1176-91-84Heather Zinn Brooks, 301 Platt Blvd., Claremont, CA 91711, Philip Samuel Chodrow*
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Portola Plaza, Los Angeles, CA 90095. Smoothly Nonlinear Opinion Dynamics.

We introduce a smooth, parameterized model of opinion dynamics on graphs which contains two well-known models as cases as limiting extremes. The first of these is *consensus dynamics*, in which the influence of each node on its neighbors is independent of the opinion state. The second of these is *bounded confidence dynamics*, in which nodes whose opinions are sufficiently distinct are unable to influence each other. We study our model in the presence of "zealot" or "media" nodes with constant opinions. We prove some limiting properties for general model instances. We also provide closed-form expressions for the initial destabilization of consensus-like solutions in certain special graph topologies. In these examples, the consensus-like and bounded-confidence-like extremes are separated by a shifting regime of multistability. In some cases, this multi stable regime includes a restabilization phenomenon for the consensus-like stationary state. For these special examples, we are also able to characterize in closed form the dependence of the stability of certain polarized opinion states on their alignment with the underlying social graph. (Received January 14, 2022)