

References

Aktuell

JOHNSON 2017

C. G. Johnson, U. Jain, A. L. Hazel, D. Pihler-Puzoviæ & T. Mullin, *On the buckling of an elastic holey column*. [Proc. Royal Society A 473 \(2017\), 20170477](#).

We report the results of a numerical and theoretical study of buckling in elastic columns containing a line of holes. Buckling is a common failure mode of elastic columns under compression, found over scales ranging from metres in buildings and aircraft to tens of nanometers in DNA. This failure usually occurs through lateral buckling, described for slender columns by Euler's theory. When the column is perforated with a regular line of holes, a new buckling mode arises, in which adjacent holes collapse in orthogonal directions. In this paper, we firstly elucidate how this alternate hole buckling mode coexists and interacts with classical Euler buckling modes, using finite-element numerical calculations with bifurcation tracking. We show how the preferred buckling mode is selected by the geometry, and discuss the roles of localized (holescale) and global (column-scale) buckling. Secondly, we develop a novel predictive model for the buckling of columns perforated with large holes. This model is derived without arbitrary fitting parameters, and quantitatively predicts the critical strain for buckling. We extend the model to sheets perforated with a regular array of circular holes and use it to provide quantitative predictions of their buckling.

Subject Areas: applied mathematics, materials science, mechanics

Keywords: periodic structures | bifurcations | mechanical metamaterials

MAFESSONI 2017

Fabrizio Mafessoni & Kay Prüfer, *Better support for a small effective population size of Neandertals and a long shared history of Neandertals and Denisovans*. [PNAS 114 \(2017\), E10256–E10257](#).

We conclude that the Rogers et al. (1) model does not capture some of the basic features of available data. A relatively small effective population size for Neandertals and a longer shared branch for Neandertals and Denisova remain better supported.

MEHL 2017

Matthias R. Mehl, Charles L. Raison, Thaddeus W. W. Pace, Jesusa M. G. Arevalo & Steve W. Cole, *Natural language indicators of differential gene regulation in the human immune system*. [PNAS 114 \(2017\), 12554–12559](#).

[pnas114-12554-Supplement1.xlsx](#), [pnas114-12554-Supplement2.xlsx](#), [pnas114-12554-Supplement3.doc](#)

Adverse social conditions have been linked to a conserved transcriptional response to adversity (CTRA) in circulating leukocytes that may contribute to social gradients in disease. However, the CNS mechanisms involved remain obscure, in part because CTRA geneexpression profiles often track external social–environmental variables more closely than they do self-reported internal affective

states such as stress, depression, or anxiety. This study examined the possibility that variations in patterns of natural language use might provide more sensitive indicators of the automatic threat-detection and -response systems that proximally regulate autonomic induction of the CTRA. In 22,627 audio samples of natural speech sampled from the daily interactions of 143 healthy adults, both total language output and patterns of function-word use covaried with CTRA gene expression. These language features predicted CTRA gene expression substantially better than did conventional self-report measures of stress, depression, and anxiety and did so independently of demographic and behavioral factors (age, sex, race, smoking, body mass index) and leukocyte subset distributions. This predictive relationship held when language and gene expression were sampled more than a week apart, suggesting that associations reflect stable individual differences or chronic life circumstances. Given the observed relationship between personal expression and gene expression, patterns of natural language use may provide a useful behavioral indicator of nonconsciously evaluated well-being (implicit safety vs. threat) that is distinct from conscious affective experience and more closely tracks the neurobiological processes involved in peripheral gene regulation.

Keywords: genomics | psychoneuroimmunology | psycholinguistics

Significance: Social genomics research has identified a conserved transcriptional response to adversity (CTRA) that may contribute to social disparities in health. This study identified systematic individual differences in natural language use that track CTRA gene expression more closely than do conventional self-report measures of stress, anxiety, or depression. These language style markers may provide a useful behavioral indicator of the neurobiological processes that mediate social influences on gene expression in immune cells.

ROGERS 2017

Alan R. Rogers, Ryan J. Bohlender & Chad D. Huff, *Inferences with and without singleton site patterns, Reply to Mafessoni and Prüfer*. [PNAS 114 \(2017\), E10258–E10260](#).

We are skeptical of the with-singleton analysis, because it implies that the Denisovan fossil lived only 4 kya. This is probably because site pattern d (derived allele only in Denisovan) is 10% more common than pattern n (only in Neanderthal). This may reflect diagenic changes in the Denisovan genome or hyperarchaic admixture into Denisova (4). Neither our models nor that of MP allows for this, so all may introduce bias.

We favor the without-singleton analysis, which implies a fairly large Neanderthal population. Both analyses imply an early separation of the two archaics and a bottleneck among their ancestors.

ROMANO 2017

Angelo Romano, Daniel Balliet, Toshio Yamagishi & James H. Liu, *Parochial trust and cooperation across 17 societies*. [PNAS 114 \(2017\), 12702–12707](#).

International challenges such as climate change, poverty, and intergroup conflict require countries to cooperate to solve these complex problems. However, the political tide in many countries has shifted inward, with skepticism and reluctance to cooperate with other countries. Thus, cross-societal investigations are needed to test theory about trust and cooperation within and between groups. We conducted an experimental study in 17 countries designed to test several theories that explain why, who, and where people trust and cooperate more with ingroup members, compared with outgroup members. The experiment involved several interactions in the trust game, either as a trustor or trustee. We manipulated partner group

membership in the trust game (ingroup, outgroup, or unknown) and if their reputation was at stake during the interaction. In addition to the standard finding that participants trust and cooperate more with ingroup than outgroup members, we obtained findings that reputational concerns play a decisive role for promoting trust and cooperation universally across societies. Furthermore, men discriminated more in favor of their ingroup than women. Individual differences in cooperative preferences, as measured by social value orientation, predicted cooperation with both ingroup and outgroup members. Finally, we did not find support for three theories about the cross-societal conditions that influence the degree of ingroup favoritism observed across societies (e.g., material security, religiosity, and pathogen stress). We discuss the implications for promoting cooperation within and between countries.

Keywords: cooperation | trust | parochial altruism | reputation | culture

Significance: In a study including 17 societies, we found that people are motivated to trust and cooperate more with their ingroup, than harm the outgroup. Reputation-based indirect reciprocity may offset this ingroup favoritism, because we found that reputational concern universally increases cooperation with both ingroup and outgroup members. We also found that people who are dispositionally cooperative are less parochial and more universal in their cooperation. In a time of increasing parochialism in both domestic and international relations, our findings affirm us of the danger of the strong human universal toward parochial altruism. Yet, our findings suggest that in all societies, there exist people whose cooperation transcends group boundaries and provides a solution to combating parochialism: reputation-based indirect reciprocity.

Anthropologie

DE AZEVEDO 2017

S. de Azevedo et al., *Nasal airflow simulations suggest convergent adaptation in Neanderthals and modern humans*. [PNAS 114 \(2017\), 12442–12447](#).

pnas114-12442-Supplement01.mp4, pnas114-12442-Supplement02.mp4, pnas114-12442-Supplement03.mp4, pnas114-12442-Supplement04.mp4, pnas114-12442-Supplement05.mp4, pnas114-12442-Supplement06.mp4, pnas114-12442-Supplement07.mp4, pnas114-12442-Supplement08.mp4, pnas114-12442-Supplement09.mp4, pnas114-12442-Supplement10.mp4, pnas114-12442-Supplement11.mp4, pnas114-12442-Supplement12.mp4

S. de Azevedo, M. F. González, C. Cintas, V. Ramallo, M. Quinto-Sánchez, F. Márquez, T. Hünemeier, C. Paschetta, A. Ruderman, P. Navarro, B. A. Pazos, C. C. Silva de Cerqueira, O. Velan, F. Ramírez-Rozzi, N. Calvo, H. G. Castro, R. R. Paz & R. González-José

Both modern humans (MHs) and Neanderthals successfully settled across western Eurasian cold-climate landscapes. Among the many adaptations considered as essential to survival in such landscapes, changes in the nasal morphology and/or function aimed to humidify and warm the air before it reaches the lungs are of key importance. Unfortunately, the lack of soft-tissue evidence in the fossil record turns difficult any comparative study of respiratory performance. Here, we reconstruct the internal nasal cavity of a Neanderthal plus two representatives of climatically divergent MH populations (southwestern Europeans and northeastern Asians). The reconstruction includes mucosa distribution enabling a realistic simulation of the breathing cycle in different climatic conditions via computational fluid dynamics. Striking across-specimens differences in fluid residence times affecting humidification and warming performance at the anterior tract were found

under cold/dry climate simulations. Specifically, the Asian model achieves a rapid air conditioning, followed by the Neanderthals, whereas the European model attains a proper conditioning only around the medium-posterior tract. In addition, quantitative-genetic evolutionary analyses of nasal morphology provided signals of stabilizing selection for MH populations, with the removal of Arctic populations turning covariation patterns compatible with evolution by genetic drift. Both results indicate that, departing from important craniofacial differences existing among Neanderthals and MHs, an advantageous species-specific respiratory performance in cold climates may have occurred in both species. Fluid dynamics and evolutionary biology independently provided evidence of nasal evolution, suggesting that adaptive explanations regarding complex functional phenotypes require interdisciplinary approaches aimed to quantify both performance and evolutionary signals on covariation patterns.

Keywords: nasal morphology | computational fluid dynamics | quantitative genetics | Neanderthal | Homo sapiens

Significance: Due to its role in humidifying and warming the air before it reaches the lungs, adaptations in the internal nasal anatomy are suspected to have been essential for modern humans and Neanderthals during the settlement of Eurasian harsh landscapes. Unfortunately, the lack of soft-tissue evidence in the fossil record precludes any study of Neanderthal respiratory performance. Here, we use warping techniques to reconstruct a generic Neanderthal nose, computational fluid dynamics simulations to compare the respiratory performance on both species, and evolutionary analyses to detect signals of selection. We report striking differences on fluid residence times under cold/dry climatic conditions. Different from previously suggested, our results indicate that both species would have achieved an advantageous species-specific respiratory performance in cold climates.

Archäologie

FRITZ 1970

John M. Fritz & Fred T. Plog, *The Nature of Archaeological Explanation*. *American Antiquity* **35** (1970), 405–412.

We argue that the development and use of law-like statements by archaeologists to explain the archaeological record has been and should continue to be one of the most important goals research. Using a model for explanation developed by the philosophers of science, Carl Oppenheim, we indicate the role of such statements in archaeological classification. However, such statements are found to be implicit, untested, and extremely general in referent.

We further argue that the testing of potential laws requires a shift from an inductive procedure, in which undirected data collection forms the first and the “abstraction” of laws from data forms the last research step, to a deductive procedure in which the explicit formulation of potential laws and their empirical consequences precedes and directs the collection of data.

RAHMSTORF 2017

Lorenz Rahmstorf, *The Use of Bronze Objects in the 3rd Millennium BC, A Survey between Atlantic and Indus*. In: PHILIPP W. STOCKHAMMER & JOSEPH MARAN (Hrsg.), *Appropriating Innovations, Entangled Knowledge in Eurasia, 5000–1500 BCE*. (Oxford 2017), 184–210.

TOMÉ 2017

TIAGO TOMÉ, MARTA DÍAZ-ZORITA BONILLA, ANA MARIA SILVA, CLAUDIA CUNHA & RUI BOAVENTURA (Hrsg.), *Current Approaches to Collective Burials in the Late European Prehistory, Proceedings of the XVII World UISPP Congress, Burgos (Spain), September 1–7, 2014*. (Oxford 2017).

Bibel

ROSENZWEIG 1926

Franz Rosenzweig, *Die Schrift und Luther*. (Berlin 1926).

Biographie

ILIFFE 2017

Rob Iliffe, *Priest of Nature, The religious worlds of Isaac Newton*. (New York 2017).

Religion and faith dominated much of Newton's life and work. His papers, never made available to the public, were filled with biblical speculation and timelines along with passages that excoriated the early Church fathers. Indeed, his radical theological leanings rendered him a heretic, according to the doctrines of the Anglican Church. Newton believed that the central concept of the Trinity was a diabolical fraud and loathed the idolatry, cruelty, and persecution that had come to define religion in his time. Instead, he proposed a "simple Christianity"—a faith that would center on a few core beliefs and celebrate diversity in religious thinking and practice. An utterly original but obsessively private religious thinker, Newton composed several of the most daring works of any writer of the early modern period, works which he and his inheritors suppressed and which have been largely inaccessible for centuries.

Energie

GIES 2017

Erica Gies, *The real cost of energy*. [nature 551 \(2017\), Supplement, S145–S147](#).

All energy production has environmental and societal effects. But calculating them — and pricing energy accordingly — is no easy task.

LAURSEN 2017

Lucas Laursen, *Grids of all sizes*. [nature 551 \(2017\), Supplement, S148–S149](#).

Solar minigrids in Bangladesh are changing the lives of people in remote rural areas.

"There are remote areas where grid extension is not feasible, but it could be feasible for minigrids," says Huque. The minigrids she means are primarily solar powered and provide businesses with higher-quality, more predictable, longer-lasting electricity supplies thanks to their battery banks, inverters and backup diesel generators.

Compounding the problem, Huque says, is that part of the government “thinks we are competition” and devotes most of its help to “the megawatt people”. For minigrids to succeed, the government will have to come around to seeing minigridd builders as allies, which requires educating its staff and the companies it works with. Sovacool says that most of the successful projects he has studied devoted more than half of their resources to the human side: training, enforcement and education.

Klima

WARDEN 2017

L. Warden et al., *Climate induced human demographic and cultural change in northern Europe during the mid-Holocene*. [Scientific Reports \(2017\), preprint, 1–11. DOI:10.1038/s41598-017-14353-5.](#)

L. Warden, M. Moros, T. Neumann, S. Shennan, A. Timpson, K. Manning, M. Sollai, L. Wacker, K. Perner, K. Häusler, T. Leipe, L. Zillén, A. Kotilainen, E. Jansen, R. R. Schneider, R. Oeberst, H. Arz & J. S. Sinninghe Damsté

The transition from hunter-gatherer-fisher groups to agrarian societies is arguably the most significant change in human prehistory. In the European plain there is evidence for fully developed agrarian societies by 7,500 cal. yr BP, yet a well-established agrarian society does not appear in the north until 6,000 cal. yr BP for unknown reasons. Here we show a sudden increase in summer temperature at 6,000 cal. yr BP in northern Europe using a well-dated, high resolution record of sea surface temperature (SST) from the Baltic Sea. This temperature rise resulted in hypoxic conditions across the entire Baltic sea as revealed by multiple sedimentary records and supported by marine ecosystem modeling. Comparison with summed probability distributions of radiocarbon dates from archaeological sites indicate that this temperature rise coincided with both the introduction of farming, and a dramatic population increase. The evidence supports the hypothesis that the boundary of farming rapidly extended north at 6,000 cal. yr BP because terrestrial conditions in a previously marginal region improved.

Kultur

ELLIOTT 2017

Michelle Elliott, *Inequality has deep roots in Eurasia*. [nature 551 \(2017\), 573–575.](#)

A study of 64 archaeological sites across four continents shows that the growth of agricultural and political systems provoked economic disparities, more so in Eurasia than in North America.

KOHLER 2017

Timothy A. Kohler et al., *Greater post-Neolithic wealth disparities in Eurasia than in North America and Mesoamerica*. [nature 551 \(2017\), 619–622.](#)

[n551-0619-Supplement1.pdf](#), [n551-0619-Supplement2.pdf](#), [n551-0619-Supplement3.xls](#)

Timothy A. Kohler, Michael E. Smith, Amy Bogaard, Gary M. Feinman, Christian E. Peterson, Alleen Betzenhauser, Matthew Pailes, Elizabeth C. Stone, Anna Marie Prentiss, Timothy J. Dennehy, Laura J. Ellyson, Linda M. Nicholas, Ronald

K. Faulseit, Amy Styring, Jade Whitlam, Mattia Fochesato, Thomas A. Foor & Samuel Bowles

How wealth is distributed among households provides insight into the fundamental characters of societies and the opportunities they afford for social mobility^{1,2}. However, economic inequality has been hard to study in ancient societies for which we do not have written records^{3,4}, which adds to the challenge of placing current wealth disparities into a long-term perspective. Although various archaeological proxies for wealth, such as burial goods^{5,6} or exotic or expensive-to-manufacture goods in household assemblages⁷, have been proposed, the first is not clearly connected with households, and the second is confounded by abandonment mode and other factors. As a result, numerous questions remain concerning the growth of wealth disparities, including their connection to the development of domesticated plants and animals and to increases in sociopolitical scale⁸. Here we show that wealth disparities generally increased with the domestication of plants and animals and with increased sociopolitical scale, using Gini coefficients computed over the single consistent proxy of house-size distributions. However, unexpected differences in the responses of societies to these factors in North America and Mesoamerica, and in Eurasia, became evident after the end of the Neolithic period. We argue that the generally higher wealth disparities identified in post-Neolithic Eurasia were initially due to the greater availability of large mammals that could be domesticated, because they allowed more profitable agricultural extensification⁹, and also eventually led to the development of a mounted warrior elite able to expand polities (political units that cohere via identity, ability to mobilize resources, or governance) to sizes that were not possible in North America and Mesoamerica before the arrival of Europeans^{10,11}. We anticipate that this analysis will stimulate other work to enlarge this sample to include societies in South America, Africa, South Asia and Oceania that were undersampled or not included in this study.

Methoden

EDINBOROUGH 2017

Kevan Edinborough, Marko Porčić, Andrew Martindale, Thomas Jay Brown, Kisha Supernant & Kenneth M. Ames, *Radiocarbon test for demographic events in written and oral history*. [PNAS 114 \(2017\), 12436–12441](#).

[pnas114-12436-Supplement1.xlsx](#), [pnas114-12436-Supplement2.xlsx](#), [pnas114-12436-Supplement3.pdf](#)

We extend an established simulation-based method to test for significant short-duration (1–2 centuries) demographic events known from one documented historical and one oral historical context. Case study 1 extrapolates population data from the Western historical tradition using historically derived demographic data from the catastrophic European Black Death/bubonic plague (*Yersinia pestis*). We find a corresponding statistically significant drop in absolute population using an extended version of a previously published simulation method. Case study 2 uses this refined simulation method to test for a settlement gap identified in oral historical records of descendant Tsimshian First Nations communities from the Prince Rupert Harbour region of the Pacific Northwest region of British Columbia, Canada. Using a regional database of $n = 523$ radiocarbon dates, we find a significant drop in relative population using the extended simulationbased method consistent with Tsimshian oral records. We conclude that our technical refinement

extends the utility of radiocarbon simulation methods and can provide a rigorous test of demographic predictions derived from a range of historical sources.

Keywords: historical record | oral history | archaeology | simulation | radiocarbon

Significance: Indigenous oral traditions remain a very controversial source of historical knowledge in Western scientific, humanistic, and legal traditions. Likewise, demographic models using radiocarbon-based simulation methods are controversial. We rigorously test the historicity of indigenous Tsimshian oral records (adawx) using an extended simulation-based method. Our methodology is able to detect short-duration (1–2 centuries) demographic events. First, we successfully test the methodology against a simulated radiocarbon dataset for the catastrophic European Black Death/ bubonic plague (*Yersinia pestis*). Second, we test the Tsimshian adawx accounts of an occupational hiatus in their territorial heartland ca. 1,500–1,000 years ago. We are unable to disconfirm the oral accounts. This represents the first formal test of indigenous oral traditions using modern radiocarbon modeling techniques.

LEEK 2017

Jeff Leek, Blakeley B. McShane, Andrew Gelman, David Colquhoun, Michèle B. Nuijten & Steven N. Goodman, *Five ways to fix statistics. nature* **551** (2017), 557–559.

As debate rumbles on about how and how much poor statistics is to blame for poor reproducibility, *Nature* asked influential statisticians to recommend one change to improve science. The common theme? The problem is not our maths, but ourselves.

We have no desire to ban P values. Instead, we wish them to be considered as just one piece of evidence among many, along with prior knowledge, plausibility of mechanism, study design and data quality, real-world costs and benefits, and other factors.

This false-positive risk (FPR) is always bigger than the P value. How much bigger depends strongly on the plausibility of the hypothesis before an experiment is done—the prior probability of there being a real effect. If this prior probability were low, say 10%, then a P value close to 0.05 would carry an FPR of 76%. To lower that risk to 5% (which is what many people still believe $P < 0.05$ means), the P value would need to be 0.00045. So why not report the false-positive risk instead of the easily misinterpreted P value? The problem is that researchers usually have no way of knowing what the prior probability is.

Explaining to young scientists [...] does not enhance their professional prospects, and usually takes more time than we have. Many scientists want only enough knowledge to run the statistical software that allows them to get their papers out quickly, and looking like all the others in their field.

Even now, replicating a psychology study is sometimes taken as an affront to the original investigator.

Mittelalter

HEDENSTIERNA-JONSON 2017

Charlotte Hedenstierna-Jonson et al., *A female Viking warrior confirmed by genomics. American Journal of Physical Anthropology* (2017), preprint, 1–8. DOI:10.1002/ajpa.23308.

Charlotte Hedenstierna-Jonson, Anna Kjellström, Torun Zachrisson, Maja Krzewińska, Veronica Sobrado, Neil Price, Torsten Günther, Mattias Jakobsson, Anders Götherström & Jan Storå

Objectives: The objective of this study has been to confirm the sex and the affinity of an individual buried in a well-furnished warrior grave (Bj 581) in the Viking Age town of Birka, Sweden. Previously, based on the material and historical records, the male sex has been associated with the gender of the warrior and such was the case with Bj 581. An earlier osteological classification of the individual as female was considered controversial in a historical and archaeological context. A genomic confirmation of the biological sex of the individual was considered necessary to solve the issue.

Materials and methods: Genome-wide sequence data was generated in order to confirm the biological sex, to support skeletal integrity, and to investigate the genetic relationship of the individual to ancient individuals as well as modern-day groups. Additionally, a strontium isotope analysis was conducted to highlight the mobility of the individual.

Results: The genomic results revealed the lack of a Y-chromosome and thus a female biological sex, and the mtDNA analyses support a single-individual origin of sampled elements. The genetic affinity is close to present-day North Europeans, and within Sweden to the southern and southcentral region. Nevertheless, the Sr values are not conclusive as to whether she was of local or nonlocal origin.

Discussion: The identification of a female Viking warrior provides a unique insight into the Viking society, social constructions, and exceptions to the norm in the Viking time-period. The results call for caution against generalizations regarding social orders in past societies.

Neolithikum

McGOVERN 2017

Patrick McGovern et al., *Early Neolithic wine of Georgia in the South Caucasus*. [PNAS 114 \(2017\), E10309–E10318](#).

[pnas114-E10309-Supplement1.xlsx](#), [pnas114-E10309-Supplement2.xlsx](#), [pnas114-E10309-Supplement3.xlsx](#)

Patrick McGovern, Mindia Jalabadze, Stephen Batiuk, Michael P. Callahan, Karen E. Smith, Gretchen R. Hall, Eliso Kvavadze, David Maghradze, Nana Rusishvili, Laurent Bouby, Osvaldo Failla, Gabriele Cola, Luigi Mariani, Elisabetta Boaretto, Roberto Bacilieri, Patrice This, Nathan Wales & David Lordkipanidze

Chemical analyses of ancient organic compounds absorbed into the pottery fabrics from sites in Georgia in the South Caucasus region, dating to the early Neolithic period (ca. 6,000–5,000 BC), provide the earliest biomolecular archaeological evidence for grape wine and viticulture from the Near East, at ca. 6,000–5,800 BC. The chemical findings are corroborated by climatic and environmental reconstruction, together with archaeobotanical evidence, including grape pollen, starch, and epidermal remains associated with a jar of similar type and date. The very large-capacity jars, some of the earliest pottery made in the Near East, probably served as combination fermentation, aging, and serving vessels. They are the most numerous pottery type at many sites comprising the so-called “ShulaveriShomutepe Culture” of the Neolithic period, which extends into western Azerbaijan and northern Armenia. The discovery of early sixth millennium BC grape wine in this region is crucial to the later history of wine in Europe and the rest of the world.

Keywords: Neolithic | wine | viticulture | Georgia | Near East

Significance: The earliest biomolecular archaeological and archaeobotanical evidence for grape wine and viticulture from the Near East, ca. 6,000–5,800 BC during the early Neolithic Period, was obtained by applying state-of-the-art archaeological, archaeobotanical, climatic, and chemical methods to newly excavated

materials from two sites in Georgia in the South Caucasus. Wine is central to civilization as we know it in the West. As a medicine, social lubricant, mind-altering substance, and highly valued commodity, wine became the focus of religious cults, pharmacopoeias, cuisines, economies, and society in the ancient Near East. This wine culture subsequently spread around the globe. Viniculture illustrates human ingenuity in developing horticultural and winemaking techniques, such as domestication, propagation, selection of desirable traits, wine presses, suitable containers and closures, and so on.

Politik

JAYLES 2017

Bertrand Jayles et al., *How social information can improve estimation accuracy in human groups*. [PNAS 114 \(2017\), 12620–12625](#).

Bertrand Jayles, Hye-rin Kim, Ramón Escobedo, Stéphane Cezera, Adrien Blanchet, Tatsuya Kameda, Clément Sire & Guy Theraulaz

In our digital and connected societies, the development of social networks, online shopping, and reputation systems raises the questions of how individuals use social information and how it affects their decisions. We report experiments performed in France and Japan, in which subjects could update their estimates after having received information from other subjects. We measure and model the impact of this social information at individual and collective scales. We observe and justify that, when individuals have little prior knowledge about a quantity, the distribution of the logarithm of their estimates is close to a Cauchy distribution. We find that social influence helps the group improve its properly defined collective accuracy. We quantify the improvement of the group estimation when additional controlled and reliable information is provided, unbeknownst to the subjects. We show that subjects' sensitivity to social influence permits us to define five robust behavioral traits and increases with the difference between personal and group estimates. We then use our data to build and calibrate a model of collective estimation to analyze the impact on the group performance of the quantity and quality of information received by individuals. The model quantitatively reproduces the distributions of estimates and the improvement of collective performance and accuracy observed in our experiments. Finally, our model predicts that providing a moderate amount of incorrect information to individuals can counterbalance the human cognitive bias to systematically underestimate quantities and thereby improve collective performance.

Keywords: social influence | wisdom of crowds | collective intelligence | self-organization | computational modeling

Significance: Digital technologies deeply impact the way that people interact. Therefore, it is crucial to understand how social influence affects individual and collective decision-making. We performed experiments where subjects had to answer questions and then revise their opinion after knowing the average opinion of some previous participants. Moreover, unbeknownst to the subjects, we added a controlled number of virtual participants always giving the true answer, thus precisely controlling social information. Our experiments and data-driven model show how social influence can help a group of individuals collectively improve its performance and accuracy in estimation tasks depending on the quality and quantity of information provided. Our model also shows how giving slightly incorrect information could drive the group to a better performance.

Sprachlehre

MARGOLIS 1910

Dr. Max L. Margolis, *Lehrbuch der aramäischen Sprache des babylonischen Talmuds, Grammatik, Chrestomathie und Wörterbuch*. *Clavis Linguarum Semiticarum* 3 ([München 1910](#)).

Story or Book

KISER 2017

Barbara Kiser, *How Culture Transformed Our Species*. [nature 551 \(2017\), 439](#).

A Different Kind of Animal: How Culture Transformed Our Species. Robert Boyd. Princeton University Press (2017)

By 10,000 years ago, *Homo sapiens* had surged into almost every corner of Earth, barring Antarctica and a number of islands. What explains that unique dominance? In this lucid, well-argued treatise, anthropologist Robert Boyd avers that we are “culture-saturated creatures”, and that it is culturally transmitted knowledge that sets us apart and explains our dramatic range of behaviours, from rampant violence to great feats of cooperation. Philosopher Kim Sterelny, evolutionary anthropologist Ruth Mace and others provide considered and spirited counter-arguments.

MAEIR 2017

Aren M. Maeir, *A History of Biblical Israel*. [Bulletin of the School of Oriental and African Studies 80 \(2017\), 577–579](#).

E.A. Knauf and Philippe Guillaume: *A History of Biblical Israel: The Fate of the Tribes and Kingdoms from Merenptah to Bar Kochba*. (Worlds of the Ancient Near East and the Mediterranean.) Sheffield: Equinox, 2016. ISBN 978-1-78179-142-4. DOI:10.1017/S0041977X17001343

The relatively short length of the volume, and the extended period it covers (from c. 1300 BCE until early second century CE), makes this volume a potential candidate for a classroom textbook for university students taking courses in topics such as “Biblical History”, “Ancient Israel”, and some parts of “Ancient Near Eastern History”, etc.

Unfortunately, I believe that the drawbacks of this volume make it less attractive to use as a text book as, too often, the opinions voiced by the authors are far from the consensus and the reader, unless intimately knowledgeable about the relevant issues (and students are not), would not know this.

Perhaps the authors can contemplate relating to some of these issues and incorporate them in a second edition of this volume. If this is done, I do believe that the volume might be of utility as a college textbook in the next few years.

MOSKALIK 2017

Aaron Moskalik, *eLIZA, Identity crisis*. [nature 551 \(2017\), 534](#).

Liza’s eyes finally found Harold’s. “You looked past the illusion and saw ... me. I didn’t know there was a me.” Liza’s eyes swallowed Harold. “Is there ... a me?”

SOLOMON 2017

Andrew Solomon, *Perfectly normal*. [nature 551 \(2017\), 437–438](#).

Andrew Solomon hails a study on how conflating ‘ideal’ and ‘average’ spawned flawed concepts of identity.

Normality: A Critical Genealogy. Peter Cryle & Elizabeth Stephens. University of Chicago Press: 2017.

Cryle and Stephens introduce a needed precision, examining the divide between normal as an average and normal as an ideal to which we should all aspire. They point to the real consequences — from eugenics to heteronormativity to genocide — of this prevalent concept.

In medicine, the concept of normality pertained to the ideal — organs and tissues functioning at their best. The mathematical idea refers to a situation in which data tend to cluster in the middle of a range. Thus, one aspires to normal blood pressure because it is a requisite of health — but to normal sexuality because of the pressures of social conformity. It was around the turn of the twentieth century, as the medical ideal met the mathematical idea, that people began to conflate the typical and the optimal. Cryle and Stephens trace how the meaning of the term ‘normal’ shifted, and how the statistical average became an aspiration.