

Abstract Submitted
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Nonlinear Opinion Dynamics on Networks¹ MICHAEL GABBAY,
ARINDAM DAS, University of Washington — A model which treats group decision
making as nonlinear opinion dynamics occurring over a network is presented. The
model makes predictions regarding the interaction of network structure and initial
disagreement level upon decision outcomes and consensus formation. The model
displays bifurcations at high disagreement levels which lead to behaviors that are
qualitatively distinct from those at low disagreement. For example, at high dis-
agreement, the model exhibits asymmetric, majority rule outcomes that arise even
when the system is symmetric with respect to the distribution of initial opinions
and network structure. Analytical approximations for the bifurcation boundaries
agree well with numerically-determined boundaries. An ongoing experimental effort
involving the use of online discussion groups to test the model predictions is briefly
described.

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