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Literatur

Aktuell

Danziger 2011

Shai Danziger, Jonathan Levav & Liora Avnaim-Pesso, *Extraneous factors in judicial decisions*. PNAS **108** (2011), 6889–6892.

pnas108-06889-Supplement.pdf

Are judicial rulings based solely on laws and facts? Legal formalism holds that judges apply legal reasons to the facts of a case in a rational, mechanical, and deliberative manner. In contrast, legal realists argue that the rational application of legal reasons does not sufficiently explain the decisions of judges and that psychological, political, and social factors influence judicial rulings. We test the common caricature of realism that justice is "what the judge ate for breakfast" in sequential parole decisions made by experienced judges.We record the judges' two daily food breaks, which result in segmenting the deliberations of the day into three distinct "decision sessions." We find that the percentage of favorable rulings drops gradually from $\approx 65\,\%$ to nearly zero within each decision session and returns abruptly to $\approx 65\,\%$ after a break. Our findings suggest that judicial rulings can be swayed by extraneous variables that should have no bearing on legal decisions.

decisionmaking | legal realism | mental depletion | expert decisionmaking | ego depletion

Krause 2011

Stefan Krause, Richard James, Jolyon J. Faria, Graeme D. Ruxton & Jens Krause, *Swarm intelligence in humans: diversity can trump ability*. Animal Behaviour **81** (2011), 941–948.

We identify some of the possibilities and limitations of human swarm intelligence (SI) using the response of the public to two types of cognitive problems. Furthermore, we propose a simple measure for the quantification of collective information that could form the basis for SI in study populations for specific tasks. Our three main results are (1) that the potential benefits of SI depend on the type of problem, (2) that individual performance and collective performance can be uncorrelated and that a group of individually high performers can be outcompeted by a same-size group of individually low performers, and (3) that adding diversity to a group can be more beneficial than adding expertise. Our results question the emphasis that societies and organizations can put on individual performance to the detriment of diversity as far as teams are concerned. Nevertheless, it is important to point out that while diversity is a necessary condition for effective SI, diversity alone is clearly not sufficient. Finally, we discuss the potential implications of our findings for the evolution of group composition and the maintenance of personality diversity in animals.

Keywords: decision making; group size; human behaviour; swarm intelligence

Moussaïd 2011

Mehdi Moussaïd, Dirk Helbing & Guy Theraulaz, *How simple rules determine pedestrian behavior and crowd disasters*. PNAS **108** (2011), 6884–6888.

pnas108-06884-Supplement.pdf

With the increasing size and frequency of mass events, the study of crowd disasters and the simulation of pedestrian flows have become important research areas. However, even successful modeling approaches such as those inspired by Newtonian force models are still not fully consistent with empirical observations and are sometimes hard to calibrate. Here, a cognitive science approach is proposed, which is based on behavioral heuristics.Wesuggest

that, guided by visual information, namely the distance of obstructions in candidate lines of sight, pedestrians apply two simple cognitive procedures to adapt their walking speeds and directions. Although simpler than previous approaches, this model predicts individual trajectories and collective patterns of motion in good quantitative agreement with a large variety of empirical and experimental data. This model predicts the emergence of self-organization phenomena, such as the spontaneous formation of unidirectional lanes or stop-and-go waves. Moreover, the combination of pedestrian heuristics with body collisions generates crowd turbulence at extreme densities-a phenomenon that has been observed during recent crowd disasters. By proposing an integrated treatment of simultaneous interactions between multiple individuals, our approach overcomes limitations of current physics-inspired pair interaction models. Understanding crowd dynamics through cognitive heuristics is therefore not only crucial for a better preparation of safe mass events. It also clears the way for a more realistic modeling of collective social behaviors, in particular of human crowds and biological swarms. Furthermore, our behavioral heuristics may serve to improve the navigation of autonomous robots.
collective behavior | decision making | individual-based model | nonlinear dynamics

VENKATRAMAN 2011

Vinod Venkatraman, Scott A. Huettel, Lisa Y. M. Chuah, John W. Payne & Michael W. L. Chee, *Sleep Deprivation Biases the Neural Mechanisms Underlying Economic Preferences*. Journal of Neuroscience **31** (2011), 3712–3718.

JNeurosci31-03712-Supplement.pdf

A single night of sleep deprivation (SD) evoked a strategy shift during risky decision making such that healthy human volunteers moved from defending against losses to seeking increased gains. This change in economic preferences was correlated with the magnitude of an SD-driven increase in ventromedial prefrontal activation as well as by an SD-driven decrease in anterior insula activation during decision making. Analogous changes were observed during receipt of reward outcomes: elevated activation to gains in ventromedial prefrontal cortex and ventral striatum, but attenuated anterior insula activation following losses. Finally, the observed shift in economic preferences was not correlated with change in psychomotor vigilance. These results suggest that a night of total sleep deprivation affects the neural mechanisms underlying economic preferences independent of its effects on vigilant attention.

Story or Book

FRANK 2011

Brian P. Frank, *Test of Faith*, *The heat is on.* nature **472** (2011), 384.

He had to have faith; if he only had faith he could do this. Where do you place your faith? he asked himself, and automatically his mind answered, I place my faith in the facts as revealed by science. And then it hit him.