

## DISCUSSION OF “ESTIMATING THE HISTORICAL AND FUTURE PROBABILITIES OF LARGE TERRORIST EVENTS” BY AARON CLAUSET AND RYAN WOODARD

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**1. Introduction.** The terrorist attacks in the United States on September 11, 2001 appeared to be a harbinger of increased terrorism and violence in the 21st century, bringing terrorism and political violence to the forefront of public discussion. Questions about these events abound, and “Estimating the Historical and Future Probabilities of Large Scale Terrorist Event” [Clauset and Woodard (2013)] asks specifically, “how rare are large scale terrorist events?” and, in general, encourages discussion on the role of quantitative methods in terrorism research and policy and decision-making.

Answering the primary question raises two challenges. The first is identifying terrorist events. The second is finding a simple yet robust model for rare events that has good explanatory and predictive capabilities. The challenges of identifying terrorist events is acknowledged and addressed by reviewing and using data from two well-known and reputable sources: the Memorial Institute for the Prevention of Terrorism-RAND database (MIPT-RAND) [Memorial Institute for the Prevention of Terrorism] and the Global Terrorism Database (GTD) [LaFree and Dugan (2007), National Consortium for the Study of Terrorism and Responses to Terrorism (START) (2012)]. Clauset and Woodard (2013) provide a detailed discussion of the limitations of the data and the models used, in the context of the larger issues surrounding terrorism and policy.

The models proposed fit tail probabilities for power-law and alternative models based on data from both the MIPT-RAND database and the GTD. These models are thoroughly explained and well executed, as are the results. The predictive capabilities and forecasts, along with consideration of the influence of exogenous factors such as attack type, target and economic development are considered, presented and discussed clearly, affirming the robustness of the methods. The authors estimate that, in the 40-year period since 1968, there is an 11–35% chance of a terror event at least the size of September 11, 2001.

**2. Comments.** Terrorism and political violence are complex phenomenon of human behavior [Horgan and Boyle (2008), Taylor and Horgan (2006)], and rely on the fear and uncertainty surrounding rare events to create a disproportionate effect that is difficult to directly measure [Crenshaw (1981, 1986), Thornton (1964),