



Reply to de Marchi: Modeling polarization of political attitudes

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In his comment on Axelrod et al. (1), de Marchi (2) complains that our model of polarization leaves out a number of mechanisms of opinion change and that consequentially the model cannot be used to guide public policy. However, the purpose of the model is to gain insights about what is possible over time given minimal assumptions about attraction and repulsion.

Keeping models simple to gain insight rather than comprehensive enough to include all relevant context is a common use of agent-based models. One example is the iterated Prisoner's Dilemma (iPD), which leaves out many mechanisms that could be important in any given setting. It is precisely because the paradigm is so simple that it is possible to identify counterintuitive possibilities that would otherwise be obscure (3). For example, in the iPD, it is possible to win a tournament without ever doing better than the actor with whom you are currently playing. Another example is Schelling's famous segregation model (4), which shows the possibility of a population's becoming highly segregated even if everyone is willing to stay put in a slightly integrated neighborhood.

De Marchi says the results of our model are obvious from our assumptions. Here are three results that are not obvious:

- Contrary to the supposition that polarization is a monotonic process, we identify conditions in which polarization can first decrease and then turn around and increase even without outside influences.
- Contrary to the supposition that extremists will pull others toward themselves, we identify conditions under which a few extremists can actually prevent polarization that would otherwise occur.

- Many interventions such as school bussing in the 1970s were based on the common belief that polarization can be reduced if only people of dissimilar views interact with each other more. On the contrary, we identify conditions under which exposure to dissimilar views can actually increase polarization.

De Marchi notes that affective as well as ideological polarization is important. We agree and say as much.

De Marchi regrets the lack of hypothesis testing, but to test hypotheses with our model one would need to empirically measure certain key parameters, such as the threshold for tolerating someone else's distant opinion. The measurement of the parameters would be a useful project, but it is beyond the scope of our more theoretical paper. The fact that different parameter values yield different outcomes in our model is a feature, not a bug.

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The authors declare no competing interest.

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Published April 21, 2022.

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