

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Social consensus and tipping points with opinion inertia¹ CASEY DOYLE, SAMEET SREENIVASAN, BOLESŁAW SZYMANSKI, GYORGY KORNISS, Rensselaer Polytech Institute — When opinions, behaviors or ideas diffuse within a population, some are invariably more sticky than others. The stickier the opinion, the greater an individual's inertia to replace it with an alternative. Here we study the effect of stickiness of opinions in a two-opinion model, where individuals change their opinion only after a certain number of consecutive encounters with the alternative opinion.² We focus on the scenario where initially a minority of the population adopts an opinion that is as sticky or stickier than that of the majority, and investigate how the critical size of the initial minority required to tip the entire population over to its opinion, depends on the stickiness of the minority opinion. We analyze this scenario for a complete-graph topology through simulations, and through a semi-analytical approach which yields an upper bound for the critical minority size. We present analogous simulation results for the case of the Erdos-Renyi random network. Finally, we investigate the coarsening properties of sticky opinion spreading on two-dimensional lattices, and show that the presence of stickiness gives rise to an effective surface tension that causes the coarsening behavior to become curvature-driven.

¹Supported in part by ARL NS-CTA, ARO, ONR, and NSF.

²C. Doyle *et al*, preprint arXiv:1411.1723

Casey Doyle
Rensselaer Polytech Institute

Date submitted: 16 Nov 2014

Electronic form version 1.4