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On Global Cooperation:
A Literature Review and Partial Integration

by

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Abstract

Reviews of our accumulated understanding of international conflict appear with reasonable regularity. Those that examine our comprehension of global cooperation surface infrequently and tend to be more partial. This paper is a survey of various literatures on cooperation, with attention to three questions: (1) How does context (issue character and actor configuration) shape potential for cooperation? (2) What are the forms or types of cooperation? (3) What are the dynamics of developing or strengthening cooperation? The paper also identifies and explores some approaches to better integrating various literatures on cooperation.

1 Introduction¹

Those who study international conflict and war engage in fairly regular stocktaking with respect to their existing knowledge and the remaining gaps in it. For instance, Small and Singer (1982) served that function with respect to the Correlates of War project (which itself generated many of our insights into conflict) and Bremer (1991) has recently initiated a major review of the scientific study of war. In addition, classic studies such as Blaney (1973) and Thompson (1988) complement the scientific study of war with extensive reviews of less empirical literatures.² Whereas scholars frequently step back and attempt to define and even count conflicts (crises, militarized disputes, or wars), list the causes (or contextual factors) underlying conflict, discuss the dynamics of the crisis and war processes, and analyse the mechanisms by which conflict can be avoided or ameliorated, it is more difficult to discover comparable integrating listings of the forms of cooperation, of the contextual factors underlying it, of the dynamics of cooperative processes, or the strategies and tactics by which cooperation can be fostered.

There are, of course, some outstanding reviews of some subsets of the cooperation literature. Druckman and Hopmann (1989) summarized our understanding of negotiations, as Krasner (1983) and Haggard and Simmons (1987) did on regimes and Kratochwil and Ruggie (1986) did on international organization. The collection edited by Oye (1986) and based in game theory will also become a classic in the field. This paper attempts something more comprehensive and integrating. It seeks to cut across literatures on foreign policy, negotiations, regimes, international organization, game theory, and collective action, and to assess what scholars have learned more generally about the phenomenon of international cooperation more generally.

Large numbers of literatures have something to say about global cooperation and therefore this paper will inevitably treat some very important literatures too lightly and ignore others altogether. Why then undertake the effort? As we move into the post-Cold War era, attentions of significant actors (state and non-state) around the world are shifting quite rapidly from a primary concern with avoidance of war (peace as the maintenance of order and stability) to interests in

¹ I want to thank Steven Durand, Matthew Muehlbauer, and Michael Zürn for helpful suggestions on earlier drafts of this paper and simultaneously to take responsibility for all remaining failings.

² The relative abundance of self-examinations by the students of conflict and war has made it possible for textbook authors in international relations to include chapters on these topics, and most have done so, generally presenting theoretical foundations rooted in realism. For instance, Kegley and Wittkopf (1989) present chapters on military capabilities and on the resort to force. Rourke (1991) includes chapters on power and on force. Papp (1991) incorporates several chapters on power and one on war, peace, and violence. In contrast, the treatment of cooperation tends to be more atheoretical and to be spread across chapters and sections on diplomacy, international law, and international organization.

solving problems requiring collective action. Those problems range from the high politics of arms control and nonproliferation through the restructuring of economic orders to the addressing of large-scale environmental issues. It is not unreasonable to suggest that the study of international relations will increasingly become the study of international public policy.

Unfortunately, however, we enter this new era knowing less about international public policy than we would like (Soroos 1988). Three questions can help us assess what we do know and to identify weaknesses in our understanding. First, under what conditions or in what context is cooperation most or least likely? More specifically, this question can be divided into two others. On what *issues* is cooperation generally hardest or easiest? And how does the immediate *configuration and motivation of interested actors* affect the prospects for cooperation? After we have discussed the issue context of cooperation it will be easier to address the basic definitional question: What are the forms and structures of cooperation that appear in world politics (which is to ask, what do we mean by cooperation)? Third, what are the dynamics by which cooperation increases or decreases? We will again divide that question into two parts. What tactics, strategies, and patterns of interaction tend to induce cooperative interaction? Ideally we would like to know how these vary by issue area and actor configuration. What are the internal dynamics of longer-term structures of international cooperation?

These three basic questions frame the review that follows. Together they draw our attention to what we might call a "pentagon of cooperation." On the contextual leg our concerns are issues and actors. On the dynamic leg we consider strategies/tactics and structural dynamics. At the pinnacle is the variable of central interest, cooperation.

2 How does Issue Context Affect Cooperation?

Two contextual factors, the nature of issues and the configuration of actors involved with those issues, have much to do with the evolution of cooperation.³ We consider the nature of issues in this section, before interrupting the discussion to consider what we mean by cooperation. We will then return to the manner in which the configuration of actors affects cooperation.

What do we know about the relationship between issues and the level or character of cooperation? To address that question we need to step back first and consider how to map the universe of issues. That is, into what categories can we place issues?

2.1 Substantive Typologies

A first approach to categorizing issues is substantive. Brecher, Steinberger, and Stein (1969) divided international issues into military-security, political-diplomatic, economic development, and cultural-status. In his study of global policy, Soroos (1988: 38-39) specified six international issue agendas: political, economic, social, resource, environmental, and transportation/communication. Events data projects like WEIS (World Event Interaction Survey) have often inductively determined large numbers of issues and issue categories. For example, Mansbach and Vasquez labeled 350 different ones (Mansbach and Vasquez, 1981: 54).

Efinger and Zürn (1990) correlated an 8-category typology with data on East-West cooperation and found a remarkably high contingency coefficient of 0.62. Nonetheless, they lamented the absence of "theoretically convincing assumptions concerning the relationship between some issue areas in this typology and the modes of conflict management" (1990: 83). They therefore recommended a more basic three-fold categorization into issues of welfare, security, and authority (correlation of 0.58).

In the face of substantial differences in categorization like these and of concerns with theoretical linkages, it is not clear how far a substantive approach can carry us. We have long known that issues concerning security, ideology, and territory often pose more problems for cooperation than economic, transportation, communication, or environmental issues. That is, the "high politics" character of the former leads to more nearly zero-sum interactions and conflict, whereas the "low politics" of the latter issues are more often nonzero-sum. Beyond that it is difficult to generalize and many scholars have turned to more analytical categorizations.

2.2 Analytical Typologies

Perhaps the most famous categorization is that of Lowi (1964) and grows out of the domestic public policy literature. Lowi initially suggested that domestic issues in the United States fall into three sets: distribution, regulation, and redistribution. It is not difficult to identify international issues that might fall into these three categories (for instance, allocation of geosynchronous orbital positions, control of CFC release, and structuring the New International Economic Order, respectively). Thus this typology promises some help in relating issues to the prospects for cooperative behavior in the international arena, a promise, however, that remains in large part unfulfilled.

³ This assertion, supported by the following discussion, is perhaps not completely obvious. Cooper (1989) examined international cooperation in public health as a model for macroeconomic cooperation. This study suggests that the bases for cooperation in the two issue areas are too different for useful comparison.

Rosenau (1966) was perhaps the first scholar of international relations to actively pursue a functional typology of issues in order to better understand foreign policy. He used the intersection of two dimensions to build one. Specifically, he argued that political actors differentiate between tangible and intangible means on the one hand, and between tangible and intangible ends on the other. The intersection of these two dimensions determine four quadrants. He predicted greater bargaining among actors on issues with greater tangibility of means and ends (for instance, on nonhuman resource issues such as ocean fisheries). As both means and ends become intangible (for instance, on status issues such as the superpower conflict of the Cold War), actors become uncompromising.

Several studies have built upon the insights of Lowi and Rosenau. For instance, Zimmerman (1973) added to the insights of Lowi in two ways. First, he coupled Lowi's framework (as developed in 1964 and 1967) with a distribution of state activity that Wolfers (1962) elaborated. Wolfers argued that issues fall on a dimension ranging from a pole of indifference (where elites maintain control by default) to a pole of power (where the issues are so threatening to central values that citizens delegate control to elites). In between, more pluralistic processes operate. Zimmerman argued that distributive, regulative, and redistributive issues fall along that same dimension, with distributive issues near the pole of indifference and redistributive ones near the pole of power. Second, Zimmerman elaborated the foreign policy linkages of the Lowi categories and sketched some cross-national differences in applicability of the categories.

Mansbach and Vasquez (1981) attempted to extend the efforts of Lowi and Rosenau still further. They emphasized that any analysis of issues must pay close attention to the "stakes" of the actors: *"an issue consists of contention among actors over proposals for the disposition of stakes among them"* (Mansbach and Vasquez, 1981: 59). This led them eventually to a portrayal of issues in terms of the division of costs and benefits inherent in any proposal across the actors involved.⁴ They suggest that Lowi's distributive issues fit into the quadrant of equal costs and unequal benefits, while both his regulative and redistributive issues fit into that of unequal costs and benefits.

Mansbach and Vasquez (using work of Henehan) also undertook a correlational analysis of the relationship between cooperation measured in events data and the typologies of Lowi-Zimmerman and Rosenau. They found no predictive power of the Lowi-Zimmerman framework, but had some success with that of Rosenau. Efinger and Zürn (1990) also found the typology of Rosenau useful, but concluded that the inclusion of the tangible-intangible ends distinction introduced a tautology into the analysis.

Students of cooperation have not picked up any of these substantive or analytical typologies and extensively explored their relationship to cooperation. Instead, there seems to be an attraction to, but an often casual use of, still another analytical typology, one built on the nature of the goods at stake (Ordeshook, 1986: 241). Samuelson (1954) set the stage for a potentially very useful approach with his distinction between private and public goods. Pure public goods have two properties (Weimer and Vining, 1989): nonrivalry of consumption and nonexcludability.⁵ Nonrivalry exists when, if a good is available to one actor, it is available to others at little or no marginal cost (Olson and Zeckhauser, 1968: 27). Nonexcludability exists when a good

⁴ Coate (1982: 51) drew upon the Lowi/Rosenau approaches in a study of global issue regimes and also developed a four-quadrant division of issues. He used tangible-intangible as one dimension and highly disaggregatable-nondisaggregatable as the second.

⁵ Many authors identify the distinguishing characteristics of public goods as jointness of supply and the impossibility of exclusion (Hardin, 1982: 17).

cannot feasibly be withheld from others (Olson, 1965: 14). Radio waves and knowledge about the building of machine guns are both public goods. Impure public goods (or mixed goods) exhibit only one of the two properties, and private goods (like territorial waters) exhibit neither.

Olson (1965) explored the consequences for group interactions of their focus on public goods.⁶ He and others have suggested two characteristics of that interaction. First, the production of public goods invariably involves *externalities*. By definition, if I produce a public good in an effort to attain a supply of it myself, I will not be able to prevent your access to it or keep you from consuming it - my production process will have positive externalities. I can similarly produce a public bad, such as air pollution, to which you will have free access for consumption, whether or not you want it. Second, the production of public goods, with their associated positive externalities for others, encourages those others to become *free riders* and not to produce the good themselves. The literature that focuses on these problems looks at how we can structure *collective action* in the face of these problems.

The second characteristic helps us understand the linkage between public goods and the Prisoners' Dilemma ($DC > CC > DD > CD$). My preference will generally be to let you produce the good and not to make a contribution myself (DC) and I will greatly fear being the sucker paying all the costs (CD). We will return to game theory and additional types of games later.

2.3 Extending the Public Goods Approach to Issue Analysis

If students of cooperation are to build usefully on this typology of pure and impure public goods, however, they need to move forward on two fronts. First, they must better develop the typology, linking it clearly to a very wide range of specific international issues. In this section we make some suggestions for giving flesh to the typology. Second, they must develop linkages between type of good and prospects for cooperation. We pursue that second goal throughout this paper.

It has not proven easy to classify particular "international goods" using the private/public classification. Snidal (1985) argues, for instance, that hegemonic stability theorists generally treat trade as a pure public good, but that it does not meet the criterion of non-excludability. In a review of other issue areas (1985: 596) he suggests further that very few goods are actually pure public goods.

Table 1 categorizes various types of international goods into the four cells created by an intersection of the excludability and rivalry dimensions. See Weimer and Vining (1989: 44) for a more abstract presentation of that matrix.

[Table 1 about here]

Goods in the upper left-hand corner of the table are private goods, such as territory. The key problems of international cooperation surrounding these goods are the assignment and protection of property rights.

Goods in the lower left-hand corner are common property resources, characterized by rivalry and physical non-excludability. It is important to distinguish between physical and legal excludability. In many cases it is possible to legally regulate access to common property resources and thereby assign property rights, very much like one does for goods characterized by

⁶ Efinger and Zürn (1990) investigated the relationship between cooperation and a distinction between private and public goods - they found no significant relationship with the dichotomous categorization.

Table 1
Types of International Goods with Examples:
Consumption Orientation

Rivalry		
Physical Excludability	Yes	No
Yes	<p>EXISTING PRIVATE GOODS</p> <p>Alsace-Lorraine West Bank Saudi-Iraqi Neutral Zone</p> <p>Problems Requiring Cooperation: protection of property rights</p>	<p>COORDINATION GOODS</p> <p>International postal service International E-mail networks</p> <p>Problems Requiring Cooperation: setting technical standards, violation of rules for access, congestion (leading to rivalry)</p>
No	<p>COMMON PROPERTY RESOURCES</p> <p>Whale consumption Access to markets by members of a free market zone Greater production by cartel members Global atmosphere as dump for CFCs Transatlantic air routes Geostationary orbits</p> <p>Problems Requiring Cooperation: congestion and overexploitation of free goods</p>	<p>EXISTING PUBLIC GOODS</p> <p>Knowledge to control malaria Knowledge to produce atomic weapons</p> <p>Problems Requiring Cooperation: negative externalities of consumption</p>

physical excludability. For instance, it is impossible to build a "physical fence" to prevent any actor with the technological and financial capability from launching a telecommunications satellite into geosynchronous orbit. A common approach to cooperation on such common property resources is to build a legal fence. Similarly, while we might someday brand whales on the high seas like cattle on the plains, at this point it is technologically infeasible. Legal restriction on access, however, remains possible. In other cases, both legal and physical excludability appears simply impossible. For instance, restricting access to markets in a free trade area negates the meaning of a free trade zone. Although the distinction between physical and legal excludability is important, it is often difficult to make, because once legal excludability is accomplished, some physical enforcement mechanisms often come into being (like hanging those who slaughter cattle without their brand).

Analysts sometimes confuse common property resources like the atmosphere with public goods. There is, however, a definite limitation on the ability of others to use the atmosphere when one actor pollutes it - there is rivalry. More strictly speaking, the atmosphere (like plentiful fresh water in Ohio or buffalo on the Great Plains) is a free good - until substantial congestion and overexploitation appear, rivalry is not obvious with respect to them and there is a tendency to think about them, and to treat them as public goods.

The Tragedy of the Commons is the classic problem that arises with common property resources. In the traditional formulation, I do not prevent you from grazing your animals on the commons, but our animals are clear rivals for the grass (and that will become obvious with congestion). Large numbers of collective action problems are those of common property resources. Among others, Soroos (1986, 1987, 1988, 1989) has identified problems of the global commons and sought to catalogue international approaches to them.

In the upper right-hand corner of Table 1 are coordination goods. These goods have a rather curious character - although it is possible to exclude actors from access to them, their non-rivalry obviates most desire to do so. In some cases the marginal costs of providing the goods to additional actors may actually be negative because of economies of scale. Thus it makes no sense to exclude countries from the international postal service or from electronic-mail networks unless access becomes linked to other issues (such as ideology). The primary problems associated with coordination goods are those of establishing initial technical standards for interaction. Once the system is in place the problems become those of avoiding congestion of the system, because congestion can lead to rivalry.

The lower right-hand corner contains few examples of pure public goods, which as Snidal (1985b) argued, are not very numerous. In general there are very few problems associated with the consumption of pure public goods such as the knowledge to fight malaria. Even in that example, however, there can be externalities, such as the introduction of DDT into global food chains or the growth of populations beyond the capabilities of countries to support them. Externalities generally create linkages to other issues and are perhaps the most pervasive category of problem associated with international interaction.

It is important to remember that this exposition of types of international goods began with an effort to categorize international issues on which cooperation might occur. Unfortunately, many such issues do not seem to fall anywhere within Table 1. Where, for instance, would one put international cooperation on behalf of rain forests? Access to rain forests is pretty clearly subject to rivalry and to excludability. The international problem associated with them is, however, clearly not the protection of property rights. And where would one place cooperation within an alliance like NATO? Many who have studied public goods have focused on NATO

(Olson and Zeckhauser, 1968; Palmer, 1990). It does have similarities to coordination goods, but the ongoing problems seem very much unlike those of the international postal service (determining initial standards and avoiding congestion).

The failure of students of private/public goods routinely to develop categorizations like that of Table 1 suggests some difficulty in translating the abstract world of its categories into the specific and concrete world of issues. The problem could, however, be in significant part a failure to distinguish between the problems associated with provision of international goods and the problems marking access to them.

Consider, for instance, that countries must create some international goods, like the security provided by an alliance, whereas they need only take others, such as whales on the high seas, long-existing knowledge about malaria, or the benefits of international postal service. It is always possible to argue that the good at issue is the protection of whales. Yet the fact remains that the whales (and their consumption) precede any agreement on whaling, while the security of an alliance can only follow the alliance. Moreover, the setting up of an alliance or a free trade zone seems to involve quite different issues than the day-to-day management of them. In the first case, the problems can be seen as those of producing an international good; in the second, they can be usefully interpreted as problems of controlling that good's consumption.⁷

Table 2 moves our attention to the supply side of international goods. It divides goods into those that can be produced by a single actor and those that require joint production. And it separates goods into those whose benefits accrue to the producer(s) and those whose benefits (positive and negative) may be shared by a larger group.

[Table 2 about here]

The upper left-hand and lower right-hand corners maintain the same names as the table oriented to consumption: private goods and pure public goods. Even in these quadrants, however, the problems for collective action change when we focus on provision of the goods. For instance, when the colonial powers met in Berlin and drew boundaries on the map of Africa, they were determining property rights, much as the participants at the Third UN Law of the Sea Conference did with respect to Exclusive Economic Zones (EEZs). The primary problem associated with many new private goods is the definition of property rights, not the protection of them. Similarly, if public goods are produced rather than existing, the cost of production becomes an issue. This leads to questions of cost-sharing and creates the potential for free-riding and under-provision, nonexistent problems for existing public goods.

⁷ We can see the confusion that failure to distinguish between production and consumption creates even in the terminology of public goods. Instead of non-rivalry, students of public goods often refer to jointness of supply (or of consumption). Snidal (1985: 590) says that "jointness requires that different states be able simultaneously to consume the same produced unit of a good." Contrast this with the definition of Olson and Zeckhauser in their analysis of alliances (1968: 27): non-rivalry exists when, "if the good is available to any one in a group, it is, or can be made available to the other members of the group at little or no marginal cost" (1968: 27). Similarly Olson (1965: 14f) says that "a good has 'jointness' if making it available to one individual means that it can be easily or freely supplied to others as well." Snidal seems to be writing about a consumptive property of the good, such as a single piece of bread that feeds everyone at a banquet; Olson and Olson and Zeckhauser seem to be referring to the nature of the provision process, one in which marginal costs of producing enough bread for everyone may be very low or zero). The differences across definitions may be somewhat overdrawn here, but do suggest the utility of clearer distinctions between consumption and production.

Table 2
Types of International Goods with Examples:
Production Orientation

Self-Provision Feasible		
Benefits Private (To State or Club)	Yes	No
Yes	<p>NEW PRIVATE GOODS</p> <p>EEZs Antartica Intellectual property under patent Foreign aid</p> <p>Problems Requiring Cooperation: defining property rights, exchange rules</p>	<p>CLUB GOODS</p> <p>Military alliance Free trade zone Arms Control Agreement</p> <p>Initial Problem Requiring Cooperation: determining optimal club size Subsequent Problems (Inside the Club): providing an adequate supply of the good (see New Public Goods); dampening rivalry and congestion (see Common Property Resources)</p>
No	<p>TRANSBOUNDARY ISSUES</p> <p>Intellectual property without patents Human rights protection Food, energy stockpiles Protection of rain forest Nuclear weapons acquisition Electricity generation from coal</p> <p>Problems Requiring Cooperation: controlling negative externalities; assuring positive externalities</p>	<p>NEW PUBLIC GOODS</p> <p>Ozone protection Avoidance of Greenhouse Effect Restriction of oil production by OPEC</p> <p>Problems Requiring Cooperation: free-riding, underprovision</p>

In the lower left-hand corner we have an entirely new class of goods, transboundary goods or bads - self-provided goods with substantial international externalities. This category brings into our typology of goods an entire and large class of situations that international cooperation can potentially address.⁸

The upper right-hand corner contains club goods. This class of goods often gives rise to confusion because the production of club goods involves both inclusion and exclusion. Thus physical excludability must be possible and must be exercised, because much of the benefit to club members lies in doing so (unlike coordination goods). Yet exclusion must also be incompletely exercised, because clubs require members and nonmembers. Moreover, rivalry clearly exists between members and nonmembers, and while it normally does not exist among members, congestion can give rise to it. Thus definitions of club goods often refer to them as "impure public goods." Pearce (1983: 67) uses that expression, as we did earlier, to mean that only one of the conditions for a public good holds; he says that a club good is excludable but non-rival. He does go on, however, to note somewhat confusingly that the boundaries are drawn so as to avoid congestion and therefore rivalry. Ward (1991: 1-2), building on Buchanan (1965) plunges further and defines a club good as one that exhibits a "degree of excludability" and "partial rivalry" (making it even more difficult to place club goods in Table 1).

The key characteristics of club goods therefore seem to relate less clearly to the nature of the good consumed (Table 1) than they do to that of the good produced (Table 2). Can it be produced by a single individual? No, not at least by any single club member or there would be no basis for a club. Can the benefit be restricted to members of the club? Yes. The central problem of club theory is, in fact, calculating the optimal size of the club (Pearce, 1983: 67).

If one moves attention away from this initially central problem, assumes club membership to be determined and fixed, and examines ongoing cooperation wholly within the club, then the problems of cooperation become other kinds: (1) those of the ongoing production of pure public goods, namely free-riding and underprovision (consider cost-sharing within NATO) or (2) those of the consumption of common property resources, such as congestion and overconsumption (consider trade imbalances within GATT or other trade organizations).

Another complication for some organizations that wish to be clubs, such as cartels, is the difficulty of actually restricting the benefits to club members. Thus the oil cartel, as much as it wants to acts as a club and focus attention on the internal issues of assuring contribution to the production of a public good, finds that it cannot restrict the public good to its members (Mexico, Norway, or Britain may free ride). In reality most cartels produce a public good rather than a club good and we should look for their problems in the lower right-hand quadrant of Table 2.

The typology of international goods and issues in Tables 1 and 2 is far from perfect. Some difficulties of classification remain (such as the position of cartels). Yet as noted earlier, if issue classifications are to be useful, the first requirement is that they be reasonably comprehensive

⁸ We might have begun our consideration of types of international issues that create pressure for international cooperation by dividing them into three seemingly exhaustive categories: "domestic" actions of governments that give rise to externalities affecting other countries (including population growth and environmental policies); international consumption (such as the use of the high seas); and international exchange (such as trade). Adding the lower left-hand cell of Table 2 to our typology allows us to see all three of those categories scattered throughout Tables 1 and 2. Soroos (1988: 2) similarly suggests that "most global policy problems fall into one of three categories": transboundary, international commons, and internal (common to many states). His third category is actually one of comparative (not international) public policy and this typology does not incorporate it.

and transparent. This typology makes progress in meeting that requirement. The second is that the typology serve as the basis for some insights into cooperative potential. We will maintain attention to that requirement in subsequent sections.

2.4 Tying Game Theory to Issue Analysis

Another literature that attempts to map the issue environment of world politics is game theory. Game theory maps varieties of interaction situations in which the stakes of two or more actors are very well (in fact, numerically) defined, and then it explores the strategies that the actors (players) can and often will adopt. Thus game theory offers the promise of linking several elements in our analysis: issue character, actor configuration, and strategies/tactics.

In reality that promise of game theory runs aground on the shoals of assumptions that make it manageable, particular the characteristic limitation of it to two-actor games in which the actors have symmetrical preferences and implicitly symmetrical power. Thus game theory can tell us relatively little about the implications of variable actor configuration for cooperation. It can, however, add considerable richness to an analysis of issue type and cooperation.

Rapoport and Guyer (1966) identify 78 different 2-by-2 games. Most of the literature on game theory focuses on a small subset of those possibilities. Hamburger (1979) does an excellent job of illustrating the most common games.⁹ Oye (1986) not only provides a clear overview of selected game types, but ties them explicitly to a discussion of international cooperation.

Specifically, Oye describes five principal games: Harmony, Deadlock, Prisoners' Dilemma, Stag Hunt, and Chicken. Harmony and Deadlock are generally least interesting because they lead very automatically to either cooperation or conflict.¹⁰ In the case of harmony, each actor prefers to cooperate regardless of what the other actor does (as when both believe in free trade even when foreign markets are closed to them) and this leads to mutual cooperation (CC) without any serious thought; in the case of deadlock, each actor prefers not to cooperate (to defect), regardless of the other's behavior (as when two elites prefer an arms race in order to keep them in power domestically) and this leads inevitably to mutual defection (DD).

In Chicken, the costs of mutual defection are so great (as when both cars driving in the middle of the road continue straight into one another or when both superpowers threaten to launch nuclear strikes) that there is considerable pressure for cooperation. The preference ranking of outcomes is $DC > CC > CD > DD$. The game becomes very interesting because each player prefers DC (I defect, you cooperate) to any other outcome including mutual cooperation and so it is not clear whether there will be a "winner" and, if so, which actor will win.

In Stag Hunt, there is most benefit in mutual cooperation, but each player can also do well by defecting ($CC > DC > CD$ or DD) and fears that the other player will defect first. As in building a oil consumer's cartel to break the pricing power of oil producers, there is good potential for successful cooperation, but a real danger that France or some other country will strike its own deal with producers.

⁹ For a more technical review of game theory, see Schotter and Schwödiauer (1980).

¹⁰ Keohane (1988) explicitly distances cooperation from situations of either harmony or discord.

The best-known game is Prisoners' Dilemma ($DC > CC > DD > CD$). Each player individually prefers defection to cooperation, regardless of the other player's choice. For instance, unlike in Chicken, players prefer mutual defection to being the sucker (I cooperate, you defect) and this means the incentives to defect are very great. Yet unlike the game of Deadlock, the players both prefer mutual cooperation to mutual defection, so a basis for cooperation does exist.

Scholars of international politics often see issues as Prisoners' Dilemmas. They see the game in arms races, where each side prefers an advantage, fears being the sucker above all else, but still prefers mutual cooperation to continued arms races (unless, as noted earlier, they gain domestic advantage from the arms race and convert the game to Deadlock). Analysts also see the game in trade relations, where each side prefers unequal access to the other's markets, fears most being the only open market, and still prefers mutual cooperation to trade wars (unless, as some true free-traders do, both sides see no danger in unequal market access and convert the game to Harmony). And analysts recognize the game in environment issues, where each actor prefers that only others clean up their act, fears being the only one to pay for global environmental progress, but still prefers mutual cooperation to environmental destruction.

Ostrom (1990) indicates the importance the Prisoners' Dilemma has had for students of both games and collective action when she notes that already by 1975 scholars had written more than 2000 papers on the game (Ostrom, 1990: 5). Many authors who quantitatively treat public goods and problems of collective action have focused most of their attention on the Prisoners' Dilemma. Hardin (1982) does so in an extensive treatment of collective action.

Although game theory does begin to link the issue context (and to a much lesser degree the actor configuration) with cooperation potential, it does so with its own typology of issue contexts (the payoff structures of the games). We have already noted the difficulty that game theorists often have in characterizing a specific real-world issue as a particular game; analysts frequently fall back on the Prisoners' Dilemma, in part because it is best known. Snidal (1985b) reminds us, however, that the Prisoners' Dilemma by no means fits all problems of collective action and cooperation. He draws our attention, in particular, to the game of Coordination, where the players generally prefer to cooperate rather than to defect, but may not automatically reach mutual cooperation. On what kinds of real-world issues are we most likely to see Prisoners' Dilemma, Deadlock, Harmony, Chicken, Stag Hunt, or Coordination?

Hughes (1991) suggested that we might want to investigate further the links between two approaches to categorizing international issues: game theory and the nature of international goods. To do so, we can return to the two matrices of types of goods (Tables 1 and 2) and consider the linkages between cells in that matrix and game types. Tables 3 and 4 make a preliminary effort to do so.

[Tables 3 and 4 about here]

Interaction with respect to private goods (the upper left-hand cell of Table 3) is very often a Zero-sum game. What one party gains in distribution or redistribution of territory is equivalent to the losses of other parties. In sharp contrast, the consumption of pure public goods is fundamentally a situation of Harmony - no actor much cares what another actor does. If the consumption of pure public goods does give rise to negative externalities (as the decision to acquire knowledge of nuclear weapons production would), it creates linkages to other issues and other types of games (perhaps even to Deadlock).

The Coordination game is not surprisingly common with respect to coordination goods. If there is no battle over technical standards (as when additional actors join an existing electronic network like BITNET), then the game can be Harmony.

Table 3 International Goods Consumption and Typical Games		
Rivalry		
Physical Excludability	Yes	No
Yes	EXISTING PRIVATE GOODS Zero-sum games	COORDINATION GOODS Harmony Coordination
No	COMMON PROPERTY RESOURCES Prisoners' Dilemma Chicken	EXISTING PUBLIC GOODS Harmony

Table 4 International Goods Provision and Typical Games		
Self-Provision Feasible		
Benefits Private (To State or Club)	Yes	No
Yes	NEW PRIVATE GOODS Zero-sum	CLUB GOODS Harmony (Establish Club) Prisoners' Dilemma (Inside Club)
No	TRANSBOUNDARY ISSUES Harmony when benefits of private action > cost Deadlock when costs of private action > benefit (Cooperation only via linkage to other issues)	NEW PUBLIC GOODS Prisoners' Dilemma

With respect to common property resources, many authors have noted that these are often Prisoners' Dilemmas. Consider, for instance, the battle of countries over whale exploitations. Each country would ideally prefer to be the only whaling power (DC). Yet it will be reasonably satisfied with mutual agreement to restrict whaling (CC), which it will generally prefer to unbridled competition by all and the substantial reduction of whale stocks (DD). The worst situation for most countries would be the sucker payoff, restricting its own whaling while others continue (CD). However, if a country perceives the whale stock as so endangered that extinction is a possibility, it might decide that the sucker payoff (CD) is preferable to unbridled competition (DD). In this case the game will move from Prisoners' Dilemma (DC>CC>DD>CD) to Chicken (DC>CC>CD>DD).

Turning to the provision of goods in Table 4, private goods are again largely Zero-sum. Pure public goods games, however, move from those of Harmony (the good already exists and we need only take it in infinite amounts) to those of Prisoners' Dilemma (each actor prefers to free ride, if possible).

Transboundary goods (or bads) create situations of either Harmony or Deadlock. They are Harmony when the private benefits for each actor of providing goods with positive externalities, or of ceasing to provide goods with negative externalities, exceed the private cost. They are Deadlock in the inverse situation. In situations of Harmony cooperative interaction is unnecessary; in those of Deadlock cooperative interaction will require the linkage of the issue to some other interaction (sidepayments).

Club goods call forth games of Harmony with respect to the establishment of the club. It is the cooperative preferences of members that bring them into the club. As we noted earlier, however, once the club exists, the games that occur within it can be quite different. For a club faced with the provision internally of public goods, the game becomes Prisoners' Dilemma.

We can see from Tables 3 and 4 that those who see a large number of Prisoners' Dilemmas in international interaction have a basis for doing so. We also see, however, that it is far from the only game of importance. This attempt to link goods types with common game forms is, moreover, very preliminary and sketchy. A further exploration of the nature of games that can occur with respect to each type of good would almost certainly find even more possibilities.

The purpose of this discussion has only been to indicate the potential payoff of a more systematic consideration of the nature of international issues. We turn now to a topic that many readers might consider long overdue. What do we actually mean by cooperation? It is about time that we considered our "dependent" variable.

3 What is Cooperation?

To this point we have avoided the difficult task of defining what we mean by cooperation. In an obviously state-centric definition, Keohane (1984: 51-52) says that cooperation

requires that the actions of separate individuals or organizations - which are not in pre-existent harmony - be brought into conformity with one another through a process of negotiation, which is often referred to as 'policy coordination.' ... To summarize more formally, *intergovernmental cooperation takes place when the policies actually followed by one government are regarded by its partners as facilitating realization of their own objectives, as the result of policy coordination.*

There is utility, however, in going beyond a general definition and trying to say more about cooperation. Specifically, are there types or categories of cooperation? Soroos (1988b: 10) suggests that global policies consist of either regulations or programs, and that regulations in turn are either prohibitions (the test-ban treaty), limits (fishery quotas), obligations (reporting disease outbreaks to WHO), standards (segregated ballast tanks on oil tankers) and privileges (geostationary orbit locations). Looking at society more generally, and not just at world politics, Elster (1989: 11-15) proposes five main varieties of cooperation: externalities (cleaning up emissions that cause acid rain), helping (foreign aid), convention equilibria (respecting territorial limits on the oceans), joint ventures (French and British building of the Concorde), and private orderings (bilateral exchange such as international trade).

These lists appear somewhat unrelated to each other or to other literature. It appears possible, however, to tie them to each other and to Lowi's list of governmental activities (international cooperation is essentially international governance). International regulation includes the monitoring, restriction, prohibition, promotion, and/or coordination of state practices (including practices that produce externalities for other states). International distribution includes the assignment of property rights (such as those to orbital positions) and the maintenance of collective ones (consider the law of the sea). It would also include the allocation of benefits from joint ventures and exchanges (the decision to trade is based on harmony of interests; as Keohane suggests, it is the division of the mutual gain that is a subject for cooperation). International redistribution includes aid and other transfers, and the reassignment of existing property rights (as accomplished by the Berlin Conference on Africa).¹¹

Since they have made relatively little progress in elaborating typologies of cooperation, it is hardly surprising that literatures of cooperation have not gone on to link those typologies back to issue type and actor involvement. Tables 5 and 6 suggest that it may be possible to make such linkages.

[Tables 5 and 6 about here]

For instance, the consumption of private goods calls forth agreements on distribution and sometimes on redistribution of that which is to be consumed. Subsequent cooperative agreements could adjust those divisions. Issues of common property resources require agreements on regulation. Moreover, that regulation generally takes the forms of "Don'ts." For instance, thou

¹¹ In all cases, but particularly with respect to regulatory cooperation, it is necessary to have in place some compliance mechanisms. Chayes and Chayes (1991) argue that in the absence of coercive mechanisms it is important to develop transparency (visibility and assessability of compliance) and accountability (mechanisms for other actors to demand compliance).

Table 5
International Goods Consumption,
Typical Games, and Forms/Types of Cooperation

Rivalry		
Physical Excludability	Yes	No
Yes	EXISTING PRIVATE GOODS Zero-sum games Distribution Redistribution	COORDINATION GOODS Harmony Coordination Regulation ("Do's") Monitor, Promote, Facilitate
No	COMMON PROPERTY RESOURCES Prisoners' Dilemma Chicken Regulation ("Don'ts") Prohibition, Restriction, Limited Privileges, Legal Privatization	EXISTING PUBLIC GOODS Harmony None Needed

Table 6
International Goods Provision,
Typical Games, and Forms/Types of Cooperation

Self-Provision Feasible		
Benefits Private (To State or Club)	Yes	No
Yes	<p>NEW PRIVATE GOODS</p> <p>Zero-sum</p> <p>Distribution Redistribution Regulation (define property rights)</p>	<p>CLUB GOODS</p> <p>Harmony (Establish Club) Prisoners' Dilemma (Inside Club)</p> <p>Regulations ("Do's" and "Don'ts")</p>
No	<p>TRANSBOUNDARY ISSUES</p> <p>Harmony when benefits of private action > cost Deadlock when costs of private action > benefit</p> <p>None needed or none possible within single issue</p>	<p>NEW PUBLIC GOODS</p> <p>Prisoners' Dilemma</p> <p>Regulation ("Do's") Monitor, promote</p>

shalt not dump CFCs in the atmosphere nor kill humpback whales. The distinction we made earlier between legal and physical excludability suggests another kind of regulation possible for common property resources: privatization. That form of regulation effectively converts a common property resource into a new private good (like EEZs).

Cooperation on coordination goods also generally involves regulation, but it is more likely to take the form of "Do's." An international agreement on high density TV might require all parties to use a digital form and to share selected technological information. Finally, because consumption of pure public goods involves neither rivalry nor excludability and gives rise directly only to games of harmony, no cooperation is generally needed (although externalities from consumption could lead to the need for some).

Cooperation on the production of various types of international goods is not completely parallel to that on consumption. While some types of private goods may again require agreements on distribution or redistribution, others might call forth cooperation on defining property rights in abstract areas such as intellectual property. Transboundary issues involving games of harmony will require no cooperation, and when the game is deadlock none will be possible (at least without linkages across issues). Club goods call for a complex mixture of prohibitions and promotions. The production of public goods requires primarily cooperation to encourage or facilitate behavior.

Tables 5 and 6 suggest that fundamental issue characteristics influence the forms of cooperation possible and that we may be able to draw some broader generalizations. Consider, for instance, the importance of whether or not the good at stake exhibits excludability. If it does, then it is at least potentially a private good and can be distributed and redistributed. If it does not (like true common property resources) then only regulation is possible.¹² What about rivalry? If two actors compete over the consumption of each unit of a good, then questions of distribution and redistribution come to the fore. But if the consumption by one does not preclude the consumption by another (such as mutual access in global telecommunications systems), then regulation is again a more common form of cooperation.

At the beinning of this paper, however, we argued that the context of cooperation has two elements, issue character and actor configuration. It is time to turn to the second element of that context.

¹² The focus of Soroos (1988b) on common property resources helps explain the predominant attention he gives regulation.

4 How Does Actor Configuration and Involvement Affect Cooperation?

How does the configuration of actors affect the prospects for cooperation? Most of the literature on issues either explicitly or implicitly assumes that states are the critical actors with respect to global cooperation. This review begins with states, but moves then to discussions of nongovernmental actors.

4.1 States

The literature on the cooperation of states almost invariably assumes rational, self-interested behavior on the part of those states. That is, it builds on the realist paradigm.¹³ One reason that the assumption of rational utility-seeking states does not carry analysts as far as one might expect is the existence of a major debate over the goals of states (Grieco, 1988, 1990; Young, 1989: 209-213). One school, including many traditional realists and neorealists, argues that states are "status maximizers" or "defensive positionalists." That is, they seek to achieve outcomes of interactions that position themselves well *relative* to other states. The other school, including neoliberals or liberal institutionalists, argues that states are "utility maximizers" or "rational egoists." This means that they seek to achieve outcomes that absolutely improve their own situation, even when the outcomes may benefit other states relatively more. Status-maximizing states will logically forego many opportunities for cooperation that utility-maximizing states would seize.

Thus neoliberals have carried state-centric analysis of cooperation further than have realists (too far, many realists would argue). Two primary propositions emerge, largely from the neoliberal efforts. First, as the number of actors increases, the potential for cooperation decreases (Olson, 1965).

There are at least three important channels of influence. First, cooperation requires recognition of opportunities for the advancement of mutual interests, as well as policy coordination once these opportunities have been identified. As the number of players increases, transactions and information costs rise.... Second, as the number of players increases, the likelihood of autonomous defection and of recognition and control problems increases... Third, as the number of players increases, the feasibility of sanctioning defectors diminishes. (Oye, 1986: 19)

This first proposition appears to be advanced largely without consideration of issue type, although it might logically be that cooperation on some types of goods (say private goods) is easier within a small set of actors, while a larger set actually facilitates cooperation on common property resources. A larger set might facilitate institutional bargaining on legal exclusion because the winners and losers are less clear to many actors with legal exclusion than with physical exclusion. Consider, for instance, whether a handful of great powers could have established law of the sea as "easily" as did the larger international community.

¹³ Since realists cannot agree on (in fact, argue intensely about) whether bipolar or multipolar systems are more war-prone, it is perhaps not surprising that this approach has yielded limited widely-accepted insights into actor configuration and cooperation.

Grieco (1990: 228) argues that realist logic actually leads to the contrary hypothesis that larger numbers of states facilitate cooperation.¹⁴ As numbers increase, the possibilities improve for a state that relative gains with respect to some partners will offset relative losses with respect to others.

Second, the existence of one or more relatively very large actors can improve the potential for cooperation.¹⁵ The theory of privileged groups suggests that a subset of a group may have individual incentives to produce a public good (the benefits to them may be greater than their costs) and therefore do it even in the face of free riders. There has been much attention to international cooperation on issues in which a single large country acts as leader or hegemon and unilaterally provides a public good.

This second proposition explicitly links the issue type (public goods) with the actor configuration (hegemony). Snidal (1985b) emphasizes, however, that the proponents of hegemonic good provision often incorrectly assume, in looking for instances of it, that public goods are at issue. When coordination goods are involved the role of the hegemon may be different. Specifically, the asymmetrical power distribution characterizing hegemony might substantially facilitate cooperation on public goods, but might only slightly aid cooperation on coordination goods (Snidal, 1985b: 937), because it will favor the larger states who benefit from the adoption of the standards they prefer.

It is interesting to note that a considerable amount of the literature on hegemons or leaders focuses on their role in organizing the provision of what we here identify as the set of club goods plus cartels. Scholars have investigated the leadership of hegemons in areas of free trade (the UK in the the global system of the 19th century), in military alliances (the U.S. in NATO), and cartels (Saudi Arabia in OPEC).¹⁶ It appears from earlier discussion that club goods require a complex mixture of encouraging and discouraging regulation (and, of course, allow also the option of exclusion from the club). It may be this combination of potential forms of cooperation that allows hegemons to play especially important roles in club goods - they may be able to unilaterally structure complex bargains of general acceptability to the club members and simultaneously wield the power to enforce them. The common explanation of why benevolent hegemons or leaders are useful is that they voluntarily pay the bulk of the costs of cooperation in certain issue areas. While that could be true in the cases of both club goods and new public goods, because both issues involving the production of international goods that no single actor can provide themselves, a hegemon is more likely to be overwhelmed by the free riders in a non-restricted set of countries than in a club.¹⁷

¹⁴ Snidal (1991) not only agrees with this but concludes that it means that multipolarity *is* preferable to bipolarity (in contrast to Waltz's linking of relative gains logic to greater stability in bipolarity).

¹⁵ Olson (1965) led the way here by suggesting relationships between the size of the group and the distribution of capabilities within the group, on the one hand, and the likelihood of cooperation, on the other. Hardin (1982: 38-49) refined those insights and drew our attention to the possibility that a group wanting a public good is privileged. That is the case whenever there is a subgroup of size k (a k -group) the members of which individually have the incentive to produce the public good (their individual benefits exceed costs even if all other group members ride free). When the k -group has a size of one, a leader or hegemon can provide the public good.

¹⁶ See Kindleberger (1973), Olson and Zeckhauser (1968), and Moran (1982), respectively.

¹⁷ Snidal (1985: 614) also points out that the potential for hegemony to be useful to the broader community (and not simply the hegemon) will vary by the properties of the issue area and may be considerably more restricted than proponents of the theory claim.

Further, issues in which distribution or redistribution are potential cooperative forms might preclude hegemonic roles because the hegemon would be tempted to appropriate the benefits of such action for itself; benevolent hegemons are unlikely on issues of private goods (Britain's global leadership on trade in the nineteenth century was accepted more easily than its imperial policy). Similarly, although a domineering hegemon might operate effectively on issues that require more negative forms of regulation (like prohibiting whaling), the odds are that a more benevolent leader would be forced to submit the issues to broader multilateral decision forums. This reasoning may explain why Garrett Hardin (1968), after describing the Prisoners' Dilemma situation of humans interacting on environmental issues as a "Tragedy of the Commons," went on to offer what we might call the "Leviathan" prescription to the problem. He argued that only substantial collective coercion offers a way out of the dilemma (see also Ophuls, 1977).

Overall, this brief discussion of the configuration of states suggests the utility of a more systematic examination of the interaction of issue context, actor configuration, and the potential for cooperation.

4.2 Non-state Actors and Perspectives

Other writing on cooperation suggests that an almost exclusive emphasis on states and their interaction, whether the basis for study be realism, neorealism, or neoliberal institutionalism, is misplaced. Instead, authors suggest, we should move inside states to a micro level or, more often, above states to a general systemic perspective that portrays states as only one element of the global system.

In his review of two works very important to the cooperation literature, Keohane's *After Hegemony* and Oye's *Cooperation under Anarchy*, Rosenau (1986: 851) argued that "the two volumes taken together amount to the best of 'bad theory.'" By this he meant that the two books have greatly advanced theorizing about cooperation, but that they draw on a fundamentally limited state-centric framework. Rosenau (1986 and 1990) goes on to argue that understanding world politics generally (and therefore cooperation specifically) requires that we consider the interaction of variables and actors at two levels, macro and micro. At the macro level, we can describe a state-centric world. At the micro level exists a "multi-centric world" in which individuals, groups, and international organizations create a very different world politics. Rosenau argues that the interaction of the macro and micro levels increasingly shapes world politics.

Attention to the impact of domestic politics and actors on international politics is one part of an effort to link micro and macro levels. Rosenau has been very active in looking at such linkage politics (1969). More generally, most of the literature on decision-making draws our attention to that linkage. Models of decision-making (e.g. those of Allison, 1969) have long helped us in examining the influence of internal actors on the behavior of states. Putnam's (1988) two-level model of decision-making specifically links state behavior to the groups in their domestic environment. Decision-making models have also sensitized us to considering how that interaction varies across issues or situations. For instance, we know, that decision-making (and the relative importance of the top decision-makers of the state and the broader public) differs in crises from that prevailing when more time, less surprise, and less threat exist (Hermann, 1969). Hughes (1978) explored the linkage between decision-making character, on one hand, and both the economic and security significance of issues and the time available, on the other.

Moving to nonstate actors that function across the boundaries of states, the emphasis on multiple international or transnational actors has deep roots. For example, Keohane and Nye (1971) edited a collection of articles that advanced the proposition that nongovernmental organizations (NGOs) play increasingly important roles in world politics. A substantial literature on transnationalism or globalism exists to challenge state-centric or realist thought (Maghroori and Ramberg, 1982). Keohane and Nye (1977) went on to describe their own understanding of the interaction of macro and micro levels in *Power and Interdependence* and to label that interaction "complex interdependence." Whereas state-centric theorizing has an attractive tidiness about it, due to fairly narrow assumptions about the preferences of a limited number of actors, transnationalism leads to messy theory - often only unconnected snippets of understanding.

The fundamental proposition about cooperation that one might take away from this literature is that nonstate actors increasingly constrain and even shape the behavior of states, especially on nonsecurity issues. Although it does not automatically follow, a secondary and generally implicit proposition of most studies is that an increased role for nonstate actors increases cooperation levels. In order to investigate these propositions further, however, we might productively take two steps. First, we could examine the types of issues on which NGOs really are active and have an apparent influence on interstate behavior. Second, we could study the nature of that influence in more detail.

For help with the first step we can productively reconsider what Lowi (1964) said about the relationship between issue types and domestic decision-making. After identifying distributive, regulatory, and redistributive politics, he went on to link these three arenas of politics to the type of decision-making that often characterizes them: "Each arena tends to develop its own characteristic political structure, political process, elites, and group relations" (Lowi, 1964: 689-90). In distributive politics nearly everyone can get a piece of the pie and nonconflicting elites help their support groups do so. In regulative politics, there are generally clear winners and losers; thus groups struggle in a pluralistic process to be the former. In redistributive politics, the battle tends to be pitched between intensely competing elites who seek to dominate the political structures in order to pursue their agendas.

An impressionistic survey of the case-study literature on cooperation suggests that NGOs tend to be most active and influential on three categories of the issues mapped in this paper. The first is common property resource issues, an issue type we categorized earlier as being one that calls forth largely proscriptive regulation. As Lowi suggested, regulative issues create a highly pluralistic decision environment.

Consider, for instance, the issue area of the environment, which gives rise to many issues of common property resources. In this issue area NGOs are very often proponents of action, perhaps because states find it especially difficult to impose restrictive regulations on themselves and NGOs view the failure to do so as imposing various costs on them. Caldwell (1990) has given us a masterful and detailed analysis of *International Environmental Policy*. He notes:

Salient features of the international environmental movement have been openness, diversity, complexity, dynamism, and purposiveness. No other international movement - world peace included - engages so large a number of individual participants, so many and such diverse forms of cooperative effort, so broad a range of human skills and interests, and such complex interrelationships among governmental and nongovernmental organizations. For persons not accustomed to organizational complexity, the matrix of interactive relationships that shape international environmental policy could indeed be incomprehensible. (Caldwell, 1990: 311-12)

Caldwell heavily emphasizes the role of NGOs. He distinguishes three types (Caldwell, 1990: 111-112): "restricted membership organizations with essentially scientific or professional interests, ... institutes and centers for purposes of information, education, and consultation, ... [and] activist advocacy organizations with generally open memberships." Elsewhere in discussing NGO activities, he notes that they frequently lobby on behalf of selected proposals (and sometimes take direct action in support of them) and they then generally monitor the implementation of agreements and the performance of states (Caldwell, 1987). Porter and Brown (1991: 60) present a complementary list of the ways in which NGOs influence cooperation: "by lobbying or pressuring their own government on the issue, by publicizing information of strategic importance on the issue, or by lobbying at international conferences."¹⁸ Michael Haas (1989) details the role of a specific kind of informal social group, the epistemic community, documenting the importance of controlling and contributing expertise.

A second issue type in which NGOs are active is coordination goods, where they often serve as technical advisors rather than as advocates. And the third area of active involvement is transboundary issues. On those issues states periodically find themselves in Deadlock. That might create something of a vacuum into which NGOs have moved, whether the issue be protection of rain forests or acid rain. Tables 5 and 6 indicated that all three of these issue areas are characterized by potentially regulative cooperation.

Many of the same studies of environmental issues also draw our attention to the importance of intergovernmental organizations (IGOs). Caldwell (1990: 71-83) traces the origins, increasing role, and strategies of the United Nations Environmental Programme (UNEP). The Haas (1989) study of epistemic communities similarly emphasizes the importance of the UNEP. Rich (1990) outlines and critiques the environmental activities of the World Bank. Porter and Brown (1991: 47) formulate a listing of the ways in which IGOs can influence environmental politics: shaping the agenda, influencing the conduct of negotiations, presenting normative codes of conduct, sponsoring programs, and pressuring member states.

Another impressionist survey of the case study literature suggests that international organizations are most likely to be active in the issue categories of common property resources (including environmental issues) and of coordination goods. The latter category actually called forth some of the very first and arguably most effective IOs, such as the Universal Postal Union (its predecessor dates back to 1874), the International Telecommunications Union (which succeeded the International Telegraph Union in 1932), the World Meteorological Organization (1947), and the World Health Organization (1949).

This discussion of non-state actors reinforces the conclusion of our consideration of states: it appears productive to look further at the interaction of issue character and actor configuration in the production of cooperation. Tables 7 and 8 summarize these preliminary observations.

[Tables 7 and 8 about here]

4.3 Complex Structures

Case studies on NGOs and IGOs provide necessary background information; and through their periodic development of lists of actor types and activities, they begin to build the founda-

¹⁸ In a discussion of human rights, Eide (1986) lists four functions of NGOs: the promotion of norms or elaboration of rights; education and consciousness raising; the gathering and dissemination of facts; and public criticism or lobbying.

Table 7 International Goods Consumption and Actors that Facilitate Cooperation		
Rivalry		
Physical Excludability	Yes	No
Yes	EXISTING PRIVATE GOODS States	COORDINATION GOODS IGOs; also NGOs
No	COMMON PROPERTY RESOURCES NGOs; also IGOs	EXISTING PUBLIC GOODS None Needed

Table 8 International Goods Provision and Actors that Facilitate Cooperation		
Self-Provision Feasible		
Benefits Private (To State or Club)	Yes	No
Yes	NEW PRIVATE GOODS States; sometimes NGOs and IGOs	CLUB GOODS Hegemons especially useful
No	TRANSBOUNDARY ISSUES NGOs	NEW PUBLIC GOODS Hegemons sometimes useful; also IGOs, NGOs

tion for a more general understanding of the interaction of states, NGOs, and IOs in formulating international public policy. In general, however, they also lead us to cry out for more generalization and for more synthesis. How can we better assess the relative importance of the various actors or better describe their interactions? What differences are there across issues or time? In short, after pulling the politics of cooperation apart and looking at its component actors and issues, we need then to return to the whole.

Two primary literatures help us move towards synthesis. The first is the study of regimes. Krasner (1983b: 1) provided the most frequently used definition: "International regimes are defined as principles, norms, rules, and decision-making procedures around which actor expectations converge in a given issue-area." This definition is encompassing. It conjures up visions of a variety of actors (potentially including states, domestic actors, and transnational nonstate actors) coming together within frameworks of either formal structures (institutionalized, such as IGOs, or non-institutionalized, like codified international law) or within less formal interaction patterns to undertake unspecified (or perhaps no) action in any potential issue arena.

Because the definition of regime is so encompassing, the study of regimes has brought together the students of foreign policy, interstate politics, international law, international organization, political economy, and other subelements of world politics. The fervent dialogues that the mix has engendered have significantly helped us advance the study of global governance and international cooperation.

That same openness, however, has made it very difficult to systematically pursue the most important question that we can pose about regimes: to what degree and under what circumstances do they increase cooperation?¹⁹ The imprecision of the concept (the most important of Strange's criticisms, 1983) has allowed those who believe regimes to be forces in their own right within world politics to share a home with those who see regimes as little more than intervening variables between state action and world politics.

Regime theorists recognize the necessity of answering that central question. In a variety of conferences and studies, they have attempted to develop approaches for addressing it. Proposals for data banks on regimes even call up analogies with what students of conflict have done for several decades. The first step is almost certainly more careful definition of regime, so that we can recognize one when we see it and perhaps even begin to distinguish types of regimes and variable strength of regimes. The primary debate seems to be between those who identify regimes in terms of objective, measurable aspects of their structure (for instance, legal and institutional foundations) and those who look for the existence of regimes in their behavior (thereby risking tautology in analysis of regime impact).

The second step will be to identify the kinds of impacts regimes might have (the dependent variables of regime influence). Following traditional levels-of-analysis approaches, Zürn (1991) suggests dividing those impacts into three categories: the issue area as a whole, governments within the regime, and the domestic or societal level. At each level of analysis he further suggests attention to behavior, capabilities, cognitions, values and interests, and constitution.

¹⁹ Surprisingly, the literature focuses more attention on the dynamics of regime formation than on their consequences; Young (1989b: 206-7) also comments on this anomaly. The important review of regime literature by Haggard and Simmons (1987) devotes fifteen pages to discussion of regime change and only two pages to the questions of whether regimes matter.

Third and most difficult will be to develop the capability of comparing world politics with and without regimes. That is unfortunately an almost impossible task in a world of limited cases. Nonetheless some scholars have pushed ahead, generally with issue-area specific case studies. Young's (1989b) study of regimes for natural resources and the environment is among the most successful; he concludes that regimes do become important actors in their own right.

Regime theorists restrict their focus largely to single issue areas (even single issues in many cases) and have given limited attention to situations in which interaction encompasses many issues. One exception is Keohane. He explicitly argued that "increased issue density will lead to increased demand for international regimes" and presumably increased cooperation (Keohane, 1982: 170). Keohane and Nye's (1977) "complex interdependence" is a concept that helps us understand how cooperation can increase in multiple regime environments, as does Deutsch's (1957) "security community." In fact, we may need to look to the integration literature to pursue the study of cooperation in structures that are more complex than one-issue regimes.

A second and logically overlapping²⁰ literature of structural synthesis comes from what Keohane (1988) calls the "reflective" school²¹ and Haggard and Simmons (1987) call "cognitive" theories. Keohane juxtaposes this tradition with the "rationalist." Rationalists begin with definitions of actors (many look only at states, but others consider NGOs and IOs) and with assumptions about the values and goals of those actors. They then consider the manner in which interactions will develop and cooperation may or may not emerge. Those in the reflective school look behind specific actors to a deeper context for interactions - patterns of cultural practices, norms, values, ideologies, and understandings.

There can be no doubt that this deeper context has fundamental implications for the extent and character of cooperation. Ruggie (1983) provided one of the clearest examples with his discussion of "embedded liberalism" in the contemporary trade system. We have already seen how actors can variously view trade issues as games varying from prisoners' dilemma and harmony. Why then, have many states in the post-World War II period seen themselves to have an interest in free trade, even when other states pursue mercantilist policies? Although one can root an answer to that question in an analysis of the self-interest of those states, like the United States and the United Kingdom, that support free trade, Goldstein (1988, 1989) suggests that the influence of the idea of liberalism on policy may well have outlived any domestic analysis of self-interest based on free markets. And as Ruggie (1983: 198) points out, had the Germans won World War II, they would probably have instituted a totally different world economic order (as would have the Soviets following a victory in the Cold War). Norms, values, and understandings may be more important in explaining the "trade game" than numbers or relative power of actors.

The concept of international orders could provide one of the needed bridges between the rationalist and reflective schools. Rationalists generally understand orders to be the products of

²⁰ Given the attention in definitions of regimes to norms, values, and practices, the reflective school is logically a part of the study of regimes. In reality most regime literature has been state-centric and rationalist, thus helping keep the reflective literature "in exile" (Ashley and Walker, 1990). The study by Garrett and Weingast (1991) of the European Community provides one example of how to combine analysis of ideas and interests.

²¹ Although it seems inappropriate to adopt a label assigned to this school by someone consciously outside of it, there is little choice. In a special issue of the *International Studies Quarterly* (September 1990), "reflective" authors more commonly referred to themselves as dissidents than by any other term. Many other possible labels, such as critical or post-positivist similarly and unfortunately emphasize what the approach is not, rather than what it is.

hegemons, who establish patterns of behavior that transcend narrower regimes. Those within critical approaches often seek to uncover (and expose) the character of those orders and the way in which they pervade (and distort) international behavior.

Most study of international regimes and cooperation remains in the rationalist school, in spite of the importance of the arguments from the reflective school (Kratochwil and Ruggie 1986). Many in the rationalist school view norms and values as little more than reflections of fundamental state interest (Krasner, 1983). Two primary research programs seek, however, to further the agenda of the reflective school. The first studies language as the carrier of norms, values, and understandings (e.g. Alker, 1988, and Ashley, 1984). This approach sometimes adopts the label "interpretive." The second looks to collective learning (Haas 1990). We will return to the issue of learning when we consider the dynamics of cooperation.

Before moving to the next section it is useful to note that we have now touched on fundamental paradigmatic disputes that pervade the discussion of cooperation. They divide the neo-realists from the neoliberal institutionalists from those in the reflective school. The first group looks for cooperation almost exclusively in the self-interested interaction of states; the second set of scholars is sensitive also to the inertia of institutional relationships and to the broader context of international relations, including a wide range of transnational actors and ideas; the third group shifts its attention almost entirely to the broader context, downplaying the importance of specific actors or even categories of actors.

5 What are the Dynamics of Cooperation?

We divide the discussion of dynamics into two components. The first is what we might call the "flow" of cooperation - the specifics of increasing or decreasing cooperation. We focus on strategies and tactics. The second is what we can call the "stock" of cooperation - the structures in which cooperation has become imbedded.

5.1 Strategies and Tactics

How do actors actually move toward cooperation? Game theorists try to identify the payoff structures of interaction situations so that they can then analyse the rational, self-interested behavior of the actors. They generally begin by looking at static, one-play interactions. For instance, single plays of the Prisoners' Dilemma very often lead to mutual defection. Since the world consists more often of repeated interactions, however, dynamic sequences prove more interesting. General strategies of actors become important in repeated play. Axelrod (1984) elaborated the Tit-for-Tat strategy (discussed below) and tested it in computer tournaments focusing on the Prisoners' Dilemma.²²

In addition, many more specific tactical behaviors that move beyond the narrow confines of the game become apparent with analysis of cooperative efforts. For example, some activities may alter the perceptions by other actors of the payoff structure. We have emphasized already that players can understand interactions on trade as games varying from Harmony to Prisoners' Dilemma. Ruggie (1985) argues, for instance, that understandings of population issues can vary dramatically with the time-horizon of the decision-maker. Thus refocusing that time-horizon can reshape an issue, like international policies on assistance to family planning programs, into a substantially different game.

The literature suggests that there are three general strategies as well as several more specific tactics. We look at each in turn.

5.1.1 Strategies

The first of three general strategies is reciprocity. The strategy of reciprocity has deep roots in folk wisdom (an eye for an eye; do unto others as you wish them to do unto you) and in our understanding of the action-reaction processes of international politics. These insights lead to the recommendation that actors normally reward cooperation with cooperation and punish defection with defection. A codification of this behavior called the Tit-for-Tat (TFT) strategy builds it into a broad strategy for encouraging cooperation from a partner in interaction. Specifically, following a TFT strategy an actor begins with a cooperative action, rewards cooperation with cooperation indefinitely, and punishes defection with defection only once. Axelrod (1984) argues that this strategy evolves naturally in many cooperative interactions and documents tests of it against other strategies in a computerized tournament (built around the prisoners' dilemma) showing it to be most successful in eliciting cooperation.

²² Repeated plays of both the Prisoners' Dilemma and Stag Hunt improve the prospect of cooperation, but may lessen it in Chicken, as each actor seeks to establish a reputation for not acquiescing (Oye, 1986: 14).

Studies of real-world interaction sometimes identify successful TFT behavior. Rhodes (1989) examined the trade relationships of the United States with Canada, Japan, and the European Community to see the degree to which the partners used reciprocity and had success with it. She found a complex mixture of strategies including the successful use of coercive noncooperative strategies. In many cases, however, she concluded that "reciprocity proved to be an effective means of enforcing a compromise settlement" (Rhodes, 1989: 298). A number of empirical analyses have focused on the political relationships among the superpowers, sometimes using events data in manners reminiscent of studies of conflict. Rajmaira and War (1990) and Goldstein (1991) review and contribute to that subliterature and although both studies identify general reciprocity, neither finds anything as simple as TFT in actual behavior.

As some of the empirical investigations suggest, the rigid requirements of the TFT strategy are very difficult to meet. Moreover, even successful application of TFT, incorporating as it does immediate retaliation for any action an actor dislikes, does not suggest a highly trusting, long-term cooperative relationship. Keohane (1989; originally 1986) distinguishes diffuse reciprocity from specific reciprocity. In contrast to the tight reciprocation of behavior that typifies the latter, in relationships of diffuse reciprocity actors sometimes fail to follow one or more defections with actions of punishment. Longer-term relationships, based in normative structures (like friendships) sometimes allow actors some latitude for defection.

In an extension of this argument, it is therefore reasonable to argue that the building of the trust that sustains such longer-term relationships may sometimes require behaving cooperatively over a period of time even when an interactive partner fails to reciprocate. At least that was the psychologically-based logic of Osgood (1962) in proposing a second general strategy for the pursuit of cooperation. He called that strategy Graduated Reciprocation in Tension reduction (GRIT). The strategy calls for a series of cooperative initiatives, clearly announced as such and in combination with calls for reciprocity. The intent is to slowly but steadily change deeply embedded images by states and their elites of each other. Osgood proposed it as a way to wind down the Cold War.

There have been several comparative tests of the TFT and GRIT strategies. In light of Osgood's desire to see his strategy tested as a way of dampening the Cold War, it is interesting that Larson (1987) considered the relative applicability of the two strategies in her study of the Austrian State Treaty (1955). She concluded that "GRIT better explains the Austrian State Treaty because departure from a strict tit-for-tat strategy of contingent concessions was required to elicit U.S. reciprocal cooperation in signing the treaty and agreeing to a summit meeting" (Larson, 1987: 29)

Goldstein and Freeman (1990) have undertaken the most extensive comparative analysis of the strategies. They used data on the relationships of the U.S., Soviet Union and China from three events data projects (COPDAB, WEIS and Ashley, 1980) to create a simulation model of the dyadic interaction of those three states. They then tested TFT and three variations of GRIT to determine which strategies might lead to prolonged cooperation. They found that TFT was the least effective (Goldstein and Freeman, 1990: 134) and that an extended variation of GRIT was the most effective.

Both TFT and GRIT have some significant limitations. First, both are essentially bilateral strategies, but large numbers of, if not most global issues involve multiple actors. Second, they assume that the actors are unitary, rational, self-interested players with a considerable amount of information about and understanding of the situations in which they find themselves, whereas studies of states prove them to be far from unitary on most issues and there often is a "veil of

uncertainty" over the full implications of many cooperative arrangements.²³ Third, although GRIT begins to recognize a broader context for the interaction, neither strategy recognizes either the importance of the structures, formal and informal, in which interaction generally occurs or the range of non-state actors that may be involved.

Although her focus is intrastate, Ostrom calls for a shift in our analysis of collective action problems to the development of institutions. Young (1989) similarly argues that approaches to understanding environmental cooperation based in realist and neorealist thought (as both specific and diffuse reciprocity are) prove inadequate. He suggests that we need instead a model of "Institutional Bargaining" (to be parallel, we will call it IB). The IB model assumes multiple actors, generally operating under the rule of unanimity and often somewhat uncertain about how agreements will affect them in the long run (as states are with respect to participation in the Bretton Woods system, the Montreal Protocol on ozone, or even NATO). He suggests that instead of doggedly pursuing individual interest, states will often seek "fair" agreements that will not return to haunt them in the future. Bargainers will often look for "salient solutions" or focal points, for instance identifying a river or other natural boundary as a way of dividing territory (Schelling, 1963).

Young further begins to describe more specific actions such as logrolling, linking issues in package deals, and the identification of salient solutions (focal points). That probing for tactics leads us to the next topic. In our subsequent discussion of cooperation dynamics, however, we will return to the issue of institutional development.

5.1.2 Tactics

The dynamic strategies of TFT, GRIT, and even IB are very general. What kinds of more specific tactics might actors actually utilize to push an interaction towards cooperation? A search takes us in part to the huge literature on negotiation and bargaining (Druckman and Hopmann, 1989). A significant part of that literature restricts itself considerably by focusing largely on "compromise," on reaching a splitting-the-difference agreement within a zone of agreement defined by the resistance points of the bargainers. Moreover, it often assumes "two rational, symmetrical, unitary individuals negotiating about a simple issue that can be treated on a single dimension" (Druckman and Hopmann, 1989: 146).

An effort to move towards a more complete theory of negotiation requires relaxation of those highly restrictive assumptions. Druckman and Hopmann (1989: 146-148) suggest that we begin by easing the rationality assumption. This means that personalities become important and that only a "bounded rationality" prevails. Psychology may become as important as game theory. Then we can relax the symmetry assumption. Almost all of social science recognizes the importance of power differences, for example, and the resulting inequity of interactions - bargaining surely should. Next we can eliminate the assumption of unitary actors and recognize within-actor bargaining processes (Putnam, 1988). In addition we can recognize that other actors are likely to be involved in the negotiation either as partners or in other roles like mediation. Finally, we can begin to recognize a still larger context, including the past relationship of the actors and the importance of other contemporary issues.

²³ Young (1989: 361) cites Buchanan on the veil of uncertainty.

Collectively, these relaxations begin to suggest a list of tactics to which we can add flesh by drawing simultaneously on other elements of the disparate literatures on cooperation.²⁴ Moreover, we can relate those tactics back to both strategies and to the context of cooperation discussed above (issue character and actor involvement). The first three tactics are issue-oriented and the remaining two are actor-oriented.

Perhaps the most basic tactic is the combination of reward and punishment (promises and threats) that is fundamental to specific reciprocity. Because actors will not always be able to bring equal amounts of power to bear, there is no certainty that the "compromise" or bargain that arises from such an interaction will be in any objective sense "fair." In some cases compromise may involve splitting the benefits of a single outcome, in other cases it may involve log-rolling, a trade of benefits across different outcomes in the same issue area (Lindberg and Scheingold, 1970: 118).

Recognizing that outcomes are interdependent over time leads us to a second tactic, manipulating the shadow of the future (Axelrod, 1984). It seeks to change the understanding of the link between current and future outcomes on the same issue. Generally it involves making future outcomes more important to current decisions (important in interactions like Prisoners' Dilemma), but it can involve delinking the present and future. Oye (1986: 12) discusses how delinking can improve cooperation potential in games of Chicken. Attention to the interdependence of cooperation across time leads actors from specific reciprocity to strategies of diffuse reciprocity and even GRIT.

Actors frequently do not, however, treat issues in isolation. An extremely common tactic is issue linkage, "attempts to gain additional bargaining leverage by making one's own behavior on a given issue contingent on others' actions toward other issues" (Keohane and Axelrod, 1986: 239).²⁵ In many instances this leads to "package deals" (Evensen 1989). Oye (1979) distinguishes two valences of linkage, "backscratching" and "blackmailing." The first offers a benefit (including side payments) and the second threatens a punishment (such as sanctions). As a corollary of this, another strategy is issue "delinkage."

Olson (1965) elaborated the by-product theory of cooperation in groups. That is, groups often hold themselves together in the production of public goods by offering some benefit on the side, a form of the issue-linkage strategy. For instance, the United Nations offers access to information, technical assistance, and a forum for discussion - these by-products may be sufficient to attract many members that it can subsequently mobilize for collective security action. "Policy entrepreneurs" often use such by-products in their efforts to organize groups for collective action.

Issue linkage can quickly move the strategic focus beyond reciprocity and GRIT to institutional bargaining. Because issue linkage is largely open-ended, outcomes become more complex and less predictable. The greater the issue density in a relationship, the less likely one is to be able to identify clear-cut patterns of reciprocity and the more likely one is likely to find that a specific instance of cooperation stems from something close to "trust" among actors.

²⁴ One unlikely source of help is the study by Lindberg and Scheingold (1970) of mechanisms for forming coalitions in the European Community. They identify four such mechanisms: functional spill-over, log-rolling and side-payments, actor socialization, and feedback.

²⁵ Grieco (1990: 228-29) argues that whereas neoliberals see benefits in issue linkages, realists would not.

Reward-punishment, extending the shadow of the future, and issue linkage are all tactics that recognize and manipulate some aspect of the issue context. Other tactics attend to the actor context. Strategies based in reciprocity and even GRIT largely accept the actor context. As we saw, for instance, game theory poses some strict assumptions on that context. Thus tactics that manipulate the actor context more often appear in institutional bargaining.²⁶

One such tactic is actor socialization (Lindberg and Scheingold, 1970: 134). Socialization focuses on changing norms and values or upon providing information (including the exchange of it). In all cases it seeks to change actors' perceptions of the game in which they find themselves - of the costs and benefits of actions and outcomes. One could label this strategy issue-oriented as easily as actor-oriented, since it effectively changes the nature of an issue.

A fifth tactic is manipulation of the actor arena. It can involve a restriction of the actors involved (as with international cooperation on Antarctica). Oye (1986: 20-21) writes of decomposition. Yet given the difficulty of excluding actors relative to that of increasing the set involved, it may more often require the addition of other actors to the process.²⁷ Even in interstate bargaining these need not be states. States can seek to bring in NGOs or IOs; NGOs can act to mobilize a broad public; states, NGOs or IOs can work to increase the pressure on states from internal forces. Institutional development illustrates manipulation of the actor arena, because it introduces or strengthens an actor in the process.

5.1.3 Linking Strategies and Tactics to Issue Type

The argument that strategies and tactics focus on manipulating the issue and actor context in order to achieve cooperation suggests that strategies and tactics may systematically vary with the issue character and actor configuration. This section will offer some very preliminary thoughts on the relationship of them with issue character.

[Tables 9 and 10 about here]

Reaching and maintaining a bargain over the distribution or redistribution of existing private goods often involves negotiation by a small number of parties (frequently bilateral state interaction) and relies on fairly well delimited sequences of specific reciprocity, such as mutual abstinence from assertion of authority in the Neutral Zone of Saudi Arabia and Iraq. Cooperation on the creation of new private goods, such as a foreign aid transfer, can have much the same characteristic. Many examples of new private goods, however, involve multilateral interactions and are less strictly zero-sum. In those cases, such as the creation of the EEZs, the range of tactics is likely to move into those of institutional bargaining, including issue linkage and actor socialization.

Cooperation on coordination goods appears to draw substantially on actor socialization, particularly when some participants must pay substantial internal costs in order to adopt the standards of the cooperating parties. This implies a degree of institutional bargaining. It is interesting that the International Telecommunications Union has paid a cost for this kind of strategic approach to cooperation. Many of the poorer countries in the ITU have been determined to link

²⁶ They therefore require the skills of the entrepreneurial or intellectual leaders that Young (1991) describes, as well as structural leadership.

²⁷ In the domestic policy environment it is common for an actor to expand the arena of conflict as a tactic for achieving outcomes it desires.

Table 9
Cooperation on International Goods: Consumption Orientation

Rivalry		
Physical Excludability	Yes	No
Yes	<p>EXISTING PRIVATE GOODS</p> <p><i>Examples:</i> Alsace-Lorraine, West Bank, Saudi-Iraqi Neutral Zone</p> <p><i>Problems:</i> protection of property rights</p> <p><i>Games:</i> zero-sum</p> <p><i>Cooperation forms:</i> distribution, redistribution</p> <p><i>Critical Actors:</i> States</p> <p><i>Strategies and tactics:</i> specific reciprocity</p>	<p>COORDINATION GOODS</p> <p><i>Examples:</i> International postal service, E-mail networks</p> <p><i>Problems:</i> setting technical standards, violation of rules for access, congestion (leading to rivalry)</p> <p><i>Games:</i> harmony, coordination</p> <p><i>Cooperation forms:</i> prescriptive regulation</p> <p><i>Critical Actors:</i> IGOs, NGOs</p> <p><i>Strategies and tactics:</i> actor socialization</p>
No	<p>COMMON PROPERTY RESOURCES</p> <p><i>Examples:</i> whale consumption, access to markets by members of a free market zone, global atmosphere as dump for CFCs, transatlantic air routes, geostationary orbits</p> <p><i>Problems:</i> congestion and overexploitation of free goods</p> <p><i>Games:</i> prisoners' dilemma, chicken</p> <p><i>Cooperation forms:</i> proscriptive regulation</p> <p><i>Critical Actors:</i> NGOs, IGOs</p> <p><i>Strategies and tactics:</i> institutional bargaining</p>	<p>EXISTING PUBLIC GOODS</p> <p><i>Examples:</i> Knowledge to control malaria, knowledge to produce atomic weapons</p> <p><i>Problems:</i> negative externalities of consumption</p> <p><i>Games:</i> harmony</p> <p><i>Cooperation forms:</i> none needed</p> <p><i>Critical Actors:</i> None</p> <p><i>Strategies and tactics:</i> not applicable</p>

Table 10
Cooperation on International Goods: Production Orientation

Rivalry		
Physical Excludability	Yes	No
Yes	<p>NEW PRIVATE GOODS</p> <p><i>Examples:</i> EEZs, Antarctica, intellectual property under patent; foreign aid</p> <p><i>Problems:</i> defining, protecting property rights, exchange rules</p> <p><i>Games:</i> zero-sum</p> <p><i>Cooperation forms:</i> regulation, distribution, redistribution,</p> <p><i>Critical Actors:</i> States; sometimes NGOs and IGOs</p> <p><i>Strategies and tactics:</i> specific reciprocity, institutional bargaining</p>	<p>CLUB GOODS</p> <p><i>Examples:</i> oil cartel, military alliance, free trade zone, arms control agreement</p> <p><i>Problems:</i> determining the optimal size; dampening rivalry and congestion internally; providing adequate public goods</p> <p><i>Games:</i> harmony, prisoners' dilemma</p> <p><i>Cooperation forms:</i> prescriptive and proscriptive regulation</p> <p><i>Critical Actors:</i> Hegemons</p> <p><i>Strategies and tactics:</i> specific and diffuse reciprocity, issue linkage</p>
No	<p>TRANSBOUNDARY ISSUES</p> <p><i>Examples:</i> intellectual property without patents, human rights protection, food, energy stockpiles, protection of rain forests, nuclear weapons acquisition</p> <p><i>Problems:</i> controlling netative externalities; assuring positive externalities</p> <p><i>Games:</i> harmony, deadlock</p> <p><i>Cooperation forms:</i> none needed, none possible</p> <p><i>Critical Actors:</i> NGOs</p> <p><i>Strategies and tactics:</i> issue linkage</p>	<p>NEW PUBLIC GOODS</p> <p><i>Examples:</i> ozone protection, avoidance of Greenhouse Effect</p> <p><i>Problems:</i> free-riding, underprovision</p> <p><i>Games:</i> prisoners' dilemma</p> <p><i>Cooperation forms:</i> prescriptive regulation</p> <p><i>Critical Actors:</i> Hegemons, IGOs, NGOs</p> <p><i>Strategies and tactics:</i> institutional bargaining</p>

the issues of technical standards to those of development, an issue linkage that the more developed countries have found hard to resist given the general patterns of institutional bargaining that have developed in the organization (Savage, 1989).

Cooperation on common property resources very often requires considerable infrastructure both to create and to monitor the restrictive regulations required. As we noted earlier, non-state actors (both IOs and NGOs) are more likely to be involved in these issues than in many others. Overall, the issue area is particularly appropriate for a full range of the various tactics related to institutional bargaining, including issue linkage, actor socialization, and manipulation of the actor arena. Consider the UNCED conference of the summer of 1992 as an environment in which all of these tactics can be seen.

We have noted before that if cooperation is to occur on transboundary issues, it will almost inevitably require issue linkage. Consider the debt-for-nature swaps proposed to facilitate cooperation on the protection of rain forests. The Conference on Security and Cooperation in Europe produced three baskets of measures illustrating the complexity of issue linkages that can develop. The second basket contained, for example, environmental agreements on transboundary pollution and the third basket contained human rights issues. Keohane (1983) hypothesized that increased issue density will increase the demand for regimes. Restating that somewhat, the success of cooperation, particularly in arenas such as transboundary issues, will depend on high issue density. As with common property resources, the high density of issues will in itself call forth a wide range of non-state actors.

The agreements that states reach with respect to club goods seem often to illustrate an attempt to achieve patterns of either specific or diffuse reciprocity. In free trade agreements actors institute rules, such as the Most-Favored-Nation trade principle, that codify diffuse reciprocity. When actors violate those rules, behavior may revert to specific reciprocity. The production agreements of oil cartels similarly codify specific reciprocity, although a hegemon such as Saudi Arabia may practice a very diffuse reciprocity or even GRIT in an effort to maintain the club in the face of cheating by some members. Arms control agreements also clearly specify reciprocal responsibilities.

It is important again to remember that reciprocity involves both reward and punishment. We noted earlier that the regulatory environment of club goods defines both requirements and prohibitions, making it fairly easy to develop mixtures of rewarding and punishing behavior. Because hegemons can very often both punish and reward club members fairly flexibly, their utility rises on issues of club goods.

The provision of new public goods requires the participation of a very large number of actors and therefore institutional bargaining and a broad range of associated tactics becomes common. In fact, it is obvious that one of the most fundamental bases for common patterns of strategies and tactics is the size of the involved actor community. Whereas existing private goods may call forth only a small number of countries (so that specific reciprocity often succeeds), and club goods involve a larger set (requiring a broader range of strategies and tactics), both common property resource issues and new public goods often involve most of the global community (necessitating institutional bargaining). In other cases, such as coordination goods or transboundary issues, the nature of the issue itself may suggest especially appropriate tactics for achieving cooperation.

5.2 The Dynamics of Structures that Facilitate Cooperation

Long-term strategies and day-to-day tactics help give rise to ongoing patterns of cooperation, to structures. But it is difficult to reflect on the dynamics of cooperation unless one also steps back and focuses attention on changes in the structures themselves.

Although it is an oversimplification, it is useful to consider theories of structural dynamics in three general categories: those that look to a selected few actors to supply (offer or impose) structures for the system; those that consider the demands for cooperative structures raised by a wide range of actors; and those that focus on the generative dynamics of existing structures.

We can see these three orientations in theories across a wide range of literatures on cooperation. For instance, federalist theories of regional integration have a supply-side character. Although beliefs in the need to build central governments as a way of limiting conflict potential create a highly general demand, the actors that propose a dramatic shift in the locus of sovereignty to central institutions tend to run far ahead of the demand for those institutions by the overall system. Although it is an extreme case in terms of "supply-side" method, imperial conquest by a single state is the historically most common way of supplying those central institutions.

Functional theories of integration tend to be demand-side (Mitrany, 1943). They expect a very wide range of actors, including interest groups and NGOs as well as states, to increasingly press for institutions that facilitate the centralization of specific functions.²⁸ Pluralistic and trans-actionalist understandings of integration have a similar character.

Neofunctionalism is an eclectic theory of regional integration (Haas, 1964; see also Lindberg and Scheingold, 1970). It looks to both the systemic demands of functionalism and to the calculated assistance of selected elites for motive power. In addition it adds a self-generating element via the elaboration of the spillover logic.

We can identify similar approaches to the understanding of regime dynamics. The theory of hegemonic stability (Keohane, 1980 and 1984) looks to a single state as the primary provider and protector of regimes. Kindleberger (1973) argued that the international system needs a leader if it is to have a free trade system. He further suggested that Britain had served that need until early in this century and that the U.S. failure to pick up the mantle of leadership in the 1920s and 1930s contributed substantially to the collapse of free trade in the 1930s and the Great Depression.

Keohane (1980, 1984) subsequently labeled this phenomenon hegemonic stability theory and generalized it beyond the issue of free trade. The theory links potential for cooperation to both the configuration of actors and to the dynamics of cooperative structures. The regime and therefore the potential for cooperation waxes and wanes with the strength and determination of the leader or hegemon (although inertia can delay the weakening of the regime as the hegemon withdraws - that is, a weak version of self-generating theory comes into play).

²⁸ Functionalist theory also relates cooperative potential to the issue context and not simply the actor configuration. Functionalists have long argued that changes in a variety of technologies, from communications and transportation to military, have altered the issue environment of international interaction and created the pressures for integration.

Snidal (1985; see also Gowa, 1989) makes clear that while Kindleberger described the actions of the hegemon as largely benevolent, others (see Krasner, 1976; Gilpin, 1982) have suggested that a leader can also coerce other members of the system to contribute to the provision of a good (not necessarily a true public good) that the hegemon sees to be in its interest. That is, any theory of hegemonic stability assuming a benevolent leader unilaterally providing a public good is logically a subelement of a more general theory in which leaders use benevolent and coercive techniques to provide and organize the provision of goods, some of which are pure public goods, and some of which are impure public goods or even private goods (private benefits for the hegemon).

A corollary to the supply-side dynamic of regimes is that substantial changes in the power structures of the environment can lead to revolutionary changes in the regime. Puchala and Hopkins (1983: 65-66) argue that regimes always put some actors at a significant disadvantage, thus creating the basis for proposals of drastic regime change when power shifts.

Keohane (1983) also elaborated a demand theory for regimes that has a strong functionalist cast - in fact, he subsequently (1984) elaborated it as a "functional theory of international regimes." This theory draws from the economic literature on transaction costs and emphasizes the reduction of transaction costs (including the obtaining of adequate information) provided by regimes. Although Keohane's analysis is based in the utilitarian social contract tradition and builds on assumptions about the rational choice of states, there is no reason that it could not be extended to recognize roles for nongovernmental actors as functionalism does with regional integration (Rosenau, 1986, argues that it should be so extended).

In order to move beyond supply- and demand-side theories of regime dynamics to self-generative ones, authors need to accept the argument that regimes are more than a reflection of their component units. Young (1983: 106-7) argued explicitly that

international regimes do not become static constructs even after they are fully articulated. Rather, they undergo continuous transformations in response to their own inner dynamics as well as to changes in their political, economic, and social environments.

His explication of those inner dynamics does not, however, take us too far. He gives examples of the need to resolve "internal contradictions" and suggests a somewhat vague dialectical process of regime development.

Although writing about international organization rather than regimes, Haas (1990) provides some insights that could be very useful for regime theorists. They build on his earlier work on the neofunctionalist theory of regional integration and focus on knowledge and how that can drive adaptation and learning. Like his neofunctionalist theory, this work tends to link self-generative dynamics to both demand- and supply-side elements of institutional change:

Economists prefer to explain events by stressing the *interests* that motivate actors: coalitions of actors are thought capable of action only if they succeed in defining their *common interests*. Political scientists like to explain events in terms of the *power* to impose preferences on allies and antagonists. Sociologists tend to put the emphasis on *structured* or *institutionalized norms* and to find the origin of such norms in the *hegemonial power* of some group or class. My claim is that these formulations are consistent with the use of knowledge in decision making. My argument is that we need not pit these divergent formulations against each other as

explanations of human choice. We are entitled to hold that interests can be (but need not be) informed by available knowledge, and that power is normally used to translate knowledge-informed interests into policy and programs. (Haas, 1990: 12)

This conception of change is not limited to the institution, but assumes a constant interaction between the institution and its environment. And although Haas argues that the environment dominates organizations, he also concludes that we can study international organizations as agents of innovation.

6 Prospects for a Systematic Approach to International Public Policy

This brief survey of literature on international cooperation cannot do justice to the many rather discrete literatures on which it draws - it has failed to incorporate many works, undoubtedly including some very important ones. Nor can it reasonably hope to make more than a preliminary attempt to draw some conclusions that cross over those literatures and to begin to identify some productive linkages among them. Many fundamental divisions between the literatures of cooperation make integration and synthesis difficult.

First, divisions of epistemological school and world view pervade the study of cooperation and greatly complicate our understanding of it. Within the rationalist school, realists, neorealists, and liberal institutionalists disagree about the relative importance of state and non-state actors and about the motivations of states. Fortunately, the various members of that school speak a generally comparable epistemological language and can share research results. Differing epistemological approaches and disagreements concerning the subject matter of research separate the rationalist and reflective schools; therefore the schools communicate little. This review has emphasized the debates and findings of the rationalists simply because that school consciously attempts to generate hypotheses, propositions, and findings.

In addition, the study of cooperation suffers from a division between those whose approaches to it are highly theoretical and abstract (including most game theorists) and those who provide theoretically underinformed case studies (while this paper has cited few of those, the literature is vast). Fortunately, there are increasing numbers of studies that carefully combine theory and substance.

These divisions (as well as less fundamental but no less divisive ones between students of public policy, comparative foreign policy, integration, international organizations, regimes, and international political economy) help us understand why the study of international conflict generates more literature and propositional reviews than does that of international cooperation. A large percentage of the literature on conflict is firmly rooted in realism and generated by those who consider themselves empirical students of international politics.²⁹

Attempts to develop linkages among the literatures on cooperation have been few. This paper did so by tying mappings of the context of cooperation to the forms cooperation takes and to the dynamics of its development. In particular, the typology of international goods outlined here illustrates how better definitions of the issue and actor context might create the potential for integrating insights across many of the discrete literatures.

Substantial stock-taking with respect to our understanding of cooperation is overdue. The Cold War is over, and the U.S.-U.S.S.R. conflict is following that between France and Germany into the history books; the national security literature is likely to find itself paying relatively more attention to the more cooperative issues of arms control, including nonproliferation, than it has historically. At the same time, relative attention to trade issues has increased, and those invariably involve important elements of cooperation. In addition, the global environment has moved up a giant step on the global agenda. In short, the need for study of global public policy is rising sharply. An eclectic subfield of global public policy may well emerge to meet that demand.

²⁹ The field is, in fact, even narrower than its name - the focus is on interstate politics and conflict, not that between IBM and Toshiba (and seldom even that between Serbs and Croats).

7 Bibliography

- Alker, Hayward R., Jr. 1988. The Dialectical Logic of Thucydides' Melian Dialogue, *American Political Science Review* 82, 3 (September): 805-20.
- Allison, Graham T. 1969. Conceptual Models and the Cuban Missile Crisis, *American Political Science Review* 63, 3 (September): 689-718.
- Ashley, Richard K. 1980. *The Political Economy of War and Peace: The Sino-Soviet-American Triangle and the Modern Security Problematique*. London: Frances Pinter.
- Ashley, Richard K. 1984. The Poverty of Neorealism, *International Organization* 38, no. (Spring): 225-86.
- Ashley, Richard K. and R.B.J. Walker. 1990. Speaking the Language of Exile: Dissident Thought in International Studies, *International Organization* 34, 3 (September): 259-268.
- Axelrod, Robert. 1984. *The Evolution of Cooperation*. New York: Basic Books.
- Blaney, Geoffrey. 1973. *The Causes of War*. New York: Free Press.
- Brecher, Michael, Belma Steinberg, and Janice Stein. 1969. A Framework for Research on Foreign Policy Behavior, *Journal of Conflict Resolution* 13, no. 1: 75-101.
- Bremer, Stuart A. 1991. Some Observations on Advancing the Scientific Study of War. Paper prepared for the workshop on Advancing the Scientific Study of War, Washington, D.C., August 27-28.
- Buchanan, James. 1965. An Economic Theory of Clubs, *Economic* 32: 1-14.
- Caldwell, Lynton Keith. 1987. Beyond Environmental Diplomacy: The Changing Institutional Structure of International Cooperation, in John E. Carroll, ed., *International Environmental Diplomacy: the Management and Resolution of Transfrontier Environmental Problems*. Cambridge: Cambridge University Press, pp. 13-27.
- Caldwell, Lynton Keith. 1990. *International Environmental Policy: Emergence and Dimensions*, 2nd edition. Durham: Duke University Press.
- Chayes, Abram and Antonia A. Chayes. 1991. Adjustment and Compliance Processes in International Regulatory Regimes, in Jessica Tuchman Matthews, ed., *Preserving the Global Environment*. New York: W.W. Norton, pp. 280-308.
- Coate, Roger A. 1982. *Global Issue Regimes*. New York: Praeger, 1982.
- Cooper, Richard N. 1989. International Cooperation in Public Health as a Prologue to Macroeconomic Cooperation, in Richard Cooper, et al., *Can Nations Agree?* Washington, D.C.: The Brookings Institution, pp. 178-251.
- Deutsch, Karl W. and others. 1957. *Political Community and the North Atlantic Area: International Organization in the Light of Historical Experience*. Princeton, New Jersey: Princeton University Press.
- Druckman, Daniel and P. Terrence Hopmann. 1989. Behavioral Aspects of Negotiations on Mutual Security, in Philip Tetlock, Jo Husbands, Robert Jervis, Paul Stern and Charles Tilly, eds., *Behavior, Society and Nuclear War*, Volume 1. New York: Oxford University Press, 85-173.

- Efinger, Manfred and Michael Zürn. 1990. Explaining Conflict Management in East-West Relations: A Quantitative Test of Problem Structural Typologies," in Volker Rittberger, ed., *International Regimes in East-West Politics*. London: Pinter Publishers, pp. 64-89.
- Eide, Asbjørn. 1986. The Human Rights Movement and the Transformation of the International Order, *Alternative* 11, pp. 367-402.
- Elster, Jon. 1989. *The Cement of Society: A Study of Social Order*. Cambridge: Cambridge University Press.
- Evensen, Jens. 1989. Three Procedural Cornerstones of the Law of the Sea Conference: The Consensus Principle, the Package Deal and the Gentleman's Agreement," in Johan Kaufmann, ed., *Effective Negotiation*. Dordrecht, the Netherlands: Martinus Nijhoff Publishers, pp. 75-92.
- Garrett, Geoffrey and Barry Weingast. 1991. Ideas, Interests and Institutions: Constructing the EC's Internal Market. Paper presented at the annual meeting of the American Political Science Association, Washington, D.C. (August 28-September 1).
- Gilpin, Robert. 1982. *War and Change in World Politics*. Cambridge: Cambridge University Press.
- Goldstein, Joshua S. 1991. Reciprocity in Superpower Relations: An Empirical Analysis, *International Studies Quarterly* 35, 2 (June): 195-209.
- Goldstein, Joshua S. and John R. Freeman. 1990. *Three-Way Street: Strategic Reciprocity in World Politics*. Chicago: University of Chicago Press.
- Goldstein, Judith. 1988. Ideas, Institutions, and American Trade Policy, *International Organization* 42, no. 1 (Winter): 179-217
- Goldstein, Judith. 1989. The Impact of Ideas on Trade Policy: The Origins of U.S. Agricultural and Manufacturing Policies, *International Organization* 43, no. 1 (Winter): 31-71.
- Gowa, Joanne. 1989. Rational hegemony, excludable groups, and small groups: an epitaph for hegemonic stability theory? *World Politics* 61, 3 (April): 307-324.
- Grieco, Joseph M. 1988. Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism, *International Organization* 42, 3 (Summer): 485-507.
- Grieco, Joseph M. 1990. *Cooperation Among Nations: Europe, America, and Non-Tariff Barriers to Trade*. Ithaca: Cornell University Press.
- Haas, Ernst B. 1964. *Beyond the Nation-State: Functionalism and International Organization*. Stanford: Stanford University Press.
- Haas, Ernst B. 1990. *When Knowledge is Power: Three Models of Change in International Organization*. Berkeley: University of California Press.
- Haas, Peter M. 1989. Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control, *International Organization* 43, 3 (Summer): 377-403.
- Haggard, Stephan and Beth A. Simmons. 1987. Theories of International Regimes, *International Organization* 41, 3 (Summer): 491-517.
- Hamburger, Henry. 1979. *Games as Models of Social Phenomena*. San Francisco: W.H. Freeman.

- Hardin, Garrett, 1968. "The Tragedy of the Commons," *Science* 162, no. 3859 (December 13): 1243-48.
- Hardin, Russell. 1982. *Collective Action*. Baltimore: The Johns Hopkins University Press.
- Hermann, Charles F. 1969. *Crises in Foreign Policy*. Indianapolis: Bobbs-Merrill Company.
- Hughes, Barry B. 1978. *The Domestic Context of American Foreign Policy*. San Francisco: W.H. Freeman.
- Hughes, Barry B. 1991. *Continuity and Change in World Politics: The Clash of Perspectives*. Englewood Cliffs: Prentice-Hall.
- Kegley, Charles W., Jr. and Eugene R. Wittkopf. 1989. *World Politics: Trend and Transformation*, 3rd ed. New York: St. Martin's Press.
- Keohane, Robert O. 1980. "The Theory of Hegemonic Stability and Changes in International Regimes, 1967-1977," in Ole R. Holsti, Randolph M. Siverson, and Alexander L. George, eds., *Change in the International System*. Boulder, Colorado: Westview Press, pp. 131-162.
- Keohane, Robert O. 1983. The Demand for International Regimes, in Stephen D. Krasner, ed. *International Regimes*. Ithaca: Cornell University Press, pp. 141-171.
- Keohane, Robert O. 1984. *After Hegemony: Cooperation and Discord in the World Political Economy*. Princeton, New Jersey: Princeton University Press.
- Keohane, Robert O. 1988. International Institutions: Two Approaches, *International Studies Quarterly* 32, no 4 (December): 379-396
- Keohane, Robert O. 1989. Reciprocity in International Relations, in Robert O. Keohane, ed., *International Institutions and State Power*. Boulder, Colorado: Westview Press, pp. 132-157.
- Keohane, Robert O. and Joseph S. Nye, Jr., eds. 1971. *Transnational Relations and World Politics*. Cambridge, Massachusetts: Harvard University Press.
- Keohane, Robert O. and Joseph S. Nye, Jr. 1977. *Power and Interdependence: World Politics in Transition*. Boston: Little, Brown.
- Kindleberger, Charles P. 1973. *The World in Depression 1929-1939*. Berkeley: University of California Press.
- Krasner, Stephen. 1976, "State power and the structure of international trade," *World Politics* 28 (April):
- Krasner, Stephen D., ed. 1983. *International Regimes*. Ithaca: Cornell University Press.
- Krasner, Stephen D., 1983b. Structural Causes and Regime Consequences: Regimes as Intervening Variables, in Stephen D. Krasner, ed. *International Regimes*. Ithaca: Cornell University Press, pp. 1-21.
- Kratochwil, Friedrich and John Gerard Ruggie. 1986. "International Organization: A State of the Art on the Art of the State," *International Organization* 40, 4 (Autumn): 753-775.
- Larson, Deborah Welch. 1987. Crisis Prevention and the Austrian State Treaty, *International Organization* 41, 1 (Winter): 27-60.

- Lindberg, Leon N. and Stuart A. Scheingold. 1970. *Europe's Would-Be Polity: Patterns of Change in the European Community*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Lowi, Theodore J. 1964. "American Business, Public Policy, Case-Studies, and Political Theory," *World Politics* 16 (July): 677-715.
- Lowi, Theodore J. 1967. "Making Democracy Safe for the World," in James N. Rosenau, ed. *Domestic Sources of Policy*. New York: The Free Press, 11-51.
- Maghroori, Ray and Bennett Ramberg, eds. 1982. *Globalism Versus Realism: International Relations' Third Debate*. Boulder, Colorado: Westview Press.
- Mansbach, Richard and John A. Vasquez. 1981. *In Search of Theory*. New York: Columbia University Press.
- Mitrany, David. 1943. *A Working Peace System*. London: The Royal Institute of International Affairs.
- Moran, Theodore. 1982. Modeling OPEC Behavior: Economic and Political Alternatives, in James M. Griffin and David J. Teece, eds., *OPEC Behavior and World Oil Prices*. Boston: George Allen and Unwin, pp. 94-130.
- Olson, Mancur, Jr. 1965. *The Logic of Collective Action*. Cambridge: Harvard University Press.
- Olson, Mancur, Jr. and Richard Zeckhauser. 1968. "An Economic Theory of Alliances," in Bruce M. Russett, ed., *Economic Theories of International Politics*. Chicago: Markham, pp. 25-50.
- Ophuls, William. 1977. *Ecology and the Politics of Scarcity*. San Francisco: W.H. Freeman.
- Ordeshook, Peter C. 1986. *Game Theory and Political Theory*. Cambridge: Cambridge University Press.
- Osgood, Charles E. 1962. Reciprocal Initiative, in James Roosevelt, ed., *The Liberal Papers*. Garden City, New York: Doubleday Anchor, pp. 155-228.
- Ostrom, Elinor. 1990. *Governing the Commons*. Cambridge: Cambridge University Press.
- Oye, Kenneth A. 1979. The Domain of Choice, in Kenneth A. Oye, Donald Rothchild, and Robert J. Lieber, eds., *Eagle Entangled: U.S. Foreign Policy in a Complex World*. New York: Longman, pp. 3-33.
- Oye, Kenneth A., ed. 1986. *Cooperation Under Anarchy*. Princeton: Princeton University Press.
- Palmer, Glenn. 1990. Corraling the Free Rider: Deterrence and the Western Alliance, *International Studies Quarterly* 34, no. 2 (June): 147-164.
- Papp, Daniel S. 1991. *Contemporary International Relations*, 3rd ed. New York: Macmillan Publishing Company.
- Pearce, David W. 1983. *The Dictionary of Modern Economics*. London: Macmillan.
- Porter, Gareth and Janet Welsh Brown. 1991. *Global Environmental Politics*. Boulder: Westview.
- Puchala, Donald J. and Raymond F. Hopkins. 1983. International Regimes: Lessons from Inductive Analysis, in Stephen D. Krasner, ed. *International Regimes*. Ithaca: Cornell University Press, pp. 61-91.

- Putnam, Robert D. 1988. Diplomacy and Domestic Politics: The Logic of Two-Level Games, *International Organization* 42, 3 (Summer): 427-460.
- Rajmaira, Sheen and Michael D. Ward. 1990. Evolving Foreign Policy Norms: Reciprocity in the Superpower Triad, *International Studies Quarterly* 34, 4 (December): 457-476.
- Rapoport, A. and M. Guyer. 1966. A Taxonomy of 2 X 2 Games, *General Systems Yearbook* 11, pp. 203-214.
- Rhodes, Carolyn 1989. Reciprocity in Trade: The Utility of a Bargaining Strategy, *International Organization* 43, no. 2 (Spring): 273-299.
- Rich, Bruce. 1990. The Emperor's New Clothes: The World Bank and Environmental Reform, *World Policy Journal* 7, no. 2 (Spring): 305-329.
- Rosenau, James N. 1966. Pre-Theories and Theories of Foreign Policy, in R. Barry Farrell, ed., *Approaches to Comparative and International Politics*. Evanston, Illinois: Northwestern University Press, pp. 27-92.
- Rosenau, James N., ed. 1969. *Linkage Politics: Essays on the Convergence of National and International Systems*. New York: Free Press.
- Rosenau, James N. 1986. Before Cooperation: Hegemons, Regimes, and Habit-Driven Actors in World Politics, *International Organization* 40, 4 (Autumn): 849-894.
- Rosenau, James N. 1990. *Turbulence in World Politics: A Theory of Continuity and Change*. Princeton, New Jersey: Princeton University Press.
- Rourke, John T. 199x. *International Politics on the World Stage*, 3rd ed. Guilford, CT: The Dushkin Publishing Group, Inc.
- Ruggie, John Gerard. 1983. International Regimes, Transactions, and Change: Embedded Liberalism in the Postwar Economic Order, in Stephen D. Krasner, ed., *International Regimes*. Ithaca: Cornell University Press, pp. 195-232.
- Ruggie, John Gerard. 1985. "Social Time and International Policy: Conceptualizing Global Population and Resource Issues," paper presented at the annual ISA Convention, March 5-9, Washington, D.C.
- Samuelson, Paul A. "The Pure Theory of Public Expenditure," *Review of Economics and Statistics* 36, no. 1 (November): 387-389.
- Savage, James G. 1989. *The Politics of Telecommunications Regulation*. Boulder: Westview.
- Schelling, Thomas C. 1963. *The Strategy of Conflict*. New York: A Galaxy Book.
- Schotter, Andrew and Gerhard Schwödianer. 1980. Economics and the Theory of Games: A Survey, *Journal of Economic Literature* 18, 2 (June): 479-527.
- Small, Melvin, and J. David Singer. 1982. *Resort to Arms: International and Civil Wars, 1816-1980*. Beverly Hills: Sage Publications
- Snidal, Duncan. 1985. The limits of hegemonic stability theory, *International Organization* 39, 4 (Autumn): 579-614.
- Snidal, Duncan. 1985b. Coordination versus Prisoners' Dilemma: Implications for International Cooperation and Regimes, *American Political Science Review* 79, 4 (December): 923-942.

- Snidal, Duncan. 1991. Relative Gains and the Pattern of International Cooperation, *American Political Science Review* 85, 3 (September): 701-726.
- Soroos, Marvin S. 1986. *Beyond Sovereignty: The Challenge of Global Policy*. Columbia, South Carolina: University of South Carolina Press.
- Soroos, Marvin S. 1987. "Global Commons, Telecommunications, and International Space Policy," in Daniel S. Papp and John R. McIntyre, eds., *International Space Policy*. New York: Quorum Books, pp. 139-56.
- Soroos, Marvin S. 1988. "The Tragedy of the Commons in Global Perspective," in Charles W. Kegley, Jr. and Eugene R. Wittkopf, eds., *The Global Agenda: Issues and Perspectives*, 2nd ed. New York: Random House, pp. 345-57.
- Soroos, Marvin S. 1988b. Theoretical Perspectives on Global Policy Studies, paper prepared for the 14th World Congress of the International Political Science Association, Washington, D.C., August 28 - September 1.
- Soroos, Marvin S. 1989. "Conflict in the Use and Management of International Commons," paper presented at the Tampere Peace Research Institute, Orivesi, Finland.
- Strange, Susan. 1983. *Cave! hic Dragones: A Critique of Regime Analysis*, in Stephen D. Krasner, ed. *International Regimes*. Ithaca: Cornell University Press, pp. 337-354.
- Thompson, William R. 1988. *On Global War: Historical-Structural Approaches to World Politics*. Columbia, South Carolina: University of South Carolina Press.
- Ward, Veronica. 1991. "Understanding Cooperative Arrangements: The Impact of Differing Objectives on Club Formation and Behavior," paper presented at the annual meeting of the American Political Science Association (August 29-September 1), Washington, D.C.
- Weimer, David L. and Aidan R. Vining. 1989. *Policy Analysis: Concepts and Practice*. Englewood Cliffs, N.J.: Prentice-Hall.
- Wolfers, Arnold. 1962. *Discord and Collaboration: Essays on International Politics*. Baltimore: The Johns Hopkins University Press, 3-35.
- Young, Oran R. 1983. Regime Dynamics, in Stephen D. Krasner, ed. *International Regimes*. Ithaca: Cornell University Press, pp. 93-113.
- Young, Oran R. 1989. The Politics of International Regime Formation: Managing Natural Resources and the Environment, *International Organization* 43, 3 (Summer): 349-375.
- Young, Oran R. 1989b. *International Cooperation: Building Regimes for Natural Resources and the Environment*. Ithaca: Cornell University Press.
- Young, Oran R. 1991. Political Leadership and Regime Formation: On the Development of Institutions in International Society, *International Organization* 45, 3 (Summer): 281-308.
- Zimmerman, William. 1973. "Issue Area and Foreign-Policy Process: A Research Note in Search of a General Theory," *American Political Science Review* 67, no. 4 (December): 1204-1212.
- Zürn, Michael. 1991. Consequences of Regime Definitions and Definitions of Regime Consequences, paper delivered at the Dartmouth College "Regime Summit" (October).