

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

A Simulation of Cooperation and Competition in Insurgent Networks¹ MICHAEL GABBAY, Univ of Washington — Insurgencies are often characterized by multiple groups who share a common foe in the national government but have independent organizations which may differ with respect to social identities, ideologies, strategies, and their use of violence. These groups may cooperate in various ways such as conducting joint attacks, pooling resources, and establishing formal alliances or mergers. However, they may also compete with each other over popular support, recruitment of fighters, funding, allies, and ultimately military dominance. A network coevolution model of insurgent factional dynamics is presented which accounts for factors driving cooperation and competition. The model is formulated as a system of coupled ODEs which evolves network ties between insurgent groups along with group policies concerning the targets of violence. Simulation results are presented showing sharp transitions in network structure as model parameters are varied. Connections are drawn between the model results and empirical data from the Iraqi insurgency.

¹This work was supported by the Office of Naval Research under grant N00014-13-1-0381.

Michael Gabbay
Univ of Washington

Date submitted: 15 Nov 2013

Electronic form version 1.4