Population-level amplification of perceptual bias

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Abstract

A longstanding conjecture that has been difficult to test holds that social interactions amplify the effects of people's biases. We tested this conjecture in a perceptual decision-making paradigm. First, we formalized the algorithmic structure of decision making in networked crowds when individuals' perceptions are biased by their utilities. Our analysis predicts that even weak cognitive biases can be amplified by social interaction. We tested this prediction in a large networked behavioral experiment. Using a monetary incentive structure to induce a bias known as motivated perception, we manipulated the presence of a weak cognitive bias in social and asocial populations. Social decision making increased participants' perceptual accuracy relative to an asocial baseline. However, social decision making also led to significantly amplified rates of motivated perception, confirming the prediction that shared cognitive biases can be amplified in social networks.