



ADVANCES IN POLITICAL SCIENCE: An International Series

Volume 5

Edited by
Claudio Cioffi-Revilla
Richard L. Merritt
Dina A. Zinnes

COMMUNICATION AND INTERACTION IN GLOBAL POLITICS

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IN GLOBAL POLITICS

ADVANCES IN POLITICAL SCIENCE

An International Series

*Published in cooperation with the International
Political Science Association*

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FROM THE SERIES EDITOR

Advances in Political Science: An International Series reflects the aims and intellectual traditions of the International Political Science Association: the generation and dissemination of rigorous political inquiry free of any subdisciplinary or other orthodoxy. Along with its quarterly companion publication, the *International Political Science Review*, the series seeks to present the best work being done today (1) on the central and critical controversial themes of politics and/or (2) in new areas of inquiry where political scientists, alone or in conjunction with other scholars, are shaping innovative concepts and methodologies of political analysis.

Political science as an intellectual discipline has burgeoned in recent decades. With the enormous growth in the number of publications and papers and their increasing sophistication, however, has also come a tendency toward parochialism along national, subdisciplinary, and other lines. It was to counteract these tendencies that political scientists from a handful of countries created IPSA in 1949. Through roundtables organized by its research committees and study groups, at its triennial world congresses (the next of which takes place in August 1988 in Washington, DC), and through its organizational work, IPSA has sought to encourage the creation of both an international-minded science of politics and a body of scholars from many nations (now from more than 40 regional associations), who approach their research and interactions with other scholars from an international perspective.

Communication and Interaction in Global Politics, edited by Claudio Cioffi-Revilla, Richard L. Merritt, and Dina A. Zinnes, is the fifth volume in *Advances in Political Science: An International Series*. Like its predecessors, it comprises original papers which focus in an integrated manner on a single important topic — in this case, how quantitative approaches in international politics can help us understand aspects of communication and interaction among and within nation-states.

The papers in the volume were originally presented at a roundtable of the IPSA Research Committee on Global Communication, held in September 1983 at the Allerton Park conference center of the University of Illinois at Urbana-Champaign. Financial support for the conference came from the Merriam Laboratory for Analytic Political Research, the Office of International Programs and Studies, and the Department of Political Science, all at the University of Illinois, as well as the International Political Science Association. IPSA and the series editor are grateful to Robert B. Crawford, then director of the University's Office of International Programs and Studies, for encouragement and support; Judith Jones and Janie Carroll, who facilitated the Allerton Park roundtable; and Eileen Yoder, who produced the manuscript, and Geoffrey A. Merritt and Robert G. Muncaster, who carried out the art work.

—Richard L. Merritt

CHAPTER 1

**COMMUNICATION AND
INTERACTION IN GLOBAL POLITICS**

CLAUDIO CIOFFI-REVILLA
RICHARD L. MERRITT
DINA A. ZINNES

Communication and interaction are at the core of global politics, in the complex world of today as inseparable as they are unavoidable. It is impossible to explain international political interaction without looking at the communication phenomena accompanying its many forms. Exploring international communication — the flow of messages and signals in a channel composed of senders, encoders, images, and other key components — also forces us to look at its underlying, dynamic interaction process. Communication gives meaning to interaction; interaction gives purpose to communication.

It is the contention of this volume that systematic analysis of communication and interaction will help us understand the complexities of global politics. The topics as such are not new. Political analysts since the time of Aristotle have with greater or lesser success inquired into their manifold dimensions. But certain aspects of modern social science offer new insights into the interplay of communication and interaction: the conceptual frameworks, models, and methodologies have the potential — in part fulfilled but in part still a challenge — to provide even greater understanding.

This volume explores some properties of communication and interaction in international political behavior. It presents an integrated set of papers that deal in varying ways with the central theme. This introductory chapter presents an overview of the half-score of papers — what they contribute to our main concern, how they fit into the general literature of the field, and how they fit together. The three parts of the chapter, which parallel the three parts of the volume, focus on increasingly specific aspects of the underlying theme, from the

generic, more abstract, theoretical level to the more particular or specific dimensions of the nexus between international communication and interaction.

Global Interaction Dynamics

The first set of papers focuses on what we view as some of the broadest, generic, or contextual aspects of global politics: the enduring problem of developing international cooperation in an essentially "anarchic" political environment (Chapter 2); the pervasive probability of war in such an environment (Chapter 3); the important, sometimes determining, interphase between polity and economy in the global system (Chapter 4); and the notion of time within which all political phenomena in general, and interaction and communication in particular, are embedded (Chapter 5). These chapters touch on basic international political issues of cooperation and conflict, war and peace, riches and poverty, and time and space. Together with other such issues (freedom, security, spontaneity), they constitute the backdrop against which most global political dynamics take place. And they form the background for the more specific concerns addressed in subsequent sections of the volume.

The central problem for Dina A. Zinnes and Robert G. Muncaster in their "Transaction flows and integrative processes" is the development of cooperation among nations. Returning to the pioneering work of Karl Deutsch, they build a model of cooperation based on Deutsch's ideas about the relationship between interaction and the evolution of international political communities. Assumptions, extracted from propositions originally put forth by Deutsch, are stated in mathematical form. These assumptions suggest how interactions such as trade flows, mail flows, and tourist exchanges generate ties of friendship and even solidarity. The basic question for Zinnes and Muncaster is how and when these interactions produce sufficiently strong ties of cooperation to set the stage for an international community. Although the complexity of the model does not permit a complete answer to the question, the authors specify sets of conditions that produce integration and other sets that produce disintegration.

Claudio Cioffi-Revilla, analyzing "Crises, war, and security reliability," is similarly concerned with the interaction of nations. His study, however, is the flip side of the chapter by Zinnes and Muncaster. Where the latter seek to determine the relationship between positive forms of interaction and increasing ties of friendship and community,

Cioffi concentrates on the relationship between negative interactions (crises) and major forms of violence, including war. Using his theory of political reliability, Cioffi shows that a continuing sequence of crises, even if each individual crisis has a relatively low probability of resulting in war, can essentially "weaken" the system and eventually bring about war. Like Zinnes and Muncaster, Cioffi mathematically formulates the work of a major contributor to the study of international relations, Quincy Wright. But while Zinnes and Muncaster view cooperation and international community in the form of a deterministic model, Cioffi models crises and war totally within the framework of probability theory.

The models of both Cioffi and Zinnes-Muncaster either implicitly or explicitly make certain assumptions about how interaction proceeds and the relationship of that interaction to certain political outcomes, war or integration. In their chapter on "Modeling an international trade system," Brian M. Pollins and Grant Kirkpatrick present a broader, empirically based examination of the relationship between economic interactions and political interactions. Their long-range goal is to develop a computer simulation unit to incorporate into the broader GLOBUS computer simulation of the Science Center Berlin. Toward this end, they formulate an econometric model that links economic variables to political events. An extensive discussion of the problems and procedures inherent in estimating the model precedes the presentation of some preliminary results. While Cioffi's model is probabilistic and that of Zinnes and Muncaster deterministic, the model generated by Pollins and Kirkpatrick is more a blend of both probabilistic and deterministic assumptions.

The first three chapters of this section all develop models of interactions among nation-states. Each of these models is implicitly (as in Cioffi's study) or explicitly (as in the Zinnes-Muncaster or Pollins-Kirkpatrick chapters) a function of time. The processes being modeled take place through time. But what is time? Or, more correctly, what is the metric along which these interactions are being measured? This is the problem that Pierre Allan addresses in his chapter on "Social time." Social scientists in general, he argues, but more particularly those studying international phenomena, are too willing to accept the time scales developed in classical physics. Allan challenges the usefulness of this simple translation. He attempts to show that other time scales are more reasonable for the study of social phenomena, and that strict adherence to physical time can distort and obscure the kinds of social processes being modeled.

Information and Bargaining

Bargaining behavior is ubiquitous to international politics, even in war. The central theme of the second part of the volume is the interplay of information and bargaining. The linkage between them is a more specific aspect of the interplay between communication and interaction. The three chapters in this section focus primarily on conflict. All three model inter-state politics as an interactive (bargaining) system in which the flow of information plays a vital role. Formally, all three models are cast in the mathematical language of games. This is natural. The mathematical language of game theory was invented precisely for analyzing, rigorously and with as little ambiguity as possible, those empirical social phenomena where choice, perceptions, estimates, outcomes, and chance interact in a system of actors.

Game-theoretic analyses have contributed substantially to our theoretic and practical knowledge of information processes in bargaining. An initial landmark study was Schelling's (1960) classic *Strategy of Conflict*, followed soon after by Iklé and Leites's (1962) formal model of the international bargaining process. Even in these early studies there was an explicit attempt to relate information and bargaining within a single framework. They saw the international bargaining process as an interplay of perceived policy *alternatives*, expected *outcomes*, *likelihoods*, and estimated *pay-offs*. Other seminal studies in this tradition include Singer's (1963) decision model of the *influence process* that is inherent in bargaining; Boulding's (1962) contribution to the theory of *threats*; Pruitt's (1969, 1981) innovative analysis of bargaining *reactivity*; Axelrod's (1967, 1970) conceptualization and rigorous definition of *conflict of interest* in bargaining; and Rapoport's experimental work on games.

Just as information and bargaining have been central to past theoretic work in this area, the three chapters in this section demonstrate that these elements continue to remain paramount. The studies illustrate a principal focus of contemporary bargaining theory: the relationship between information and outcomes. Written by leading scientists in this area, the chapters are thus a sample of the current state of the art in the use of game models for the scientific understanding of decision making, negotiation, and bargaining, and the role that information plays in such dimensions of global politics. The studies are not, however, purely formal, abstract, or "content-free." They focus on important international problems, including deterrence, the arms race, and such regional conflicts as the Malvinas/Falklands war of 1982. Using the rigorous mathematical structure of

games, the chapters illustrate how specific and politically relevant problems of contemporary international relations can benefit from formal treatment.

In his discussion of "Misperception and satisficing in international conflict," Michael Nicholson explores the specific case of the recent Malvinas/Falklands war between Argentina and Britain. It draws broad theoretical inferences about the crucial role that information plays in determining behavior. The study examines the impact of information about pay-offs, probabilities, alternatives, and expectations of outcomes.

Steven J. Brams and Morton D. Davis address the intricate problem of "The verification problem in arms control." This problem is notorious for the complications arising from the interaction of expectations, deception, and cheating. Simpler game-theoretic analyses of arms control issues rarely consider these factors. Yet these issues are crucial for a complete understanding of the difficulties inherent in verification. The analysis by Brams and Davis shows that the verification problem is not simply a technical one, as is so often assumed in the literature on national security. This chapter, like the other two in this section, demonstrates that bargaining behavior cannot be understood without considering the interplay of communication and interaction.

Using a remarkably simple set of mathematical tools (essentially only geometry and the algebra of inequalities!), Raymond Dacey explores the difficult problem of assessing "Ambiguous information and the arms race and mutual deterrence games." (That part of the study innovatively applying Jeffrey's probability kinematics to problems of arms racing and deterrence, however, cannot be grasped without more than just rudiments of probability theory.) From a purely methodological perspective, this study provides considerable theoretic insights using relatively simple mathematical ideas. From a substantive perspective, Dacey's analysis marks a noticeable advance in our current understanding of the effects of bribes and threats. It shows that bribes, threats, and "tit-for-tat" strategies are "risk-free" to the user when used probabilistically. Though treated in very formal terms, there is a significant amount of realism in the chapter that should not be overlooked. The probabilistic nature of bribes, threats, and most strategies in the real world makes Dacey's formulation and analyses of particular value for understanding international political processes.

The three chapters in Part II therefore differ in degree of generality as well as in level of mathematical sophistication. In all three the

interplay of communication and interaction nevertheless plays a central role in explaining bargaining behavior.

Social and Political Communication

The third part of the volume focuses attention on international integration within the nexus of communication and interaction. Its three chapters also share the characteristic of being more empirically oriented than the previous ones.

An important thrust in the scientific study of international politics has been the search for international patterns based not on speculation, intuition, or anecdotal evidence, but on systematic theory grounded in data from the real world. This interest grew from frustration with the plethora of alternative and frequently contradictory hypotheses abundant in the literature on war, diplomatic behavior, communication, and other aspects of international life. Folk sayings and glittering generalities all too often passed for "inexorable laws." Concepts such as power and conflict were on many tongues but often meant something different to each one. It was in this setting that Pitirim Sorokin, Quincy Wright, Lewis Fry Richardson, and a handful of others began to look systematically and empirically at international phenomena. They thereby broke the path for still more detailed and sophisticated analyses based on data.

The 1960s saw a flowering of programs aimed at developing data for international (and comparative) research. The idea was to collect and make available in a standardized format data about the attributes and behavior of nation-states: data that were *reliable* in the sense of being replicable by researchers using the original analyst's definitions, sources, and methods; *valid* in the sense of being linked intimately and explicitly to the concept being "measured"; *functionally equivalent* across countries and time periods; and, where possible, *quantitative*. Among the early projects were the Yale Political Data Program under the direction of Bruce M. Russett, Rudolph J. Rummel's Dimensionality of Nations, and the Cross-Polity Survey of Arthur S. Banks and Robert B. Textor. Another important project, developed by J. David Singer and Melvin Small, focused on the Correlates of War for the century-and-a-half between 1815 and 1965.

Such projects had a manifold effect. For one thing, they facilitated at least preliminary studies that could subject old and new hypotheses to the test of quantitative data from the real world. Such studies in turn forced scholars to reconceptualize such general notions as power, interests, and capabilities. For another thing, these data programs and

the projects they spawned emboldened still other researchers to generate new kinds of data, especially data that are hard to get at. And, of course, the availability of such data in the field of international relations and elsewhere led to increasing methodological sophistication on the part of analysts and the development of new methodological procedures to enhance the power of explanatory models.

An area of international political behavior that has benefited especially from such systematic approaches deals with aspects of integration and large-scale political community formation. As indicated earlier in this chapter, Karl Deutsch's work broke a number of conceptual logjams. His research on nationalism and social communication (Deutsch, 1953) and on political community at the international level (Deutsch, 1954), more specifically in the North Atlantic area (Deutsch et al., 1957), also pioneered new procedures for analyzing such processes. Others followed in his footsteps to refine the concepts, develop specific measures of integrative behavior, and lay the groundwork for further data-based research.

The three chapters in this section represent various data-based approaches to the study of international integration. Jean Laponce, in his "Language and communication: The rise of the monolingual state," examines an area in which data resources are underdeveloped. Language is a key element in both the integration of communities and the ability of people to express their separate identity. Some writers and thinkers have argued that enhancing the global population's ability to communicate in a common tongue will improve understanding and the prospects for peace. From this perspective the assimilation of minority language communities reduces uncertainty and potential conflict. From another perspective, however, it makes the world poorer by removing from it an element of diversity, languages in which people have traditionally expressed themselves in unique and often creative ways.

The remarkable thing is that social scientists have not developed adequate means for ascertaining whether we are moving toward or away from linguistic diversification. Moreover, while they have indicated some of the factors that seem to encourage or discourage such trends, there has been little effort to specify them in ways that enable us to assess their relative importance in various circumstances. Laponce makes a first step in this direction.

Cal Clark and Richard L. Merritt, in "European community and intra-European communications," examine developing communication patterns among the countries that later formed the European

Community. We would normally expect that, before some group of states takes formal steps toward economic or, eventually, political union, strong communication networks would characterize their interaction patterns. If so, then the worldwide flow of mail, as an indicator of global communications structure, should have revealed an incipient subnetwork among the Europe of the Six well before they signed the Treaty of Rome in 1957. To test this hypothesis, Clark and Merritt analyze data on international mail flows from 1890 to 1961 by means of a statistical model of transaction flows that indicates varying intensities of interaction between pairs of countries. Their data indicate that an emergent pattern did indeed exist, but also suggest that the concrete integrative measures enhanced the density of the intra-European communications network.

Alex Mintz and Philip A. Schrodtt take a somewhat different approach to international patterns in their analysis of "Distributional patterns of regional interactions." Much of the literature in international relations posits relatively enduring patterns characterizing the interaction of nation-states. This should be particularly the case, according to the "common enemy" hypothesis in the field of international integration, among states allied in some common effort — such as members of the North Atlantic Treaty Organization, aimed at deterring possible Soviet aggression, or Arab states in the Middle East, united at least in their hostility toward Israel. Mintz and Schrodtt find no such patterning. The interactions of these two sets of states, as seen in data on international events (1948–78) drawn from the Edward Azar's Conflict and Peace Data Bank (COPDAB), obey rather the Poisson law, a form of random distribution. This finding raises several interesting questions. It is possible, Mintz and Schrodtt suggest, that different modes of temporal or event-typical aggregation might tease out some pattern; but we might also argue that scholars must pay more attention to their assumptions about patterned interaction.

Communication and Interaction in Global Politics

The chapters in this volume share three aspects worth highlighting. First of all, they make individual contributions to existing literatures. The study by Zinnes and Muncaster, for instance, further develops Deutsch's work by building a mathematical model capable of yielding deductions that were not apparent in Deutsch's original conception of integration. Similarly, Cioffi uses Wright's ideas about the relationship between crises and war to develop a model yielding conclusions not anticipated by Wright. Pollins and Kirkpatrick, by making explicit and