

From offense to defense in ecology and politics

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Credit: Santa Fe Institute

As online social networks grow, it gets easier to turn our own social circles into echo chambers of the like-minded or heated debates across ideological divides, as we please. [In a working group happening now](#), SFI researchers are asking not just what the consequences of this modularity are for political discourse, but also how political parties might use that knowledge strategically to alter the debate.

In typical SFI style, the research started with a conversation about something entirely different: the ecology of algae. The pursuit grew from a discussion between Laurent Hébert-Dufresne, a James S. McDonnell Fellow then at SFI, and SFI Omidyar Fellow Eric Libby about how species compete with each other for resources.

"It's this very simple tradeoff between offense and defense: Do you go after different resources or protect your own?" Hébert-Dufresne says. But it reminded him of voter models: simple, physics-inspired formulations aimed at understanding competition between political parties.

In a typical voter model, people influence each others' political preferences, but the social network connecting them never changes: not the most realistic assumption about how the real world works, Hébert-Dufresne says. Over the last year, he, Libby, and their collaborators have looked at what happens when they extend voter models to allow for adaptive networks.

Already they've had some surprising results. For example, in their models, in order for two parties to coexist, it turns out each party must aggressively try to convert the other party's followers—that is, focus more on persuasion and less on consolidating support in echo chambers.

In a recent working group, *Strategies in Adaptive Systems: From Life Cycles to Political Campaigns*, the team sought to expand their model even further to see what happens when parties can adjust their approaches on the fly, shifting back and forth from rallying the troops to converting others in response to changes in individuals' views or the social network ties that bind them.

Doing so, Hébert-Dufresne hopes, could lead to some exciting new questions. For example: How do you start as a third party? Do you need

more resources, or can you be smart and get by with less? And how would an upstart party's strategy change with time?

"At the very least we want to mathematize the ideas," he says, but the group also hopes to test the new models they develop and see how they fare in comparison with real-world data, such as those describing interactions among Twitter users.

Provided by Santa Fe Institute

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