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Social Phenomena: From Data Analysis to Models, by Bruno Gonçalves and Nicola Perra. Springer- Verlag: Berlin, 2015 (Book Review)

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Social Phenomena: From Data Analysis to Models (Computational Social Sciences)

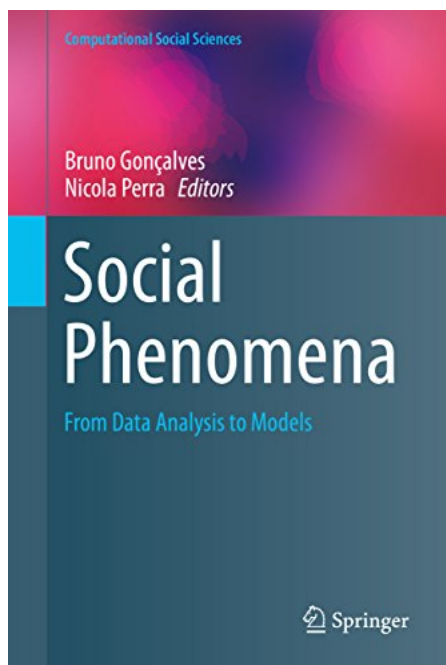
Gonçalves, Bruno and Perra, Nicola (eds.)

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Social Phenomena: From Data Analysis to Models features a diverse collection of researchers united around the pursuit of innovative ways to use increasingly large and accessible datasets to model human movement, behavior, and social networks. The researchers contribute to this conversation using a variety of modeling paradigms. As a computational social science reference book, the strength of this collection is its service as a starting point for understanding the potential of current technologies to enhance the scope of models of social behavior. The methods presented here are easily extensible beyond the case study applications presented.

The book is organized into two sections, “Social Behavior under Normal Conditions” and “Social Behavior under Stress.” Readers might find it more useful to approach the chapters as either “State-of-the-Art” or “Applications.”

Many of the chapters read as extensive literature reviews and would benefit any social science researcher looking for a broad understanding of big data and social science modeling. Several chapters, however, stand out among the others as advancing the field of modeling and simulation of social systems beyond a summary of existing models and applications.

Chapter 7, “The Contagion of Prosocial Behavior and the Emergence of Voluntary-Contribution Communities” by Tsvetokova and Macy is a strong example of an application chapter. After a brief literature review and framing of “prosocial behavior,” the authors begin with human experimentation and then build a model of “the contagion of helping behavior.” This chapter sits squarely in the conversation from the January 2015 (Volume 18, Issue 1) of JASSS

<http://jasss.soc.surrey.ac.uk/18/1/contents.html> that focused on qualitative data to

inform agent-based modeling. It also served to bring the previous state-of-the-art summary chapters into focus with a practical application. From the design and collection of a large dataset on human behavior to the development and application of a model, Tsvetokova and Macy reach conclusions that have theoretical implications for a wide range of social science research: that non-rivalness of online content generated by users results in behavior where people are more likely to help one another than in other contexts. Similarly, chapters 9 and 10 describe specific models that utilize large datasets to infer broader theoretical claims about human behavior—the former about vaccination behavior, the latter on investigating criminal networks. These three chapters in particular highlight the complementarity of application to state-of-the-art summaries throughout the book.

For the large agent-based modeling community of JASSS, the predominantly physics-based models presented in this edited collection may not seem to relate directly to those applications. On closer inspection, however, the collection of case studies could provide insight into a wide variety of models across many modeling paradigms.

As a collection of state-of-the-art summaries and several interesting applications, it could easily form the foundation of multidisciplinary conversations on the future of big data and modeling and simulation to advance understanding of social phenomena. *Social Phenomena* would serve as a solid starting point for those researchers interested in delving into the increasingly large, available datasets to enhance their models.