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Building a consensus about consensus: psychological, computational, and philosophical approaches

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Overview

People often have to decide if a claim is true (for example, that climate change is caused by human activity) even if they do not have the necessary knowledge or experience. It is common for people to turn to others to determine if a claim is true. When multiple sources agree, it can be a strong indicator of who to trust and what to believe (Mercier & Morin, 2019). In cognitive science, there is debate about **what makes a "consensus"** and how it should influence our decisions. Some models suggest that agreement among independent sources is more reliable than among sources who have communicated with each other (Whalen, Griffiths, & Buchsbaum, 2018; Bovens & Hartmann, 2004; Dietrich & Spiekermann, 2013). Recent empirical and modelling work (Pilditch, Hahn, Fenton, & Lagnado, 2020), however, suggests that having sources that are connected can sometimes provide more reliable information than having sources that are independent. This symposium brings together researchers from a range of disciplines (cognitive modelling, social network modelling, cognitive psychology, philosophy) to examine **what makes a consensus persuasive**, and it should guide our judgments and inferences.

Contributors

This symposium draws together researchers from a wide range of perspectives for an interdisciplinary and inter-methods conversation. The following organizers and contributors have confirmed their attendance. **Ulrike Hahn** (Professor of Psychology, Department of Psychological Sciences, Birkbeck, University of London) focuses on judgment, decision-making, and the rationality of everyday argument, and social networks.

Kerem Oktar (PhD Candidate, Princeton University), **Tania Lombrozo** (Professor, Princeton University), and **Thomas L. Griffiths** (Professor, Princeton University) build on recent work in psychology, epistemology, economics, and probability theory to understand how individuals draw inferences about the world from the conflicting opinions of large groups. **Jens Koed Madsen** (Assistant Professor, Psychological Sciences, LSE) focuses on how people form and maintain their subjective beliefs using a range of methods such as computational models (Bayesian and agent-based), experimental design, and explorations of how people adapt when their environment and social context changes.

Keith Ransom (Research Fellow, Psychology, University of Adelaide & University of Melbourne) looks at the challenges of everyday reasoning: how we learn about the world and generalise from our experiences of it, using computational modelling and experimental methods. **Rachel Stephens** (Senior Lecturer, Psychology, University of Adelaide) examines how people weigh up information obtained from social contexts (such as social media) and perceive the level of consensus in a given claim.

Saoirse Connor Desai (Postdoc, Psychology, University of Sydney) examines the cognitive processes underlying human judgment, and reasoning and how such processes can result in the development of erroneous beliefs.

The Role of Dependence in Belief Formation

Ulrike Hahn

Our beliefs are inextricably shaped through communication with others. Furthermore, even conversations we conducted individually in pairs, may themselves be taking place across a wider, connected, social network. Our communication, and with that our thoughts are consequently typically those of individuals in collectives. This has fundamental consequences with respect to how these beliefs are shaped. The talk examines the role of dependence on our beliefs and seeks to demonstrate its importance with respect to key phenomena involving collectives that have been taken to be indicative of irrationality. The talk argues that (with the benefit of hindsight) these phenomena no longer seem surprising when one considers the multiple dependencies that govern information acquisition and evaluation of cognitive agents in their normal, that is, social context.

Learning from Aggregated Opinion

Kerem Oktar, Thomas L. Griffiths & Tania Lombrozo

The capacity to leverage information from others' opinions is a hallmark of human cognition. Past research has thus investigated the socio-cognitive mechanisms underlying learning from others' testimony. Yet a distinct form of social information—aggregated opinion—is increasingly guiding

people's judgments and decisions across consequential domains. We investigated how people learn from such information by conducting two experiments with participants recruited online within the United States (N = 713) comparing the predictions of three computational models: an optimal, Bayesian solution to this problem, and two alternatives from epistemology and economics. We found strong concordance between the predictions of the optimal Bayesian model and participants' judgments, although some participants systematically used alternative strategies. Combined with recent work investigating the mechanisms of belief persistence amid controversy, these findings have important implications for the psychology of disagreement and polarization.

Tool Support for Reasoning about Consensus

Keith Ransom & Rachel Stephens

Everyday reasoning is inherently social. As individuals, most of the evidence and knowledge required to make sound judgments remain hidden from us. By necessity, making judgments involves us in a small number of steps in a chain of computation that is distributed across many minds and across space and time. But frequently, even the evidence available to us via such socially distributed reasoning is inconclusive. In such cases we may seek to supplement the evidence with social meta-evidence – the evidence we infer based on our assumptions about the process of socially distributed reasoning. Informing our own views on the basis of social consensus is an example of this kind of reasoning: when we do so, we (implicitly at least) make assumptions about the relationship between the meta-evidence we can see – the proportion of people endorsing a particular claim, for example – and the underlying evidence that we can't see. This talk will discuss ongoing work which aims to develop a visual reasoning aid that helps people to evaluate the consensus surrounding ideas and claims they encounter online and to evaluate the weight of the meta-evidence that such consensus represents.

Formal Models of Human Information Integration from Social Networks

Jens Koed Madsen

For most questions, we receive information from multiple sources. For example, in considering climate change, most people will hear opinions, see evidence, and read summaries of reports from pundits, journalists, scientists, family members, and more. Bayesian models have been applied to capture how we may integrate evidence from sources we subjectively see as more or less credible. However, beyond immediate reports, we may see sources as related to one another - we may believe they have spoken together before delivering their reports, which may influence how they reach conclusions. This aspect of dependency is critical to explore to examine how beliefs may emerge and become entrenched in social networks. In this talk, I consider the importance of the interplay between subjective perceptions of credibility, perceptions of dependencies, and the structure of the social network for the purpose of understanding how information can travel (or not) in social networks. Applying Bayesian models within agent-based frameworks can be used to explore these complex dynamics and point to applications.

Discussion

Saoirse Connor Desai

Saoirse Connor Desai will lead a discussion among the panellists and bring the perspective of her research in the domains of the cognitive psychology of misinformation, social inference, and reasoning about testimonial information. She strongly believes that the field of cognitive psychology will make better theoretical and methodological advances by considering how humans interact with a dynamic information environment. She is interested in asking the panellists about their views on the circumstances when a consensus *should* and *should not* guide judgment, what constitutes a consensus, and what strategies we can use to guide reasoning about the epistemic quality of a consensus.

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