MADOKA KUMASHIRO – The "I" in us, or the eye on us? Regulatory focus, commitment and derogation of an attractive alternative person

When individuals are highly committed to their romantic relationship, they are more likely to engage in pro-relationship maintenance mechanisms. The present research expanded on the notion that commitment redirects self-oriented goals to consider broader relational goals and examined whether commitment interacts with a promotion and prevention focus to activate derogation of attractive alternatives. Three studies used cross-sectional and experimental approaches. Study 1 showed that romantically involved individuals predominantly focused on promotion, but not prevention, reported less initial attraction to an attractive target than single individuals, especially when highly committed to their relationship. Study 2 showed that romantically involved individuals induced in a promotion focus, compared to those in prevention focus, reported less initial attraction, but only when more committed to their relationship. Regardless of regulatory focus manipulation, more committed individuals were also less likely to perceive quality among alternative scenarios and to be attentive to alternative others in general. Finally, Study 3 showed that romantically involved individuals induced in promotion focus and primed with high commitment reported less initial attraction, than those primed with low commitment, or than those induced in prevention focus. Once again, for these latter no differences occurred according to commitment prime. Together, the findings suggest that highly committed promotion focused individuals consider broader relationship goals and activate relationship maintenance behaviors such as derogation of attractive alternatives to promote their relationship.
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0174350

VASSILIKI RENTOUMI et al – The acute mania of King George III: A computational linguistic analysis

We used a computational linguistic approach, exploiting machine learning techniques, to examine the letters written by King George III during mentally healthy and apparently mentally ill periods of his life. The aims of the study were: first, to establish the existence of alterations in the King's written language at the onset of his first manic episode; and secondly to identify salient sources of variation contributing to the changes. Effects on language were sought in two control conditions (politically stressful vs. politically tranquil periods and seasonal variation). We found clear differences in the letter corpus, across a range of different features, in association with the onset of mental derangement, which were driven by a combination of linguistic and information theory features that appeared to be specific to the contrast between acute mania and mental stability. The paucity of existing data relevant to changes in written language in the presence of acute mania suggests that lexical, syntactic and stylometric descriptions of written discourse produced by a cohort of patients with a diagnosis of acute mania will be necessary to support the diagnosis independently and to look for other periods of mental illness of the course of the King's life, and in other historically significant figures with similarly large archives of handwritten documents.
{It's a quiet week…}
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0171626

PNAS

PAPERS

JOHANNES J. FAHRENFORT et al – Perceptual integration without conscious access

The visual system has the remarkable ability to integrate fragmentary visual input into a perceptually organized collection of surfaces and objects, a process we refer to as perceptual integration. Despite a long tradition of perception research, it is not known whether access to consciousness is required to complete perceptual integration. To investigate this question, we manipulated access to consciousness using the attentional blink. We show that, behaviorally, the attentional blink impairs conscious decisions about the presence of integrated surface structure from fragmented input. However, despite conscious access being impaired, the ability to decode the presence of integrated percepts remains intact, as shown through multivariate classification analyses of electroencephalogram (EEG) data. In contrast, when disrupting perception through masking, decisions about integrated percepts and decoding of integrated percepts are impaired in tandem, while leaving feedforward representations intact. Together, these data show that access consciousness and perceptual integration can be dissociated.
http://www.pnas.org/content/pnas/early/2017/03/20/1617268114.abstract.html?collection

ELLIOT COLLINS, JOONKOO PARK & MARLENE BEHRMANN – Numerosity representation is encoded in human subcortex

Certain numerical abilities appear to be relatively ubiquitous in the animal kingdom, including the ability to recognize and differentiate relative quantities. This skill is present in human adults and children, as well as in nonhuman primates and, perhaps surprisingly, is also demonstrated by lower species such as mosquitofish and spiders, despite the absence of cortical computation available to primates. This ubiquity of numerical competence suggests that representations that connect to numerical tasks are likely subserved by evolutionarily conserved regions of the nervous system. Here, we test the hypothesis that the evaluation of relative numerical quantities is subserved by lower-order brain structures in humans. Using a monocular/dichoptic paradigm, across four experiments, we show that the discrimination of displays, consisting of both large (5–80) and small (1–4) numbers of dots, is facilitated in the monocular, subcortical portions of the visual system. This is only

the case, however, when observers evaluate larger ratios of 3:1 or 4:1, but not smaller ratios, closer to 1:1. This profile of competence matches closely the skill with which newborn infants and other species can discriminate numerical quantity. These findings suggest conservation of ontogenetically and phylogenetically lower-order systems in adults' numerical abilities. The involvement of subcortical structures in representing numerical quantities provokes a reconsideration of current theories of the neural basis of numerical cognition, inasmuch as it bolsters the cross-species continuity of the biological system for numerical abilities.
http://www.pnas.org/content/pnas/early/2017/03/14/1613982114.abstract.html?collection

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