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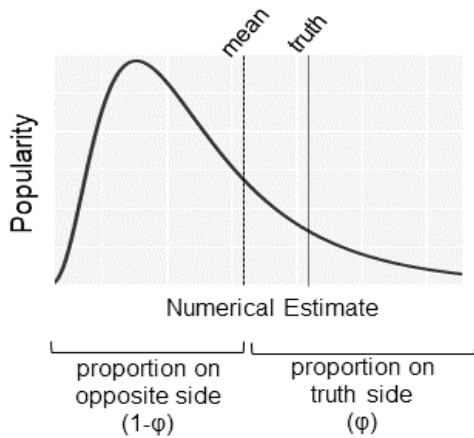
Fri, Dec 11th, 2:30pm-3:45pm

The Contingent Benefits of Group Discussion For Numeric Estimate Accuracy

<https://arxiv.org/abs/2009.07202>

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How can groups form accurate numeric estimates such as forecasts? Should you (1) keep people independent, (2) let people communicate through a controlled process such as the Delphi method, or (3) let people engage in freeform discussion? Prior experiments offer conflicting evidence supporting each of these conclusions. Our research resolves these contradictory findings and provides practical recommendations for team and organizations.



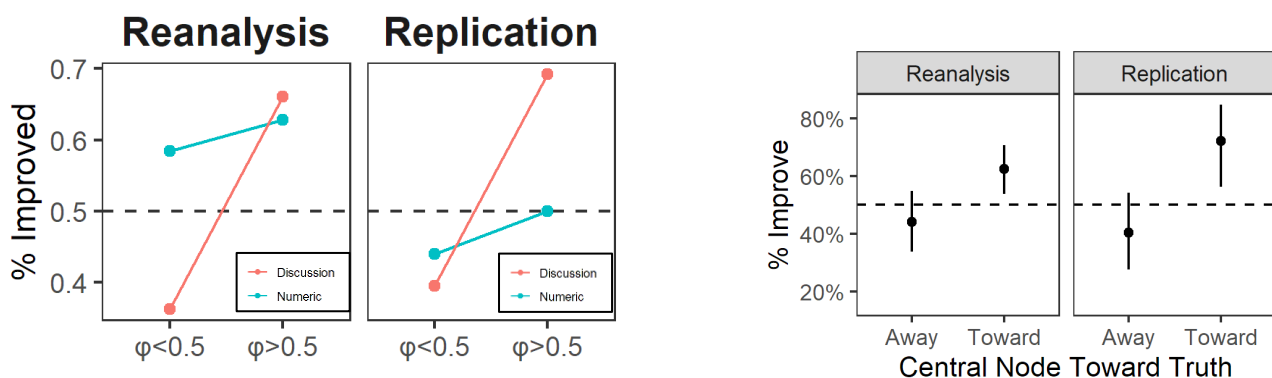
The solution: We adopt a network model of belief formation and show that the effect of information exchange is contingent upon the statistical properties of the task at hand.

Our key insight is that unstructured discussion acts like a centralized network, with beliefs determined by individuals who are more persuasive or more talkative. We formally derive a heuristic ϕ which predicts the probability that a centralized network of information exchange, such as unstructured discussion, will improve the accuracy of the average belief in a group.

ϕ measures task characteristics: properties of the pre-discussion belief distribution. ϕ is equal to the proportion of people whose beliefs are on the same side of the mean as the true value.

We test this hypothesis by comparing the change in accuracy for groups engaged in unstructured discussion versus groups in which individuals can exchange only numbers.

We analyze two datasets: a reanalysis of previously published experimental findings, and a pre-registered experiment designed to allow direct comparison across otherwise identical conditions.



Results: Discussion is better when $\phi > 0.5$, and numeric exchange is better for estimation tasks where $\phi < 0.5$ (left panel). This effect is driven by the beliefs of the most talkative individuals, who act as central nodes, pulling the group in the direction of their initial belief (right panel)