

Networks of Nations

In this book, Zeev Maoz offers a new theory of networked international politics. Maoz views the evolution of international relations over the last two centuries as a set of interacting, cooperative, and conflicting networks of states. International networks emerge as the result of national choice processes about forming or breaking ties with other states. States are constantly concerned with their security and survival in an anarchic world. Their security concerns stem from their external environment and their past conflicts. Because many of them cannot ensure their security by their own power, they need allies for balance against a hostile international environment. The alliance choices made by states define the structure of security cooperation networks and spill over into other cooperative networks, including trade and institutions. Maoz tests his theory by applying social network analysis (SNA) methods to international relations. He offers a novel perspective on the study of international relations as a system of interrelated networks that coevolve and interact with one another.

Zeev Maoz is a distinguished professor of political science at the University of California, Davis, and a distinguished Fellow at the Interdisciplinary Center, Herzliya, Israel. He is the author and editor of twelve books and many scholarly articles. He is past president of the Peace Science Society (international), serves on the editorial board of several journals, and is the academic editor of the book series Innovations in the Study of World Politics.

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Networks of Nations

The Evolution, Structure, and Impact of International Networks, 1816–2001

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Preface

When I was in graduate school, I had a debate with one of my professors on a seemingly meaningless issue. The question was whether it was more likely for two American Jewish individuals who knew one another but lived far apart to meet by chance in Israel or in New Jersey. I claimed that the probabilities of these two people meeting in Israel or New Jersey were roughly equal. Israel and New Jersey had similar populations (actually New Jersey's population was slightly larger) and a similar area. Without any additional information, there was no way of differentiating between random processes operating in New Jersey and those operating in Israel.

The professor claimed that the probability of any two American Jews meeting in Israel was much higher than a chance meeting somewhere in New Jersey. I do not recall the entire argument, but part of it was that (a) Americans who did not live in New Jersey were a priori unlikely to visit a place in New Jersey unless they had a specific reason for doing so; (b) New Jersey residents had all of the United States and virtually the entire world open to them, so traveling around in New Jersey was not such an attractive proposition; however, (c) many American Jews made it a point to visit Israel. Taken together, these patterns of movement suggested that it was more likely for these imaginary individuals to meet in Israel than in New Jersey.

We ended up agreeing to disagree. But over the years, I encountered more and more examples – some based on stories of friends and acquaintances, and some on personal experience – that the professor – Robert Axelrod – was probably right. This was my entry into the Small World phenomenon. Quite a few processes that may seem entirely random on first blush turn out to have interesting and counterintuitive patterns. The relationship between fairly simple principles of individual behavior and unintended social consequences is the stuff of important and innovative scholarship. Thomas Schelling – the 2005 Nobel Laureate in economics – offered numerous insights into such cases (Schelling, 1978). Robert

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Axelrod himself published a number of pathbreaking studies on similar issues (Axelrod and Hamilton, 1981; Axelrod, 1984, 1986, 1997).

We often talk about complexity as a key problem in understanding international relations. This is especially true when we study long-term historical processes. There are many actors that interact with each other along multiple dimensions – military, political, economic, social, or cultural. This creates a huge number of interaction opportunities. Each of these actors is in itself a very complex structure. States are conglomerates that are composed of different institutions, individuals, social groups, or bureaucracies. Nonstate actors play an increasingly large role in international interactions. But neither policy makers nor students of international relations can give in to this complexity. Policy makers must deliberate and act on a daily basis on matters that concern the relationship between their nation or organization and other nations or organizations beyond national boundaries. Scholars develop and test ideas about how this complexity is managed.

It is not entirely clear what is happening faster – the growth of complexity of international relations or our ability to understand its nature, its aspects, and its implications. At any rate, quite a few of us are trying to figure out new ways of putting complexity into perspective. We build models that attempt to simplify this complexity by capturing some key features of international reality. We develop explanations of international processes that are logically coherent and empirically accurate. And we are constantly looking for new ways of engaging in this enterprise.

Just as in Axelrod's argument about a chance encounter between Jewish people, my encounter with social network analysis (SNA) was neither deliberate nor planned. I got into network analysis by chance. While still in graduate school, and later as a young assistant professor, I became interested in cognitive mapping as an approach to studying the belief systems of political leaders. I applied a number of graph theoretic models and developed some measures that allow systematic analyses of belief systems. I used data extracted from the coding of verbal expressions of political leaders to study such structures (Maoz and Shayer, 1987; Maoz, 1988; Maoz and Astorino, 1992). At that time, I did not think of applying models based on graphs to interactions among states on a broader scale.

Later, I became intrigued by a puzzle that emerged from multiple studies – including some of my own – on the relationships between regime types and international conflict. We had found that democracies are equally conflict prone as nondemocracies, but they almost never fight each other. We also found that there exists virtually no correlation between the proportion of democratic states in the international system and the amount of systemic conflict. It was not clear why we could not generalize the so-called democratic peace result across levels of analysis.

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The more I looked into this subject, the more convinced I became that the answer to this question resides in the relationship between the political structure of states and the political structure of their external environments. This gave birth to an early – and primitive – version of the democratic networks model (Maoz, 2001), which is now expanded and extended in Chapter 8. The search for ways of testing this idea brought me back to graphs and exposed me to the world of network science. It immediately became evident that this approach offers major opportunities for an analytic understanding of complexity in international relations.

I was surprised, however, to discover a huge gap between the vast and sophisticated use of network analysis in other disciplines and the near total neglect of this approach by students of international relations. The study of social networks is a cottage industry in sociology, organizational studies, social psychology, anthropology, and economics. There was a moderately growing networks literature in political science. International relations scholars, however, talked networks all the time, yet did little or no network analysis. I document this argument in Chapter 1. As I delved further into SNA, I became convinced that it offers a natural approach to the study of international interactions, processes, and structures. I managed to convince a few colleagues and students of this point, and so we started a small-scale international networks project. But it was really tough convincing journal referees or grant administrators that SNA has something to offer to the field. We kept getting rejection letters saying something like “We are not sure what it is you are doing”; “We don’t know much about SNA but clearly this approach has little to offer to students of international relations”; and “OK, this is interesting, but I really don’t know enough about this approach to evaluate this work.” In each paper we had to start from scratch, explaining what SNA is, defining networks, discussing different types of networks, and explaining key concepts. We had to go over things that are considered trivial and self-evident in the disciplines that use network analysis extensively. And we had to pitch for the importance of the approach and its relevance to international relations every single time.

We were not alone, however. At about the same time, a number of other scholars in the field started using SNA methods to study different aspects of international relations. They have had the same frustrating experiences. But we persevered, and things are starting to change. More and more articles using SNA approaches, concepts, and methods appear in the leading professional political science journals. A growing number of conferences in the United States and Europe introduce network-analytic papers across the social, physical, and natural science disciplines. A political networks section was established as part of the American Political Science Association. Conferences on political networks are funded by the

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National Science Foundation, and international relations scholars feature prominently in all these venues.

Despite these welcome changes, we are still confronting a widespread lack of understanding and appreciation of the relevance of network analysis for, and its insights into major aspects of, international relations. The present book attempts to fill some of the gaps between the enthusiasm and foresight of a few, and the lack of familiarity or interest of many in the field. The book is not a text of SNA, however. Nor is it focused on advocating this approach to the study of international relations. It offers a brief introduction to SNA and makes a pitch for the wider use of this approach in the study of international relations. The main focus of the book is analytical. It offers a perspective on the evolution of international relations as a set of interconnected networks. Some of these networks are conflictual – networks that are formed of the interaction among potential or actual enemies. Other networks are cooperative – they are formed out of different types of peaceful-exchange relations among, or common affiliations of, states.

The central point of the book is simple: International relations have evolved as a set of interconnected networks. These networks form out of the decisions of states to form conflictual or cooperative ties with each other. These decisions have structural consequences. The behavioral results of these decisions converge and result in consequences that are not always anticipated. They create structures that affect the behavior of states in complex ways. Each of these networks has an evolutionary logic of its own; and each affects the behavior of units in different ways. What is unique about the story this book tells, however, is that these networks appear to be interrelated. They affect each other in ways we have not previously understood. And these effects cross levels of analysis. They operate at the level of individual states; they affect dyadic relationships; they emerge in various group structures; and they operate at the global level. What these networks are, how they form and evolve, and how they relate to each other is what this book is all about.

Quite a few individuals and institutions helped bring this book to completion. First and foremost, I am indebted to my collaborators during the early stages of the networks project: Lesley G. Terris, Ranan D. Kuperman, and Ilan Talmud. We have learned from each other a great deal. Andrey Goder and Iat (Nicky) Chan were wonderful programmers who helped develop the SNA software that forms the basis of most analyses in this book. Aimee Tannehill and Carl Palmer were wonderful research assistants in this project. Kathy Barbieri, Scott Gartner, Paul Diehl, Jim Ray, Bruce Russett, Randy Siverson, Harvey Starr, John Vasquez, Mike Ward, and Doug and Lilyan White have read parts or the whole manuscript and made valuable comments on previous drafts. I have also received numerous comments from participants in various

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talks, workshops, and conferences where I presented parts of this book. Two anonymous reviewers for Cambridge University Press, as well as Mark Granovetter, the academic editor of the Structural Analysis in the Social Science series gave me very useful advice that led to a fairly substantial revision of several chapters. Last but certainly not least, I would like to thank the graduate students in my political networks class in the winter and fall of 2009 for their many useful suggestions and probing questions, which forced me to clarify a fair number of arguments and analyses.

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