Dynamical models of mutually antagonistic groups

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Résumé

Negative links, representing conflict or animosity, appear naturally in several types of networks. Although the signs of links are often ignored, they may play a distinct role in the dynamics and structure of networks. The theory of social balance, based on the adage "the enemy of my enemy is my friend", connects the dynamics of conflict to the structure of the signed network. In particular, it predicts that such dynamics should converge to a structure of two mutually antagonistic groups. In the case of symmetric relations, an earlier model was shown to exhibit this convergence. We show that this does not carry over to the asymmetric case, and suggest a slightly different model for which two mutually antagonistic groups almost always emerge. Finally, we briefly comment on some generalizations of social balance, and how to find such structures in empirical networks.
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