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The rise and fall of social hierarchical systems: a cognitive and information theoretical model

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Abstract

This paper explores the cognitive processes underlying how and why trust in informational sources fluctuates. If information from experts and mainstream media is broadly more accurate than peer networks', why do we sometimes lose trust in experts? Counterintuitively, we often prefer information from authoritative sources, even if they become distrusted. We built a computational model of these dynamics. It includes a decision process sensitive to information processing costs and a learning process driven by prediction error minimization. We hypothesized that human information-processing biases could explain why experts are preferred as default sources of information and why their legitimacy is less resilient than peer networks' when both provide inaccurate information. We ran simulations over a wide range of parameters and found that the processing advantages of following experts can be outweighed by over-reacting to their mistakes. This effect is higher when the environment is unstable and the epistemic authorities are biased.