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# Dynamics of Social Networks: Understanding Belief Formation, Polarization, and Recommendation Influence

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## Résumé

In today's society, humans have to face an overwhelming amount of information, constantly exposed to content from their social networks. Thus, it is becoming more and more important to understand how people select information to form their beliefs within dynamic networks. This study investigates how belief formation, confidence assessment and information-seeking behavior interact in social networks, bringing out the potential advantages and disadvantages of information sharing. Utilizing an experimental design involving batches of 50 participants online simultaneously, we explore how individuals form and delete connections to select information based on their confidence levels and that of their peers and the evolving network topology. Our study encompasses individual confidence assessment, link formation dynamics, and information aggregation mechanisms. We hypothesize that participants will preferentially connect with like-minded individuals, leading to polarized networks, particularly in emotionally charged contexts. We will also evaluate how suggestion algorithms affect the formation of beliefs, with an emphasis on how they either strengthen or weaken homophily. We are aiming to model the natural dynamics of social networks and how it affects belief formation and the emergence of consensus. We will also measure the impact of suggestion algorithms on these mechanisms. Our study offers valuable insights into the dynamics of belief formation, guiding strategies to promote constructive dialogue and consensus in diverse networks.

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