Dynamically Distributed Democracy
An Adaptive Social Network for Decision-Making

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Abstract:

Human organizations of all sizes and types face the task of making decisions in a finite amount of time, ranging from a group of friends making plans for an evening to a multinational governing body like the United Nations. Different organizations use different processes for generating ideas and selecting among them—each according to its unique needs—and the particular process used has critical effect on the quality of the decisions and the speed at which they are made. The benefits associated with participatory systems include a large pool of ideas from which to draw as well as a high overall approval rating. On the downside, the time required to come to decision in large groups is often excessive, especially when not all members possess the requisite expertise. This largely explains the preference for hierarchy in formal organizations, where decision-making power is concentrated in smaller groups of representatives. However this reduces the chance of ingenuity and raises the possibility of misrepresentation. This paper argues that participatory and representative decision-making systems are not mutually exclusive and in so doing formalizes an adaptive decision-making system within which the benefits of both models co-exist, while minimizing their respective drawbacks. Based on the delegation of vote-power across a social network, the system adapts to changing levels of participation by increasing the power of those individuals who best represent the opinions of non-participants. We report the results of a simulated decision-making process, which quantifies the benefits of our model compared to traditional methods of decision-making. We discuss the potential role our model could serve in any human organization that requires high quality decisions in a minimal amount of time.