Title:

Could we overcome polarization? Effect of new opinions introduced into polarized public debate

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Abstract:

We study possibilities of decreasing polarization by introducing new opinions into previously polarized public debate. We use agent-based modeling and computer simulations as a tool for our investigations, we base simulations on advanced version of Hegselmann-Krause (HK) model [2002]. In previous research we showed that also this consensus seeking model might produce severe polarization for certain combinations of openness of communication norms (OCN) and saliency in proximity of identity relevant opinions (SPIRO), we also showed that complexity of public debate decreases polarization (i.e. the more opinions are discussed in consistent debate the less polarized final state of debate) [Kalvas et. al. 2022, 2023]. However, in this research we studied random initial state, agents' opinions were drawn from random uniform distribution.

Therefore, now we ask question: "When the state of debate is already polarized and if then we increase complexity of debate by introducing a new opinion, will this introduction decrease the polarization?" For addressing this question we simulate debates with 4 opinions discussed at once. We initialize polarized initial conditions with: (a) different number of already polarized opinions (1, 2 or 3), (b) different ratios of sizes of two polarized camps (equal, slightly and highly skewed), (c) with different distances of centroids of these camps (close, moderate, far), and (d) different variability of polarized opinions around camp’s centroid/mean (low, moderate, high). We test effect of initial polarized conditions on different versions of our advanced HK model: (1) classical HK, (2) HK with heterogeneous parameters, and (3) HK with group recognition component. Our results show that introduction of new opinions is double edged sword – sometimes it even increases polarization, but sometimes it decreases it, the resulting polarization is highly dependent on parameters of the simulation.