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Hossein Noorazar* (hnoorazar@math.wsu.edu), 1630 NE VALLEY RD, L301, PULLMAN, WA 99163. *A energy-based interaction model for population opinion dynamics with topic coupling.*

We introduce a new, and quite general variational model for opinion dynamics based on pairwise interaction potentials and a range of opinion evolution protocols ranging from random interactions to global synchronous flows in the opinion state space. The model supports the concept of topic “coupling”, allowing opinions held by individuals to be changed via indirect interaction with others on different subjects. Interaction topology is governed by a graph that determines interactions. Our model, which is really a family of variational models, has, as special cases, many of the previously established models for the opinion dynamics. After introducing the model, we study the dynamics of the special case in which the potential is either a tent function or a constructed bell-like curve. We find that even in these relatively simple potential function examples there emerges interesting behavior. We also present results of preliminary numerical explorations of the behavior of the model to motivate questions that can be explored analytically. (Received February 08, 2017)