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Models and Methods in Social Network Analysis

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This useful book provides a valuable update on the many advances in network analysis methods since about 1990.

Network analysis has been booming and developing for several decades. Network analysis is popular in every kind of academic social science, applied social science areas like marketing, studies of non-human social life, branches of mathematics, computer science, and even physics. To help organize the floods of new material and make them accessible, a few scholars provided important introductions to the field in the early 1990s. Scott wrote a general introduction in 1992, updated in 2000 (Scott, 2000). Degenne and Forse (1999) wrote another general introduction, with enhanced attention to the lively recent European network research. Most important here, Wasserman and Faust (1994) wrote a comprehensive and authoritative textbook on network analysis methods. But Scott, and Degenne and Forse, do limited overviews of methods basics as part of a more comprehensive introduction; Wasserman and Faust is over a decade old; and network methods have been exploding in sophistication for years. Thus it really is time for an update.

The editors of this book have done a wonderful job in getting the very top people to write chapters on new methods which are not only in their areas of expertise, but are mainly methods which the authors themselves have developed. Topics include: network data collection and measurement; network sampling; centrality measures for groups; blockmodelling; diffusion models; correspondence analysis for two-mode networks; statistics stemming from the p^* model; models for longitudinal network data; ways to draw nice pictures of networks; and the advantages and disadvantages of the more important computer programs for network analysis.

If many of the terms in the previous paragraph are Greek to you, you may not be ready for this book. It really is an update to Wasserman and Faust, not an introduction starting from the beginning. In many chapters, after a brief introduction, the author or authors assume that the reader understands network analysis fundamentals (such as the three classic kinds of centrality), or essential bits of mathematics (such as matrix algebra) or both. Some chapters, like Marsden on network measurement, are readable for any seriously interested scholar. Some, like many of the statistical chapters, are just impossible for those without the necessary background. Real beginners should start with one of the earlier introductory books; people who do some network analysis, without being technical experts, should get the book for reference and pick and choose the bits they need; and all really serious network analysts must put this book on their shelves, right next to their (no doubt well worn) copies of Wasserman and Faust.

I have only a few small complaints about this generally terrific book. One concerns balance. The attention given to topics depends largely on their technical density and their interest for hard core network methodologists. Meanwhile, there are hordes of serious network researchers who want and need some help in getting up to speed on advances that are less mathematically hip but get used a lot in practice. For example there are three chapters, comprising about a quarter of the pages in the book, on models in the p^* tradition. These are important, but only a fraction of network researchers actually use them. Every researcher needs to collect data and do network measurements, but the book includes just one chapter on this, a chapter necessarily so jam-packed that the reader will have

to go to the original references to learn how to do things. Most researchers sooner or later want to draw a beautiful and informative picture of a network, but there is only one chapter on this, and this chapter only describes one approach among many.

My second modest complaint concerns the usability of some chapters for people who are not already technical experts. Some chapters go to a great deal of effort in motivating the method, giving substantively interesting examples, and either explaining how to use them (even down to SPSS code at times) or giving references to good practical expositions. Some leave the ordinary researcher adrift without oars.

My third small criticism concerns comparative thinking. Network analysis is now not only popular in many areas of academic life, it is also popular in many areas of the world. This raises important questions about how to do research in many different cultures and social structures, and how to make research around the world really comparable. The chapters on measurement and on diffusion both refer to some work around the world, but without discussing technical challenges as much as I would like. The other chapters, devoted more exclusively to data analysis, neglect cross-cultural research issues entirely.

Finally, I would like to give special praise to Huisman and van Duijn, the selfless authors of the handy overview of current computer programs. I call them “selfless” because their contribution will be much more useful to others than to themselves. Their review is up to date, comprehensive, informative, and balanced; many people will consult it before choosing their programs. However, these people may then (properly) cite the original references for the programs, not this chapter. Moreover, computer programs are changing rapidly, so the “best before” date for this chapter is necessarily much sooner than for the others. Thus Huisman and van Duijn may not get the same kind of citation and career recognition for their chapter as others will for theirs, even though their chapter will be one of the most useful and most used in the next few years.

Overall, this book is invaluable. If you are a network person, get it.

References

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