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EXPLAINING MULTILATERAL ENVIRONMENTAL TREATIES

By

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ABSTRACT

EXPLAINING MULTILATERAL ENVIRONMENTAL TREATIES

By

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Multilateral Environmental Treaties (METs) represent a major new development in the interaction of states. This study develops and tests four explanations of METs as a new system-level phenomena in international relations. In addition, this study explores the role of ontology in theoretical approaches to international relations. The basic ontological assumptions of different approaches are shown to effect their explanatory power. Ultimately, the Development of METs is best understood as an adaptation of the various layered institutions that comprise international society.

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My parents, Rosemary and George, my brother Mark, and my sister Maureen are intricately connected to what I am and all I do. I lovingly acknowledge all they have done for me, and all they will do in the future.

Lastly, I wish to acknowledge my wife Dawn, and my children Sierra, Sage and Logan. Each of them has sacrificed so that I might finish this dissertation and I dedicate it to them.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1

Introduction

Prior to World War two there were only four Multilateral Environmental Treaties (METs) in existence, since the end of the war there have been over 140 METs negotiated between nation states.[1] METs represent a major new development in the practical interaction of states,[2] yet this development has not been the focus of extensive international relations research. Those who have studied environmental treaties have tended to focus on a few agreements, trying to understand how and why particular agreements were formed (Haas, 1993b; Young and Osherenko 1993a, 1993b: Efinger et al, 1993). This study takes a broader approach, trying to understand and explain the recent emergence of METs as a system-level phenomenon.[3]

The study of METs is of immediate practical significance. The increasingly deleterious impact of human civilization on the natural environment is one of the most daunting challenges facing the

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[1]United Nations Environmental program "Register of International Treaties and Other Agreements in the Field of the Environment" UNEP/GC.16/inf.4

[2] METs are not solely interactions between states, they have increasingly involved other entities such as NGOs in the bargaining over environmental treaties. See Young, 1993.

[3] Haas and Sundgren (1993) also look at the breadth of METs from a systemic perspective, though they use a more inductive approach than what will be presented below. A recent study by Roberts (1996) also tests different explanations for state participation in Environmental treaties, though only over nine cases. Most of the hypotheses tested relate to the economic position in the world system, such as overall level of development and trade relations.

human species.[4] This challenge is especially formidable at the international level where the continuous interconnected natural environment is punctuated by a fragmented political system of sovereign states. METs represent the most obvious effort by the international community to grapple with these problems. The success or failure of these efforts will profoundly effect the future of the Earth and the international system.

In addition to the practical significance of METs, their development provides a good opportunity to assess the robustness of international relations theory. The perennial problems of power and security, formulated and analyzed since Thucydides, have drawn the lion's share of theoretical attention in international relations. The endemic, perhaps inherent, nature of these problems provides a theoretical and conceptual consistency to the study of international relations through time. This consistency is not without its perils, however; it may lull researchers into an intellectual complacency in which they fail to notice subtle changes in state practice (Cox, 1986).The seeming consistency of the international system provided by the cold war left the international relations community time, perhaps too much time, to engage in theoretical debates about the discipline itself. These are known within the discipline by the self-important title of "The Great Debates" (Banks, 1985: Lapid, 1989: Weaver, 1996). The recent development of METs provides an opportunity to take a fresh look at traditional conceptual and theoretical tools and examine how well they can explain this new

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[4] For a good catalogue of these dangers see: *The Report of the World Commission on Environment and Development* (Bruntland Report), United

area of state practice. Two lessons from "The Great Debates" are incorporated into this study. First, the debates have shown that there are fundamentally different approaches, called paradigms or research programs, to international relations. The differences between paradigms are not reducible to choices of subject matter or method, or to the bias of particular researchers; they penetrate to the fundamental understanding of what the political landscape is made of. Second, The Great Debates have shown the virtue of incorporating numerous perspectives, or paradigms, into our understanding of international relations. In his call to peace after the second "great debate" Robert C. North put this point well:

> As research scholars and would be theorists in international relations we might all derive at least three useful lessons from the old fable about the three blind men and the elephant. The first is that the elephant presumably existed; the second is that each of the groping investigators, despite sensory and conceptual limitations, has his fingers on a part of reality; and third is that if they had quieted the uproar and begun making comparisons, the blind men might—all of them—have moved considerably closer to the truth (1969, p. 218: See also Young, 1995).

In the spirit which North suggests, this study provides a systems-level explanation of METs from four theories of the international system. Three of these theories share an underlying conception of the international system, while one is quite different. They represent both diversity within a paradigm and across paradigms. The primary aim of this study is to understand METs as a novel phenomena, and only secondarily to assess different theoretical

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Nations Environmental Program, 1987.

approaches. Looking at a number of different approaches increases the chances of understanding METs. This methodological and epistemological pluralism puts the research question first, rather than allegiance to a particular approach or paradigm (Feyerabend, 1970: Young, 1995: Wight, 1996).

In what follows, I will be fairly critical of what I call "structural" conceptions of the international system, because I do not believe that they are as useful for understanding METs as a new international phenomena. This is not meant to deny the relevance of these theories for explaining specific treaties, or other international phenomena. As I will argue below, each theoretical approach has its fingers on a part of the elephant and its own blind spots. By opening a dialogue among the theories, I hope to go beyond assessing the contribution of each of these theories to understanding METs. I also try to explain, at least in part, the reason *why* these theories are blind to certain aspects of the international system. I will argue that the ontological assumptions about the state—the answer to the question: What is a state?—fundamentally determines the kind of explanations that follow.

The rest of this introduction lays out the rationale for using a systems level of analysis, as well as defining what a system is. Next, the literature on international institutions is used to situate the recent emergence of the ontology as an important consideration in the understanding of the international system.

Explaining METs

Theoretical explanations of METs can be focused at many different levels of analysis. One could focus on the individual negotiators and how they affect the negotiations of a particular treaty (Young and Osherenko, 1993a; 1993b). Alternatively, one could focus on the domestic factors that influence state decision-makers in negotiating METs (Zürn, 1993). One could also focus on the individual state strategies and motivations in the negotiation of one, or a small group of METs (Shaw, 1993: Sebenius, 1993: Spector et. al. 1994). Alternately, one could focus on the effect of certain domestic structures such as level of economic development (Roberts, 1996).

In addition to these problems with the level of analysis, there is also a problem with the complexity of the issue of negotiations. Negotiations of METs involve numerous state and non-state actors, ranging from state department employees to legislative actors, and from industrial to environmental NGOs. The influence of specific domestic factors and particular NGOs, while very important to particular treaties, are difficult to treat as system variables affecting the entire range of treaties. These important factors will be left for more specific research into particular treaties (Benedick, 1993: Spector et al. 1994: Clark, 1995).

This study is concerned with explaining METs as a new phenomenon rather than the formation of any particular MET; therefore, it focuses exclusively on the systems-level of analysis. Restricting the focus to the systems-level is not meant to minimize the importance of the other levels of analysis; it is a necessary

restriction in scope to deal with the overwhelming complexity of the world. In addition, there has been more work done at the other levels of analysis, and this study will complement this work with a more general theoretical treatment of METs.

In its most basic form a *system*, as defined by Kenneth Waltz, is "a set of interacting units" (1979. p. 40). This definition is obviously incomplete, as everything interacts in some fashion and would be part of one system. In order for these interactions to comprise a system the interactions must be ordered in such a way that they can be distinguished from the surrounding environment. Hedley Bull defines a states-system as one in which "two or more states have sufficient contact between them, and have sufficient impact on one another's decisions, to cause them to behave—at least in some measure—as parts of a whole" (1977: 39-40). Barry Buzan defines a system as "the existence of units, among which significant interaction takes place and that are arranged or structured according to some ordering principle" (1993: 331). Combining these two ideas in this study a system is defined as: *a group of units ordered by a particular pattern of interaction.*

All systems-level theories in international relations share the assumption that a complete explanation of the state is impossible without appreciating the effect of the international system on state behavior—that in some way 'the whole is greater than the sum of its parts.' What they disagree on is the nature of the state, and, therefore, the nature of the system. While systems-level theories agree that the system matters, they do not conceive of the state or the system in the same way. Different conceptions of what the state

and the international system are lead to very different conceptions and explanations of systemic effects on state behavior.

The Growing Importance of Ontology

The study of international institutions has a long history within the discipline, though scholarly interest has waxed and waned over time with world events. For example, two previous "phases" of institutional study followed the cataclysmic events of the two world wars (Olson and Onuf, 1985). Since the early 1970's, perhaps because of the collapse of the Bretton Woods System, there has been a growing concern for international institutions in the United States (Keohane and Nye, 1989). Much of this growing concern was organized around the idea of international regimes (Krasner, 1982). Multilateral Environmental Treaties were generally included as one type of regime, and often were used as examples by theorists (Ruggie, 1975: Keohane and Nye, 1989: Young 1989).

Throughout the development of Regime theory, different approaches and definitions were evident (Krasner, 1982: Haggard and Simmons, 1987). The distribution of power and the underlying social understanding were both offered as explanations for regime formation (Young, 1982: Krasner, 1982: Haggard and Simmons, 1987). In addition to the different explanations within regime theory, there was a realization that the different explanations revealed a deeper disagreement between scholars of international

institutions. Kratochwil and Ruggie pointed out that the fundamental issue is the nature of the state and how it fits into the broader system—or the underlying ontology of particular explanations (1986). The importance of ontology has also surfaced in the related rubric of the agent-structure problem (Singer, 1961, Wendt, 1987; Dessler, 1989; Buzan, Little and Jones, 1993: ch. 6). The existent scholarship offers a range of different explanations for why international institutions form which can be drawn on to explain METs. At the same time, the recent literature points to the necessity of going beyond simply examining different explanations, to the underlying ontological understandings of theories themselves. Two recent discussions which deal explicitly with the creation of international institutions are particularly germane to this study.[5]

Robert Keohane discusses two broad approaches to the study of institutions and institutional change within international relations which he calls the rational and the reflective (Keohane, 1989). Rationalistic approaches assume that states are autonomous rational actors, and institutions are instrumental mechanisms that states use to maximize their expected utility. Rationalistic theories tend to focus "almost exclusively on specific institutions" where the instrumental value of an international institution is its ability to reduce the transaction costs of state interaction by systematizing expectations (167-169). METs, from this perspective would be isolated instrumental mechanisms, designed for specific purposes.

The reflective approach "emphasize[s] that individuals, local organizations, and even states develop within the context of more

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[5] See also: Young, 1995; Haas, P., 1993b.

encompassing institutions. Institutions do not merely reflect the preferences and power of the units constituting them; the institutions themselves shape those preferences and that power. Institutions are therefore constitutive of actors as well as vise versa." (Keohane, 1989: 161, emphasis in original). According to the reflective approach specific METs cannot be understood outside of the broader institutions that make up international society. In rationalistic approaches the agents create structures; in reflective approaches the structures, at least in part, create the agents.

Alexander Wendt and Raymond Duvall point to this same basic division in more overtly ontological terms (Wendt and Duvall, 1989). Wendt and Duvall distinguish between New Insitutionalism and Old Insitutionalism, which are substantively similar to Koehane's two categories. New insitutionalism is characterized by a "state centered, choice theoretic formation of the problem of creating international institutions and order." Conversely, the old insitutionalism looks at the role of "international society" in "ordering" the international system(Wendt and Duvall, 1989: 51-53: See also Haas, 1993b: 169-171).

Both of these works draw attention to the underlying conception of the state, whether it is individualistic or socially constructed (see diagram one below). On the individualistic side, states are seen as fundamentally autonomous units unconnected to the other states in the system. States are assumed to exist, and the focus is on explaining specific state behavior. On the sociological side, states are primarily expressions of social relationships, and explanations of state behavior are intimately connected to the

processes by which states come to exist.[6] At each extreme are theories that virtually deny the influence of the other realm. On the far left, states would be seen as autonomous from other states or the international system. Realism probably goes the farthest in this direction, hypothesizing raison d'état—that states have their own reasons for acting. Interactions between states are understood as purely instrumental, directed at maximizing state power and security, not as constitutive of states themselves. Structural realism, backs off from this extreme only enough to allow the system to have a role, while keeping the major assumptions about the state found in realism—hence the term neo-realism. On the far right, states are seen as merely expressions of social forces, virtually denying state agency. World system theory occasionally comes close to reducing state action to the needs of economic classes.

Individualistic Sociological

Figure 1- Continuum of state autonomy

The difference between the theories is the way in which they conceptualize the state, or their ontological view of the state—what they think the state is. Does it exist as an autonomous entity or is it

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[6] This parallels the general split between psychology and sociology. In psychology, humans are presumed to have innate needs and drives that influence their actions. In sociology, humans needs and drives are thought to be 'created' by socialization. While all good theorists blend the two approaches, usually one or the other is held to be more primary, because the theorist has come to understand human nature from one or the other perspective. Theorists still tend to think of either the individual or society as more primary even as they appreciate the other realm.

located within a social context? The answer to this question fundamentally influences the kinds of explanation provided. Arrayed between the two extremes would be a number of theories that appear to overlap, but still differ in their ontological assumptions (this is why the continuum is drawn thick). For example, regime theory and those focusing on international society share a focus on institutions, but the character of their explanations is different (Evans and Wilson, 1992: Buzan, 1993). As will be shown, these different explanations result from their different understandings of the state.

Following the question of the quiddity, or essence, of the state, is the question of how these parts interact to form a pattern, or system. Theories that conceptualize the state differently conceptualize the "pattern of interaction" differently as well. Those that abstract the state towards an autonomous unit, tend to conceptualize the pattern of interaction in terms of the position of the units relative to one another (Dessler, 1989). For these theories a system is organized spatially or positionally, and the focus is on the "structure" of the international system.

Two prominent examples of this type of theory are structural realism and neo-institutionalism, both of which conceive of the international system in positional and structural terms to such an extent that it is occasionally difficult to distinguish the use of the terms 'structure' and 'system.' This is especially true in the work of Kenneth Waltz, and can be seen if we finish the quote begun above; "A system is defined as a set of interacting units. At one level, a system consists of a structure, and the structure is the systems-level

component that makes it possible to think of the units as forming a set as distinct from a mere collection. At another level, the system consists of interacting units."

The identification of structure and system creates problems when Waltz tries to define structure. His definition of "structure" goes against his own definition of a system: "To define a structure requires *ignoring how units relate with one another (how they interact)* and concentrating on how they stand in relation to one another (how they are arranged or positioned)...A structure is defined by the *arrangement* of its parts"(Waltz, 1979 p. 80. emphasis added). Waltz defines a system as interacting units that possess a structure, yet to identify structure he ignores the interaction of the units! This identification of the system with its structure leaves Waltz with a static, purely positional or spatial understanding of systems (Buzan, Little and Jones, 1993). This understanding of structure is also present in the neo-institutionalists such as Keohane: "The variables of a systemic theory are *situational*: they refer to the *location* of each actor relative to others"(Keohane, 1984. p. 25). This follows from their understanding of the state as an autonomous unit in a world of like units. Since the units are defined as autonomous, the only possible interaction is static and positional.

On the other side are those theories that conceptualize the state as located within a nexus of social relationships, which I call sociological theories. The particular pattern of interaction that marks off a social system from its surrounding environment is the institutionalization of certain social relationships. Relationships between individuals are "institutionalized" when there are clearly

distinguished roles that carry with them behavioral rules and obligations understood by the actors themselves (Keohane, 1989: 162-4). From the sociological perspective systems are contained in the institutionalized relationships between units—or specifically in the shared understandings of the actors.

Exemplifying the sociological approach to the international system is the work of the English School,[7] which centers around the notion of an international society (Wilson, 1989). As Hedley Bull defines it: "A society of states (or international society) exists when a group of states, conscious of certain common interests and common values, form a society in the sense that they conceive themselves to be bound by a common set of rules in their relations with one another, and share in the working of common institutions" (1977: 13). In this view, the *cognitive* relationship between states creates an international system. It is not their position *vis-à-vis* one another that is important but their understanding of one another.

The conception of a system in structural or sociological terms leads to different understandings of how the system affects state behavior. Structural theories, tend to see the system as a constraint on state action. The position of states limits what they can do, but it does not drive states towards particular actions. Sociological theories, because they focus on rules of behavior, tend to see the

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[7] While the term "international society" is becoming more acceptable (see for example the recent work by Buzan, Little and Jones, 1993), I prefer the term English School. The term English School, while imprecise as a geographical description, is already used to describe the interpretive sociological approach of many English scholars. In addition, the term English School distinguishes the theoretical approach from the actual international society.

system as generating state behavior as well as constraining it (Dessler, 1989; Keohane, 1989; Wendt and Duvall, 1989).

Structural and sociological accounts follow from different understandings of the world and how we gain knowledge about it—different ontologies and epistemologies. Different ontological understandings and their resulting methodologies illuminate, or 'map,' only part of a given problem. The only way to broaden our understanding is by opening a dialogue between competing perspectives, to look at a number of different 'maps,' finding out what each has to contribute to our understanding of international relations. This study begins such a dialogue by looking at the substantive issue of METs, from numerous positions along the continuum of state autonomy. The next chapter, identifies four perspectives from which hypothesis for MET formation will be generated.

Outline of the Study

In Chapter Two, four systemic theories of international relations will be identified and defined: structural realism; neo-institutionalism; the theory of goods; and the English School. Proponents of these four approaches share the belief that an understanding of international relations requires an appreciation of systemic forces, they differ according to their conception of the state, the variables they use to explain state behavior, and the effects that these variables have on state behavior. From each of these theoretical approaches the important systemic variables will be

identified and theoretical hypotheses explaining MET formation will be constructed for each of these theories.

The different ontological and epistemological perspectives discussed above necessitate the use of different methodologies to understand and assess structural and relational theories. Therefore, Chapters Three and Four develop and test the structural theories: structural realism, neo-institutionalism, and the theory of goods. Chapters Six and Seven develop and 'test' the theoretical hypotheses of the English School.[8]

In Chapter Three the theoretical hypotheses from Chapter Two are developed into testable hypotheses for structural realism, neo-institutionalism, and the theory of goods. Each variable is operationalized and the appropriate sources of data are identified. Along with this, a research design for testing these hypotheses is developed. By using the United Nations Environmental Program Action Plan as an agenda of possible METs, it is possible to compare systemic variables across subsystems and assess their impact on MET formation.

Chapter Four identifies the appropriate statistical methods for judging the significance of the data, and the results of the empirical tests are presented and evaluated.

Chapter Five discusses the recent trend in international theory towards the appreciation of different paradigms for understanding international relations. The basic issues are presented using the

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[8] The notion of "testing" hypothesis from the English School is used with caution. Their underlying understanding of the world and how we relate to it leads to very different criteria for evaluation then do structural understandings.

analogy of a cognitive map. I argue that the ontological assumptions of structural theories prevent them from fully appreciating METs as an international phenomena.

Chapter Six lays out the theoretical basis for international society by examining the concept of sovereignty. The development of international society and its major institutions are discussed.

Chapter Seven discusses the change in international institutions to METs. First, the previous institutions linking sovereignty to the regulation of the natural environment are described. Next, the process by which changes in technology and the distribution of power eroded and outstripped these existing institutions is discussed. Lastly, the development of METs as a new institutional form linking sovereignty and the international environment is developed and defended by referring to understanding of states as expressed in treaty language.

Chapter Eight develops a model of change in international society and applies it to the case of MET formation. The influence of language on change is also discussed.

Chapter Nine serves as a summary and conclusion.

Chapter Two

Theories of MET Formation

This study focuses on the systems-level of international relations. Chapter One distinguished systems theories by whether they viewed systems as primarily structural or relational in character. The next step is to decide which systems theories to concentrate on for explaining METs. The four theories that will be used in this study are: structural realism; neo-institutionalism; the theory of goods; and the English School. These four theories were chosen for a number of reasons, both practical and theoretical.

Structural realism and neo-instutionalism are the main competing perspectives within the United States. Part of the purpose of this study is to assess the robustness of current theory, so it makes sense to consider the dominant theories in the discipline. Also they represent different positions on a continuum of state autonomy (diagram one). Structural realism is as close as possible to the idea of an autonomous state while still retaining the system as an important variable. Neo-institutionalism modifies, or softens, the strict structural realist focus on the state and power, looking at other interstate connections and other avenues of power and influence. In addition, both of these perspectives are used extensively by the existing research on regime formation, which this study draws on for hypotheses (Haas, 1993b; Young, 1993b: Efinger et al. 1993).

The theory of goods, has also enjoyed widespread attention in international relations research. While parts of this analytic framework are used by both structural realists and neo-institutionalists, it deserves to be considered on its own merits, disentangled from the other perspectives.[9] The theory of goods, as discussed below, grew out of economic models. It shares the assumption with structural realism and neo-institutionalism that the primary actors, be they firms or states, are motivated by individual utility calculations. Hence, it would be towards the individualistic end of the spectrum, probably between structural realism and neo-insitutionalism. In addition, the theory of goods specifically considers the characteristics of resources and is therefore a good candidate for consideration when explaining METs. Lastly, there is widespread use of this kind of model in the existing literature to derive hypothesis for regime formation (Haas, 1993b; Efinger et al. 1993)

The last theory we will use to explain METs is the English School. This theory is not as well known in the United States, though there have been increasingly calls for integration and dialogue(Smith, 1986: Buzan, 1993; Hurrell, 1993). The incorporation of the English School in this study helps facilitate this dialogue and integration. In addition, the English School has a different understanding of the state, one that is much more socially constructed, so it will facilitate the discussion of ontological perspectives. While there have been challenges to realism and neo-institutionalism from a sociological

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[9]This may not be entirely possible, as the characteristics of a good such as rivalness, divisibility and even excludability are at least partially socially

perspective within the United States, these criticisms are not as broadly developed as is the English School.[10]

Obviously there are many other theoretical perspectives that could be considered, such as perspectives from the third world. The four perspectives that will be discussed below are not meant to be representative of the field in general, only to represent different perspectives along the continuum of state autonomy. It is not possible to cover all possible candidates at the same time, and these four theories are both well known enough to be of interest, and diverse enough to allow for deeper analysis.

It requires a certain amount of deductive argument to develop theoretical hypotheses from these schools to explain MET formation, because theorists from these perspectives have not generally concentrated on MET formation. Each of these theories does identify certain key systemic variables that are viewed as fundamental in explaining state action, including interstate cooperation. These variables can be used to construct hypotheses linking these theoretical perspectives to MET formation. Also, the existing literature on regime formation includes hypotheses derived from these schools which can be adapted to the question of MET formation.

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constructed.

[10] Keohane (1989) points out that most theorists have focused their efforts on critiquing exiting theory, rather than developing explanatory theories of their own. The English School has a longer history and a more developed positive explanation of the international system which allows a more constructive theory; explaining why METs form rather than simply why they have not been the focus of research. This is not meant to minimize these other approaches, as will be seen below I am very influenced by both structuration and post-modernism, I focus on the English School because I want to explain METs and they have a more developed theory with which to do so.

We begin with structural realism and then work through the other three theories in sequence.

In the discussion that follows, I use particular theorists as examples of each theoretical approach. This is not meant to pigeon-hole theorists as many of the theorists discussed do not fit neatly into any one position. For example, Robert Keohane, who is used to illustrate neo-institutionalism, draws heavily on the theory of goods in much of his work. The point of this study is to test the underlying explanations of international behavior as they relate to METs, not to offer a typology of international theorists (a virtual cottage industry in the discipline). With this in mind the specific authors are used merely to illustrate the underlying assumptions and overall approach.

Structural Realism

Structural realism is typified by Kenneth Waltz's *Theory of International Relations.* Structural realism arose as a response to realism. Four assumptions about international relations underlie realist theory: 1) Nation states are the primary actors, and in foreign relations states are considered to be unitary actors; 2) Domestic politics can be separated from foreign policy; 3) Because there is no world government, the world system is anarchic and states must look after themselves. States are concerned foremost with their security, and rationally try to maximize their security; 4) The currency of

international relations is power.[11] In sum, for realism, international relations is composed of rational unitary states in an anarchic system attempting to maximize their security through power.

Structural realism, accepts these basic assumptions, but in addition argues that the arrangement of the international system is an important determinant of state behavior which has not been appreciated by traditional realism. For Waltz, the important element of the international system is its structure. Differences in structure are what allow us to distinguish changes in the international system over time. Waltz advances a three part definition of structure. First, he distinguishes between systems that are ordered anarchically from ones that are ordered hierarchically. An anarchic system, such as the current international system, is one in which power and authority are decentralized among nominally equal units (1979: ch. 5). This is contrasted with a hierarchical system, such as domestic politics, where power and authority are centralized and differentially located among unlike units.

The second part of Waltz's definition of structure is the "specification of functions of differentiated units" (101). This part of structure "drops out" in the international system since all the units are the same, states, and assumed to pursue the same interests, security.

The third part of structure is contained in the distribution of capabilities across units. For Waltz, changes in the distribution of

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[11] Power is a notoriously problematic word in international relations. It is usually defined as the ability to get someone to do what they would not normally do. Obviously this does not get us very far in understanding why

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capabilities amount to changes in the system. By the "distribution of capabilities" Waltz simply means differences in power. As he puts it: "Power is estimated by comparing the capabilities of a number of units" (98). These capabilities include: populations; territory; resource endowment; economic capability; military strength; political stability; and competence (131).

Following this definition of structure, Waltz characterizes the international system as anarchic because power and authority are decentralized among formally equal units. The international system has had an anarchic structure since the Treaty of Westphalia in 1648, so this part of Waltz's definition of structure offers little help in explaining international phenomena.[12] This leaves us with the third part of Waltz's definition of structure, the distribution of capabilities, as the only important independent variable in the international system.[13]

For Waltz, then, the international system's structure is contained in the distribution of capabilities across units. How does this structure affect the units? At one point Waltz defines a structure as "designate[ing] a set of constraining conditions" (73). For Waltz, the relative power position of each state acts as a constraint on its range of action. Because structure is seen as constraining state

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they do what they would not normally do. We will discuss power further and define is from a structural realist position below.

[12]It is arguable that the international system is anarchic by definition. To have *inter*national relations you must have a number of separate nations, just as to have *inter*galactic travel must have more than one galaxy. In the middle ages when the world system was organized hierarchically, when authority flowed downward from God through the church, there were no nation-states as such and hence no international relations (Wight, 1977: Knutsen, 1992).

action, rather than generating it, theoretical hypotheses generated from this framework tend to specify only necessary conditions for state action. For Waltz, system analysis can tell us "what possibilities are posed by systems with different structure, but it can not tell us just how, and how effectively, the units of the system will respond to those pressures and possibilities" (71).

In *Theory of International Politics*, Waltz is concerned with explicating the broad theory of structural realism. While he does provide examples of how this theory can be used to explain some international military and economic relations, he does not make an effort to deduce more specific theories to explain more particular phenomena such as METs. Since METs represent one form of cooperation among states, considering the structural realist position on cooperation in general will help us understand how they would explain this particular form of cooperation.

The anarchic "self-help" structure of the international system structures individuals states incentives against cooperation. In an anarchic world states can rely only on their own power to protect themselves. All other states are seen as competitors, or potential competitors, therefore states try to keep their dependence on other states to a minimum. If a state is dependent on another state, it is vulnerable to that state. An example of this is found in state's attitudes toward access to raw materials such as oil. Countries that have no domestic petroleum production are perceived as more vulnerable to other countries than those that do—Japan is more

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[13] In a recent book Buzan, Little and Jones (1993) have tried to develop structural realism beyond the narrow realm that is necessitated by Waltz's idea

vulnerable than the US. States prefer to be as independent as possible according to structural realists assumptions.

To lessen their vulnerability states seek to control what they depend on—to lessen their dependence. As Waltz says: "States do not willingly place themselves in situations of increased dependence" (p. 107). One way to gain absolute control is to simply conquer the resources in question. Another, less drastic way to gain control would be to negotiate a treaty that guaranteed access to raw materials or finished products. Every state would like to create treaties that secured what it needed for itself without helping other states do the same. The zero-sum nature of international cooperation follows from the structural realist understanding of power as a relative commodity. Only be having *more* than our competitors do we have power over them. Therefore, every country wants to do better than other countries in negotiations. In a situation where each country demands the lion's share of relative gains from cooperation, we would expect very little cooperation.

How do structural realists explain the existence of treaties? Treaties, and cooperation in general, are most often explained by the concentration of power in one country, called a hegemon, which secures the cooperation of the other parties to the treaty. Countries are reluctant to increase their dependence on other states because they cannot trust other states. The existence of a very powerful state, a hegemon, can ensure that the other states in the system cooperate. This idea is developed by Robert Gilpin in *War and Change in World Politics*. Gilpin argues that in "every social system

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of structure. Many of their critiques and suggestions are parallel to my own.

the dominant actors assert their rights and impose rules on lesser members in order to advance their particular interests." Further, the "most significant advance in rule-making has been the innovation of the multilateral treaty and formalization of international law" (36). From a structural realist perspective, multilateral treaties, which would include METs, would be most likely to form when power was concentrated. This can be stated formally as:

Hypothesis 1: *The concentration of power in one country will increase the probability of MET formation.*

Much of the literature on regime formation considers the same relationship between concentration of power and regime formation. Young and Orsherenko consider whether or not "the participation of a single dominant party" effects the success of regime formation (1993: 228). Efinger et al, consider as a specific hypothesis, "If the distribution of overall power among states concerned is such that one of these states holds a hegemonic position, an international regime is established in the issue-area" (Efinger et al. 1993: 261). Haas and Sundgren also consider the specific question of whether or not concentration of power in a hegemon is useful in explaining Multilateral Environmental Treaty formation.[14]

Neo-Institutionalism

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[14] Unfortunately, Haas and Sundgren only consider whether the United States signed the treaty as their measure of Hegemony (1993a).

Neo-institutionalism, like structural realism, can be seen as a reaction to realism. Neo-institutionalists, at least as represented by Keohane, agree with structural realists that there are systems level forces that must be taken into account to explain state behavior. They also agree that the international system is best characterized by positional metaphors.[15] What distinguishes Neo-institutionalists is that they relax the basic assumptions of realism—except the assumption that states act rationally. Robert Keohane, a leading Neo-institutionalist, lays out the basic differences between his position and a realist position.[16]

- The assumption that the principal actors in world politics are states would remain the same, although more emphasis would be placed on non-state actors, intergovernmental organizations, and

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[15]It is debatable whether all those who are called neo-institutionalists share the conceptualization of the system in positional metaphors. Part of the problem is the imprecision of typologies such as "Neo-Institutionalism." It often seems that this term, along with "neoliberalism," are used by realists and neorealists to describe those who do not agree with their state centered view. The important element is not the accuracy of typologies, but the movement rightward on the state autonomy continuum which neo-institutionalism represents. Keohane, the example used here, does share the state centric view only he softens it to include more social constraints. Further, he uses "rational" methods, which are consistent with an autonomous state understanding. Other scholars like Rosenau or Ruggie would be further right towards the sociological perspective. The ideal positions on the two extremes begin to lose their descriptive power as we get into the middle of the continuum. Sociological perspectives that focus on state security start talking like structural realists. Likewise, those with a more realist understanding of the state who look at transnational cooperation start to look more sociological. I would still argue they have different ontological understandings and hence their explanations differ.

[16]Keohane refers to his own position as a modified structural realist position in "Theory of World Politics: Structural Realism and Beyond," 1986, from which the following quotes are taken (p 193-4). In a later work he refers to his position as a neoliberal institutionalist. (Keohane, 1989) I use the term Neo-institutionalist to both point out the institutional focus of this approach, and to more clearly distinguish it from structural realism

transnational and transgovernmental relations than is the case in realist analysis.

- The assumption that states seek power, and calculate their interests accordingly, would be qualified severely. Power and influence would still be regarded as important state interests (as ends or necessary means), but the implication that the search for power constitutes an overriding interest in all cases, or that it always takes the same form, would be rejected. Under different systemic conditions states will define their self-interests differently.

- [This approach] would explicitly modify the assumption of fungibility lurking behind unitary conceptions of 'international structure.' It would be assumed that the value of power resources for influencing behavior in world politics depends on the goals sought. .... [further] power resources are differently effective across issue-areas...

The net result of relaxing these assumptions is that this approach "would pay much more attention to the roles of institutions and rules than does structural realism" (Keohane, 1986:193-4).

Neo-institutionalists have often understood METs as one kind of the broader phenomena in international relations called international regimes (hereafter simply regimes). Literature on regime formation focused on the system level is generally within the neo-institutionalist perspective. In the seminal volume on regime theory, Stephen Krasner describes the perspective that most of the authors share as "Modified Structural." He continues "They accept the basic analytic assumptions of structural realist approaches... [b]ut they maintain that under certain restrictive conditions... international regimes may have a significant impact" (Krasner, 1982a:185-6). We

can reasonably use a hypothesis about regime formation to explain METs if there is a conceptual affinity between METs and regimes.

To demonstrate that METs and regimes share many characteristics we must first define a regime. Unfortunately, this has been a recurrent problem for regime theory in general. In their review of the literature Haggard and Simmons distinguish three definitions of regimes, from very loose to quite narrow: the most broad definition "equates regimes with patterned behavior"; the middle one, developed by Stephen Krasner, defines regimes as "sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations."; and the most narrow limits regimes to "multilateral agreements among states which aim to regulate national actions within an issue-area" (Haggard and Simmons, 1987: 493-5: See also Rittberger: 1990).

These definitions allow a range of international behavior to be considered regimes, though all of these theories would include METs as one kind of regime. METs are frequently used as examples by regime theorists in their research. METs also share many of the same characteristics. [17] First, both regimes and METs are long term, durable arrangements. While many bilateral treaties are short term agreements, almost all METs are specifically designed to facilitate long term interaction over the particular issue. This is evidenced by

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[17]This is especially true of the work by Oran R, Young, from whom the third definition in Haggard & Simmons is taken. For his most recent work see Polar Politics cited above.

the usual practice of establishing a base convention over a certain area and then negotiating a series of subsequent protocols.[18]

Second, both regimes and METs are issue specific. And third, regimes recognize principles and norms, as well as spelling out procedures and rules (Krasner, 1982a). Most METs begin with a statement laying out the purpose of the convention using the language of rights and duties with regard to the area or resource in question. The rights and duties of a MET are directly analogous to the principles and norms of a regime.

Since METs and regimes are fundamentally similar, existing explanations of regime formation can be applied to METs. Krasner identifies three basic explanations for regime formation. First, regimes may form out of egoistic self-interest. States realize that to get the things that they want requires coordinating their activities with other states. A second explanation of regime formation is political power; those with more power create regimes either to forward their particular interests or in service of the common good. The third explanation of regime formation relies on underlying norms and principles, such as sovereignty, which facilitate the development of auxiliary institutions or regimes (Krasner, 1982a).

This study concentrates on the second and third explanation. The first explanation, that regimes form out of egotistic self-interest, is difficult to work with at the level of the international system. It would be difficult to gather evidence regarding the preferences of states regarding collaboration on international environmental

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[18]Numerous examples of this exist, one of the most famous is the 1979 Convention on Long-Range Transboundary Air Pollution, with subsequent

topics.[19] States may not have fully formed preferences, or they may misstate them for bargaining position.[20] Another major problem is the treatment of preferences as exogenously given. Negotiations over a particular topic can be expected to function as a learning process for those involved. They will come to understand the issue differently as they negotiate, leading to what Peter M. Haas calls an "epistemic regime" (Haas, 1989: 1993b).[21] In addition, these approaches often mask the role of power in the formation of the regime by assuming universal preferences. As Haggard and Simmons point out "the institutions that emerge in world politics are certainly more likely to reflect the interests of the powerful than the interests of the weak"(1987: 508).

The third explanation of regime formation, that they reflect underlying norms and understandings such as sovereignty, is very similar to the explanation provided by the English School. As mentioned above,[22] the clarity of our state autonomy continuum becomes much fuzzier in the middle where it becomes difficult to distinguish the underlying perspectives. I focus on the power centric explanations for regime formation because they are nearer to structural realism, while still containing sufficient differences to be worth testing. Many scholars such as Keohane explicitly identify

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protocols negotiated in 1985, 1988, and 1991.

[19]In Young and Osherenko's work (1993a, 1993b), a team of collaborators collected this kind of data for five environmental treaties.

[20] See Haggard and Simmons, 1987, for a good summary of critiques of all three Explanations of regime formation.

[21] Peter Haas' work on epistemic regimes is arguably sociological in its ontological basis, since it is the shared understandings that are the focus on inquiry. (see Haas, 1989: 1993b). Again, the major goal of this study is not to typologize but to test the underlying assumptions.

[22] Footnote 15.

themselves with the most important structural realist assumptions, especially the ontological assumptions about the state, even as they modify them somewhat. More sociological perspectives, such as epistemic regimes, are ontologically closer to the English School, therefore, their separate treatment here is not warranted.

Neo-institutionalist explanations of regime formation based on power produce a refinement of the concentration of power hypothesis derived from structural realism. Neo-institutionalists point to the fact that power is different in different issue-areas, and not the unitary conception of power often used by structural realists.[23] While power is different in different issue-areas it is not necessarily fungible across all issue-areas: in different issue-areas different resources constitute power, and these are not always transferable. For example, control over a particular natural resource, such as tropical hardwood, would lead to power in the negotiation of a regime, or MET, governing those resources. For this issue-area power to be effective, the neo-institutionalist assumption that states have goals other than security must be true. There must be a space in which military power is unusable, or ineffective, in order for issue-area power to be usable and effective. With these modifications, Neo-institutionalists still see the concentration of power as an important condition for regime formation (Keohane, 1984). This can be stated formally as:

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[23] Efinger et al, make a similar argument and derive a similar hypothesis relating concentration of issue-area power to regime formation (1993: 261).

Hypothesis 2: *The concentration of issue-area power in one country will increase the probability of MET formation.*

Theory of Goods

Our third theory, the theory of goods, has a different pedigree than does structural realism and neo-institutionalism, though it shares many of the same ontological assumptions. The theory of goods grew out of the economic theory of public expenditure (Samualson, 1955: Head, 1962). The theory of goods looks at the characteristics of a good, such as whether other people can be excluded from enjoying the good, as a way of explaining whether or not it will be efficiently produced. A "good" is usually something tangible such as decreased pollution output, but it can also refer to intangible goods such as increased information from atmospheric monitoring, or changes in state behavior. The focus is generally on goods which will not be produced efficiently by a free market. These goods require government intervention to be produced at an economically efficient level (pareto optimality), hence they are called "public goods." Many different characteristics of goods have been identified as requiring government action for optimal production.

If certain characteristics of goods prevent their production at the domestic level without the assistance of government, then the same should be true at the international level. Those characteristics which prevent efficient production domestically should make the formation of a MET more difficult internationally given the lack of world government. The negotiation of METs relating to public goods

is expected to be more difficult, requiring longer periods of time. If the public goods characteristics of a specific environmental good are understood, be it pollution abatement, preservation of a species, or protection of the ozone, the difficulty of forming an agreement in this area can be predicted.

The theory of goods accepts the basic microeconomic assumptions about rational individuals trying to maximize their expected utility. This is identical to the realist and neo-institutionalist assumptions about states rationally trying to maximize their security or gains from cooperation (Waltz, 1979: Keohane, 1984). The theory of goods is a systemic theory, in that it focuses on the pattern of interaction, which is conceived of as a set of utility functions of similar shape. Since each individual prefers to free ride rather than provide the good, the good is underproduced. While the theory of goods starts with individual rationality it is the resulting socially irrational outcomes, the resulting pattern of interaction, that are the focus. When the pattern of utility functions resemble those of a public good then this pattern acts to structure the outcome.[24] In this sense the theory of goods would structure state action in the same way as different characteristics of the good would be expected to effect the outcome of attempts at cooperation.

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[24] On occasion, the theory of goods does deal with a more relational understanding, or one in which the understandings of the parties involved are at least as critical as the objective characteristics of the good. This is often refereed to as the interdependence of utility functions, and it makes it virtually impossible to determine the shape of the utility function and therefore pareto optimality. (Hart and Cowley, 1974: 360-1). Given this difficulty, most researchers have assumed independent utility function which is aligned with realist and neo-institutionalist structures.

In Samualson's original formulation, a "collective consumption good," now commonly referred to as a public good, exhibited the characteristics of jointness and excludability. Jointness is when "each individual's consumption of that good leads to no subtraction from any individual's consumption of that good" (1955: 179). Head puts the same idea this way, "any given unit of the good can be made equally available to all" (1962: 201). For example, driving on a given stretch of highway does not prevent another person from using that highway in the future.

While it may be possible for a road to accommodate many other drivers it is not always as easy for us to accommodate them. When the road becomes "congested" the utility we derive from it is decreased. This problem is described as rivalness, or the tendency for one person's consumption of a good to decrease another person's utility derived from the good even if it does not affect the amount of the good available. As Taylor points out "rivalness, unlike divisibility, is strictly speaking a property of individuals (or of their utility functions), not of the goods themselves" (Taylor, 1987: 7-11). This study is interested in the characteristics of the goods, and therefore divisibility is used instead of rivalness.

Those goods that do not exhibit jointness of consumption, such as a slice of pizza or a can of soda which are entirely consumed will be produced efficiently by a free market. Each customer will pay up to her marginal utility for the good, and producers will produce the good up until the marginal cost of the good is equal to this marginal benefit. With joint consumption goods, however, there is an incentive for each individual to give "false signals, to pretend to have

less interest in a given collective activity than he really has" (Samualson, 1955: 182). By understating their preferences they can potentially lessen their costs while still receiving the full benefits—they can free ride. To the degree that goods possess the quality of jointness this free rider problem will increase.

A related concept is the idea of indivisibility. A good is indivisible, sometimes referred to as "lumpiness", if it is difficult "to assign fractional shares of the total benefit to individual consumers based on their share of consumption" (Hart & Cowley, 1974: 352). Divisible goods allow those who pay the cost to receive a proportionate share of the benefit. If you and I are buying a pizza, it is relatively easy to match costs and benefits. If the pizza has eight slices and we each pay half we should each get four slices. If you pay three quarters, you should get six slices etc... With indivisible goods it is difficult to match the benefits to those who pay the cost because it is difficult to divide up the benefits. If a neighborhood agrees to share the cost of a private security service to patrol the streets, how should we divide the cost? Each could argue that the other benefits more than they do. When the good itself is indivisible it will pose problems because each person would undervalue their benefit to shunt the cost onto others.

Jointness and divisibility, though distinct, are closely related and in the literature are often considered together (Taylor, 1987: 7-11). Jointness is generally related to the problem of pricing a good for consumption, where divisibility is focused more on the problem of provision of a particular good to particular consumers (Hardin, 1982, p. 19). This study is concerned with whether or not people

would cooperate in the provision of a collective good, a MET, rather than with the appropriate pricing structure for goods that already exist.[25] Therefore, this study focuses on divisibility.

The second characteristic of a good for Samualson is excludability, or the feasibility of excluding others from consuming or enjoying the good. An ideal public good would be perfectly non-excludable, meaning once is was produced no person could be kept from enjoying the good. In reality, virtually every good is excludable, only the cost of exclusion may be unrealistically high. A public good would be one in which the cost of excluding someone from consuming a good is higher than the cost of allowing them to consume it (Hart and Cowley, 1974).

In economics this situation is known as an externality, where the total costs or benefits of production or consumption do not fall entirely on the producer or consumer. Externalities can be either positive or negative. A positive externality is where a producer or consumer cannot exclude other people from enjoying the good even if they do not pay for it. If I hire a private security guard to sit on my front lawn, my neighbor will benefit from lower crime without paying the costs. A negative externality is when people other then the producer or consumer cannot exclude themselves from bearing part of the costs of production or consumption. We all breath in pollution from automobiles, even if we do not receive the benefits of

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[25] How the costs of provision of a particular MET is to be divided clearly enters into the negotiation of the MET. For example, the cost sharing between northern and southern countries has been integral to METs related to the Ozone, Global Warming and the Deep Seabed. Unfortunately, a full consideration of all of these issues for each of these treaties is beyond the scope of the present work.

driving them. The difficulty in excluding others from paying the costs or receiving the benefits leads to similar free rider problems as with jointness. In the case of a positive externality less of the good will be produced because people will wait for someone else to produce the good which they can then enjoy. In the case of a negative externality, too much of the good will be produced because much of the cost is passed on to others.

From the above discussion we can make reasonable predictions on the possibility of cooperation.[26] To the extent that goods have indivisible characteristics, negotiations of international agreements can be expected to be more difficult. Conversely, the more divisible the benefits from cooperation the less difficult negotiations are expected to be.

Hypothesis 3: *The more a good is characterized by indivisibility the less likely a MET will form around that good.*

If a good is excludable then those who do not cooperate can be kept from enjoying the good. If a good is not excludable then anyone can enjoy the good whether they cooperate or not. In these situations there is a temptation to free ride on the cooperation of

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[26] Much of the literature on regime formation has focused on whether or not the situation is a coordination or dilemma type game (Efinger, 1993), or whether they are collaboration or coordination games (Haas, 1993a). I prefer to treat the characteristics of the good rather than the preferences of the actors, though these are not really separable. In my opinion, it is easier to assess the divisibility or excludability of a particular environmental issue, than it is to assess the utility curves from numerous parties as they relate to this particular issue. This is p[art of the reason for not using rivalness in this study. Further, the assessment of utility functions for hundreds of states in scores of different situations is simply beyond a broad based study such as this.

others. Clearly, states would be inclined not to cooperate if they could enjoy the good anyway. This would hold true for both positive and negative externalities, if it were a positive externality those who benefit without paying would not want to cooperate; if it were a negative externality those who shunt the costs would not want to cooperate.

Hypothesis 4: *The more excludable a good is, the more likely a MET will form around that good.*

The English School

The English School of international relations coalesces around the idea of international society.[27] The sociological approach used by the English School is shared by many writers who are not "English." For example, both Oran Young (1995) and Hedley Bull (1977) have used the term. Further, much of the work on international regimes that focuses on the understandings and social elements of international cooperation shares certain elements with the English School (Evans and Wilson, 1992: Buzan, 1993: Haas P. 1993b). I use the term "English School" to denote this approach because they, as a group, have consistently used a sociological perspective to understanding international institutions. While this approach is

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[27]Some theorists debate whether there is a distinct English School of international relations. I will lay out in more detail below the theoretical understanding that I refer to as the English School. For more on this debate see Grader, 1989 and Wilson 1989.

becoming more accepted in the US, it is less organized and developed than in England (Keohane 1989).[28]

International society comes into existence when "a group of states conscious of certain common interests and common values, form a society in the sense that they conceive of themselves to be bound by a common set of rules in their relations with one another, and share in the working of common institutions" (Bull, 1979, p. 13). The constitutive rule that creates the states-system is the acceptance of the idea of territorial sovereignty by states. The existence of sovereign states is assumed by the three other approaches discussed above. The English School, by contrast, considers how the state system is constantly remaking itself through time. Buzan, Little and Jones lay out this difference well: "In an anarchic system competition drives states to reproduce their autonomy, and in the process, reproduce the structure of the anarchic system. But in and anarchic society, the states are sovereign units and they are reproduced by the process of mutual recognition and common practice. The practices associate with sovereignty simultaneously and intentionally reproduce the anarchic society" (1993: 168).

Sovereignty is understood by the English School as the foundational rule of the modern international system, without which

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[28] It seems that there is an increasing Balkanization in IR theory, especially on the reflective side. As Wight points out, the underlying belief in the incommensurability of paradigms has led to an intellectual free-for-all, where numerous perspectives talk past each other or not at all. He lists: Realist, neorealists, globalists, pluralists, neoliberal insitutionalists, critical theorists, [C]ritical [T]eorists, structuralists, post-structuralists, modernists, post-modernists, Marxists, post-Marxists, feminists, post-feminists, Interpretivists, humanists, thin-constructivists, thick-constructivists, positivists, and post-positivists. This list is obviously incomplete, and is not meant to offend any

there could be no international relations at all (James, 1986). Historically, the modern state system began with two contemporaneous developments: the development of the idea of sovereignty most notably by Bodin (Hinsley, 1966); and the increasingly formal recognition of this principle culminating in the Treaty of Westphalia in 1648 (Wight, 1977.). Since that time, this system has gradually extended its reach over the entire globe (Bull and Watson, 1984: Watson, 1992).

Since the beginning of the international society, secondary or "regulative" institutions have developed linking sovereignty to different aspects of international intercourse (Young, 1995). For example, the rules of war are an institution which regulates the violent intercourse between countries through such practices as guaranteeing the safety of embassies. METs can be understood as the current institutional form linking the idea of sovereignty to the international environment.

To understand METs as an institution in this respect, we must understand why the preexisting institution was replaced with METs. Changes in the international society are thought to result from both internal and external pressures (Northedge, 1971). The two most discussed variables are technology and distributions of power. Changes in technology can be thought of as occurring outside of the international system. Technological innovation is not dependent on the mutual recognition of territorial sovereignty (though the impetus to develop new technologies, particularly military technology, may

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theorist by not including their preferred nominal identity builder. See Colin Wight, 1996.

be an outgrowth of the system). Changes in technology effect the scope and character of international intercourse. The revolutionary changes that have occurred in this century can be expected to have subverted some existing institutions, necessitating the creation of new ones.

Challenges from inside the system would come from major redistributions of power or influence within the system. The world that emerged from the World Wars was markedly different in both the number of states and the distribution of power than the system before the Wars. Major changes in the constituency of the international system can be expected to force changes in the existing institutional arrangements.

Trying to construct theoretical hypotheses from this perspective is difficult. Generally, the English School shies away from the positivist approach to the study of international relations (Bull, 1966; Wilson, 1989). Furthermore, reflective or interpretivist models of understanding are less amenable to a hypothesis testing model of validation. Still we can tease out some linkages between concepts. If METs do represent a new institutional form linking sovereignty to the international environment then there must have been changes in the system that precipitated the changes in the institutions. Hence:

Hypothesis 5: *If METs represent a new institution linking Sovereignty and the international environment then we would expect some kind of major change in the 1) technological capacity to affect these resources and/or 2) the distribution and/or the*

constituency of the international system top have precipitated this change.

A cursory knowledge of history supports these two hypotheses, but this in itself does not show that the idea of international society is important for understanding the change to METs. To argue this point we need to show that the changes represented a change in the auxiliary institutions linking sovereignty to management of the international environment. Evidence that the notion of sovereignty mattered in the creation of the new institutional form of can be found in the development and language of the treaties themselves.

Hypothesis 6: *If METs represent a new institutional form linking state sovereignty to the international environment, then we would expect the idea of sovereignty to have been important in the negotiations and to be reflected in the outcome—the treaty texts.*

Four theoretical approaches to the international system have been discussed resulting in six theoretical hypothesis linking systemic variables to MET formation, summarized below. Chapter Three develops these theoretical hypotheses into testable hypotheses, and constructs an appropriate research design for evaluating each hypotheses.

Theoretical Hypothesis

Structural realism

Hypothesis 1: *The concentration of power in one country will increase the probability of MET formation.*

Neo-Institutionalism

Hypothesis 2: *The concentration of issue- power in one country will increase the probability of MET formation.*

Theory of Goods

Hypothesis 3: *The more a good is characterized by indivisibility the less likely a MET will form around that good.*

Hypothesis 4: *The more excludable a good is, the more likely a MET will form around that good.*

The English School

Hypothesis 5: *If METs represent a new institution linking Sovereignty and the international environment then we would expect some kind of major change in the 1) technological capacity to affect these resources and/or 2) the distribution and/or the constituency of the international system top have precipitated this change.*

Hypothesis 6: *If METs represent a new institutional form linking state sovereignty to the international environment, then we would expect the idea of sovereignty to have been important in the negotiations and to be reflected in the outcome—the treaty texts.*

Chapter 3

Operationalization and Research Design

The preceding chapter derived six different theoretical hypotheses from four systems theories. This chapter constructs a test of four of these theoretical hypotheses. The testing of the hypotheses are divided into two groups according to their underlying understanding of "system": structural realism, neo-institutionalism and the theory of goods, are tested in this Chapter, and the English School in Chapters Six and Seven. Earlier it was argued that different ontological understandings lead to different epistemologies. If different perspectives understand the world to be made up of fundamentally different entities, different methodologies will be appropriate for studying them.

To developing a test for the structural theories, this Chapter, begins with a discussion of the difficulties involved in testing systemic theories. Next, the difficulty of selecting cases for testing the effect of these variables on MET formation is discussed, and a research design that solves the bulk of these problems is developed. The last four sections deal with how to measure the variables.

Testing Systems Theories

To evaluate how systemic variables condition MET formation the systemic variables must be able to change. This is a problem for

international relations in that there is only one international system. This allows little, or no, variance in the independent variable making it difficult to analyze its effect.[29] A useful way to approach this difficulty is to disaggregate the global system into a number of sub-systems. If we disaggregate the international system into a number of subsystems, we can compare the effect of systemic variables across subsystems. To use this approach we must be able to theoretically and empirically justify the separation of the subject matter into subsystems.

Neo-institutionalism and the theory of goods inherently divide the international system into a number of subsystems. Neo-institutionalism focuses on the differences between issue-areas which are analogous to subsystems. Similarly, the theory of goods relates only to those states concerned with the particular good in question, such as the Baltic Sea. While not as obviously suited to this disaggregation of the international system into subsystems as neo-institutionalism, structural realist assumptions allow for using this as well. Buzan, Little and Jones argue that the subsystem level of interaction may have been the dominant organization of the international system historically, and that within these subsystems, structural logic would still apply (Buzan, Little and Jones, 1993:158-9). It is commonplace to talk about the politics of the Middle-East,

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[29]The other alternative to incorporating change in the international system is to look at the global system at different points in time. For example, theories revolving around the idea of hegemony generally look for changes in the concentration of power over time. The development of METs has been rather recent and the global distribution of power has not changed markedly during this time. It is possible that the collapse of the Soviet Union may effect the growth of METs but it is too early to tell. For a good historical approach to hegemony see Goldstein, 1988.

Southeast Asia, and the Pacific Rim, for example.[30] The distribution of power across these different subsystems, rather than the global distribution of power, would be used to determine how different distributions of power affect state actions (Neumann, 1992).

To compare the effect of systemic variables across subsystems we must be able to argue that the subsystems are relatively self-contained with their own distinctive pattern of interaction. This is possible with most global environmental problems. While recent environmental literature has been stressing the global interactions of the environment, it is still common to talk about environmental subsystems, such as the Amazon rain forest, the Caribbean, and the Baltic. In a given subsystem the majority of the inputs and outputs that regulate the subsystem would be contained within a geographic area. For example, the majority of the rain and biotic mass produced by the Amazon rain forest stays within the Amazon. The Amazon is not immune to influences from other parts of the globe, but actions taken within the geographic limits are more pressing than those taken without. Regulation of the global environment has tended to be focused around these identifiable areas, or ecosystems.[31] A second way the global environmental system has been disaggregated into subsystems is through the regulation of specific activities or pollutants, such as oil pollution or CFC's.

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[30]Waltz discusses balances of power as taking place within a "given arena" which is the logical equivalent of a subsystem. Waltz, 1979. p. 124.

[31]I do not mean to imply that the political responses to environmental problems have always recognized the idea of ecosystems in their regulation—they have not. Still, many ecosystems are geographically located, and political responses often overlap to a certain extent with these geographic boundaries. For example, many of the treaties dealing with ocean environments are designed around regional seas.

Selection of the Data

Disaggregating the international system allows the independent variables to change across subsystems, but it does not show how each independent variable effects the formation of METs. To look only at existing treaties would be insufficient. We want to understand how these variables influence the formation of METs, not simply whether these variables are present in the existing METs. To examine our question fully we have to know the potential issue-areas or regions around which METs could form, we can then compare the variance in the systemic variables across sub-systems to see if they help explain MET formation. Unfortunately, there are hundreds of possible areas around which METs could form.

What is required is a relatively comprehensive list of environmental issue-areas that predates the formation of METs. Such a list is provided by the Report of the United Nations Conference on the Human Environment 1972 (known as the Stockholm Conference). Awareness of international environmental problems had been growing during the 1960's precipitated by such disasters as the Torrey Canyon Oil spill, as well as the scientific discovery of the Boisphere[32]. The Stockholm Conference was the first major global response to the increasing awareness of global environmental problems, marking the full acceptance of environmental issues on the international agenda.

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[32] For a more complete discussion of the development of the Stockholm Conference, as well as the international environmental movement generally, see Lynton Keith Caldwell's International Environmental Policy: Emergence and Dimensions, Duke University Press, 1984.

The Stockholm Conference produced an agenda for action containing one hundred and nine recommendations regarding global environmental assessment, management, and supporting measures.[33] This lists is a comprehensive statement of the perceived threats to the international environment, and will therefore include most areas for international action. The separate areas identified in the Stockholm agenda can be considered as identifying the subsystems for potential MET formation.

One problem with this approach is that only a few of the recommendations explicitly call for international treaties, so there is some discretion as to what constitutes an issue for international action in the form of a treaty. Along with those recommendations explicitly calling for an international treaty I include those calling for: "international agreements"; "international programmes"; "international action" and "international cooperation".[34]

Another problem is that many of the recommendations are calls for international agreements in a particular area, such as river basins, but the particular river basins that are under consideration are not specified. Again, we do not want to include every possible river basin treaty, only those that were actually considered for action. To fill out the list of issue-areas, additional United Nations documents such as *The World Environment 1972-1992* published by

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[33]See *Report of the United Nations Conference on the Human Environment*, Stockholm, 5-16 June 1972, published by The United Nations, New York, 1973. p. 6-28.

[34] The different language of the recommendations themselves could itself be important, indicating the level of concern that the conference attached to each of these areas. This level of concern would then effect the time of negotiation used below.

the United Nations Environmental Program are analyzed to complete a list of potential METs.[35]

A third problem with this approach is that some of the issue-areas recognized at Stockholm were surely on the agenda prior to the conference.[36] It is often difficult to identify the exact time when an issue makes it to the agenda. The use of the Stockholm conference overcomes this difficulty by providing an unambiguous date, and absolute certainty that the issue-area is on the agenda. Eventually, it would be possible to refine the data on a case by case basis, but such an approach is impractical here. For the first attempt at such work the Stockholm conference provides a reasonable beginning.

One last difficulty in reducing the international system to subsystems based on the Stockholm agenda is identifying which countries are relevant to a particular issue-area. If we are trying to measure the effect of systemic variables on subsystems we need a clear identification of the subsystems, and which countries are relevant. For the few treaties that are global in scope this does not present a problem; aggregate and issue power can be measured for all countries. For regional treaties I will use the signatories of the treaty to indicate the relevant parties. The main difficulty with this approach is that major players may not have signed the treaty. To not include these players would disrupt my measures of power concentration and undermine my findings. Peter M. Haas and Jan

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[35] A list of potential issue-areas is provided in appendix A.

[36] Many areas of international concern are covered by customary international law rather than by explicit agreements such as METs. The existence of preexisting customary practice would facilitate the growth of METs, and therefore influence the results of this study. As mentioned below, it

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Sundgren have identified those treaties in which a major player was absent (Haas and Sundgren, 1993). This list will be used to identify when this measure is problematic, and these situations will be corrected as much as possible. The next step is to define the variables, beginning with MET formation.

Dependent Variable: MET Formation

The focus of this study is to measure the effect of a number of systemic variables on the formation of METs. To identify whether or not a MET has formed in a particular area the International Register of Environmental Treaties published by UNEP was consulted. A MET is said to have formed on the signing date listed in the register.[37] It is not possible to look simply at whether of not a treaty has formed on a particular issue, as the vast majority of environmental negotiations end in a treaty of some kind. As Haas and Sundgren

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is not practical to consider all of these factors in the present work, and they will have to wait until later.

[37] It should be noted that the mere signing of the agreement is not the same as its entry into force. A treaty "enters into force" when a certain number of states have ratified the treaty. Nor is it the same as ratification, which refers to the acceptance of the treaty by the sovereign authority within each country. Signing is the acceptance of the agreement in principle by a state's representative.

It does not make sense to use either of these measures here. If we used ratification, which state's ratification would be appropriate? Treaties enter into force with less than unanimous ratification, so we could not use the date of the last ratification. If we used entry into force, the time of treaty formation would arbitrarily depend on the last state to ratify the treaty before the threshold number of signators was reached. If for example a particular MET entered into force when twelve states had ratified it, the entire variable would be dependent on the twelfth state. It seems better to focus on the date on which they agreed in principle because this was when the negotiation problems with which we are concerned have been essentially resolved. Ratification is more of a domestic political question than a systematic one and it will be left for others to consider.

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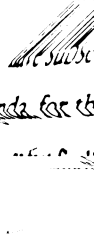

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point out, there "is a very small percentage of failed international environmental negotiations" (405). Since almost all negotiations end in a treaty, it is likely that the influence of power is played out in the negotiation process. Areas that had a concentration of power would require less negotiation time than those that did not. To test this facet of treaty formation the length of time from the issue-area being placed on the agenda to the signing date of a MET, measured in years, is introduced as a way of measuring the dependent variable. The use of the Stockholm Conference provides a starting date from which to measure the time to MET formation. Not all issues that have subsequently been subject to a MET were on the Stockholm agenda, for these cases the first international action of any kind, such as fact finding, will serve to indicate the appearance on the international agenda.

Operational Definition; MET formation: *The length of time in years between being placed on the agenda (usually, 1972) and the signing of a MET.*

One problem with this measure is that some of the issue-areas may be more complicated, or viewed as more critical than others. More complicated issues can be expected to take more time to negotiate. They would require more time to distill through the scientific knowledge and uncertainty about a particular issue. In the cases discussed in his book, *International Environmental Negotiation*, Gunnar Sjostedt noted that "Scientific and Technical uncertainty was critical in . . . environmental negotiation" (1993: 305). In the case of

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ozone depletion, the resolution of scientific disputes was instrumental in the successful negotiation of the Montreal Protocol (Széll, 1993).

Conversely, an issue seen as more critical might demand more resources from the outset and thus be resolved more quickly. If a country, or group of countries views the successful resolution of a particular set of negotiations as critical, either for domestic or international reasons, one could expect a shorter negotiation period. For example, negotiations on The Convention on Early Notification of a Nuclear Accident, were carried out relatively quickly, due in part to the recent Chernobyl accident, which made the success of negotiations much more critical (Sjostedt, 1993b:72-74). As long as there is not a relationship between the independent variables and how complicated or critical a particular issue is, these problems should be averaged out across the variables.

This assumption is justified for each of the independent variables. In the case of concentration of power there is no reason to assume that a particular issue is more or less critical or complicated because of the concentration of either aggregate or issue-area power.[38] The negative effect of pollution, for example, does not depend on the number of sources; there could be many sources or only one as it depends on the distribution and level of pollution

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[38]This is not to say that the designation of issues as critical is not related to the relative power and interests of the actors. States with more power may be able to get issues important to them onto the agenda more easily than other states. Still, in the United Nations, where each country is formally equal, the traditionally powerful countries, in both aggregate power and issue power, have not been able to set the agenda entirely to their liking. The negotiations on the Seabed within the Law of the Sea negotiations are a case in point (Buzan, 1976; Morrell, 1992; and Sebenius, 1984).

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relative to the ecosystem. The concentration of sources effects the solution to the problem, not the problem itself. The same relationship is present with the characteristics of the good. Whether a good is excludable or divisible does not effect how critical or complicated an issue is, only how easy the solution may be.

Let me briefly summarize the research design for testing the structural theoretical hypothesis. Our realm of possible METs is given by the Stockholm Conference (appendix A). This list of possible METs will be compared with the actual METs formed and the time taken to form each MET. The next three sections develop testable hypotheses linking the relevant systemic independent variables with the MET formation.

Operationalization of Independent Variables

Structural Realism:

Theoretical Hypothesis 1: *The concentration of power will increase the probability of MET formation..*

To test this hypothesis we need a definition of power and a measure of concentration. For structural realists, and realists generally, power has been conceived of primarily in military terms. Numerous attempts have been made to develop accurate indicators of national power, usually within the context of predicting when wars will occur (Tabor, 1989; Hower and Pudaite, 1989). Despite the development of a number of different, more complicated measures,

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GNP has been shown to accurately reflect the relative power of actors (Kugler & Arbetman, 1989).

Operational definition: *Aggregate Power for any given country is measured by GNP.*

Structural realism, along with its derivative hegemonic stability theory, assumes that concentration of power is a necessary condition for the formation of a MET, but what amount of power concentration?[39] Goldstein defines a hegemonic power as "a core state that commands an unrivaled position of economic and military superiority among the core states" (Goldstein, 1988: p. 5). This type of historical definition is of little use in distinguishing concentration of power across subsystems. Moreover, it limits the discussion to the binary choice of hegemon or non-hegemon, which is not very helpful. A more continuous measure of power can be constructed by forming a proportion between the GNP of the most powerful state, and the total GNP of all the states involved in the subsystem.

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[39] One of the problems with this kind of analysis is that the preponderance of power in one country may have little to do with concern or relationship to the particular treaty or issue in question. Does the concentration of power then still matter as much as structural realists suppose? From their point of view the answer would be yes. While they may not have a particular material interest in the resource, the fact that other states care about this area might give them power in another area in which they are more concerned. This critique is partly dealt with in the discussion of issue-area power and neo-institutionalist below.

Operational Definition: Power Concentration 1=

$$\frac{\text{The GNP of the most powerful actor}}{\text{The total GNP of all states in the issue-area.}}$$

With this operational definition we can restate our theoretical hypothesis as a testable hypothesis:

Testable Hypothesis 1: *As the ratio of the largest country's GNP to the total GNP in the subsystem increases, the time necessary to form a MET will decline.*

Generally distributions of power are not so fluid as to have changed markedly over twenty years, so I will measure power concentration as close to 1972 as the data permit.

Neo-Institutionalists:

Neo-institutionalists, especially Keohane and Nye, have pointed out the problems with a unidimentional measure of power such as GNP. They argue that power resources have varying levels of fungibility across issue-areas. In certain issue-areas the aggregate power of the country would be less important than the power within the issue-area (Keohane and Nye, 1989). To fully understand the effects of the distribution of power on MET formation they argue that the distribution of power within an issue-area needs to be considered. In the negotiations over the environment, control over

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the particular resource in question would be usable power in the negotiation of a treaty regarding that resource (Habeeb, 1988).

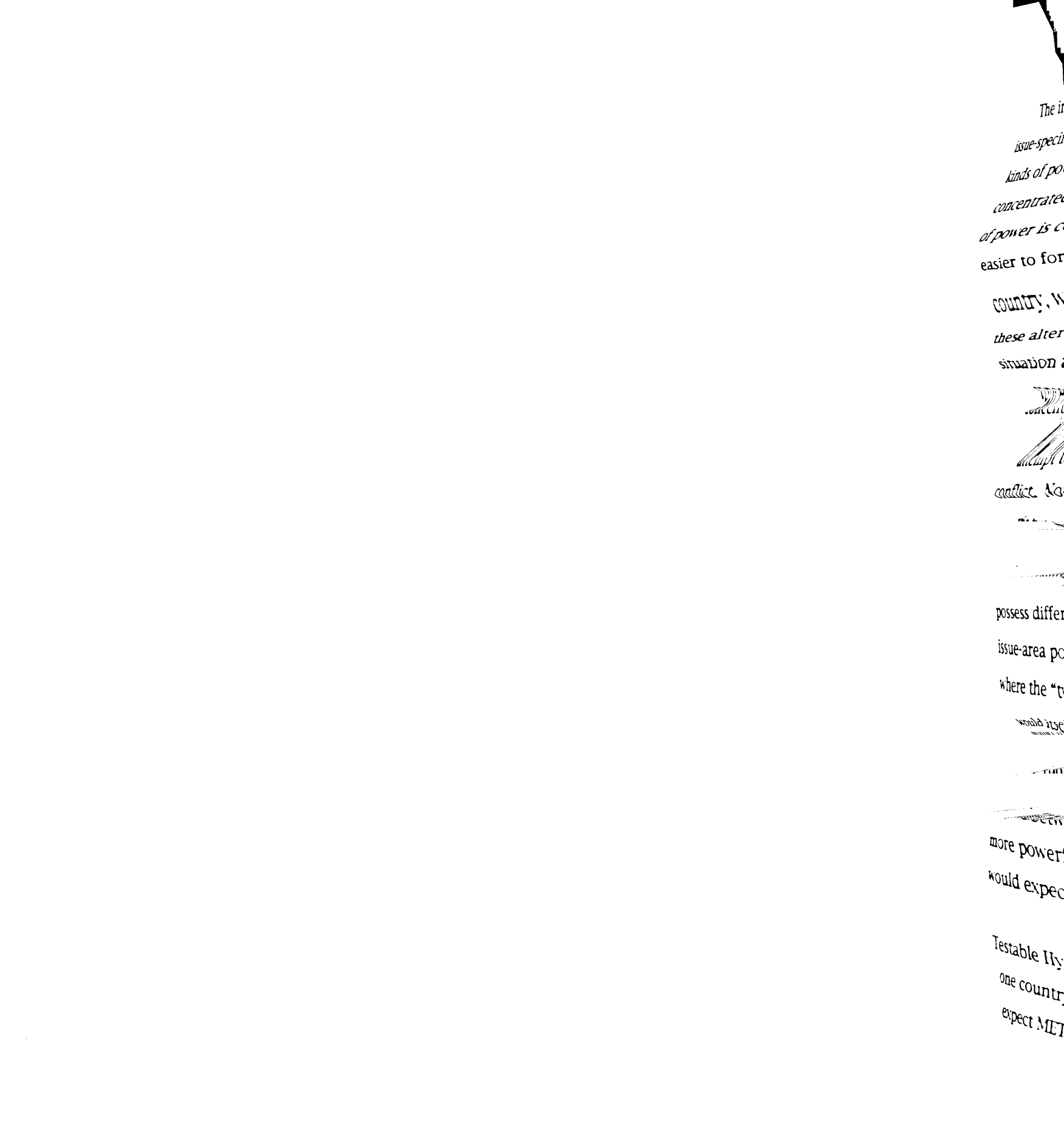
The definition of issue-specific power is specific to the issue-area involved. In some cases this would refer to the actual control over the resource. In others it would refer to the technological capacity of the country involved, either the capacity to exploit a resource such as the deep sea bed, or the position of a country regarding pollution production and abatement potential. Generally, a solitary measure representing the percent of the resource, technology or pollution will be constructed. A summary list of the relevant variables and sources of data is provided in appendix B (the complete lists, including GNP and issue power for each treaty is contained in appendix F).

Issue-area power concentration can be defined using the same proportional measures used for aggregate power, only substituting the measure of issue-area power for GNP. The general form of this operational definition is:

Operational Definition: Issue-area power concentration=

$$\frac{\textit{Amount of resource in best endowed country}}{\textit{Total amount of resources in issue-area}}$$

Testable Hypothesis 2: *As the ratio of the best endowed country's issue-power to the total issue-power in the subsystem increases, the time necessary to form a MET will decline.*



The introduction of two kinds of power, both aggregate and issue-specific, requires the consideration of what effect these two kinds of power might have on each other. If neither kind of power is concentrated, METs would be more difficult to form. If only one kind of power is concentrated then we expect a MET to be somewhat easier to form. If both kinds of power are concentrated in the same country, we would expect a MET to be easiest to form. So far, each of these alternatives is handled by the hypothesis above. A novel situation arises, however, when the different kinds of power are concentrated in different countries. Since countries are presumed to attempt to maximize their utility these two countries would be in conflict. Normally conflict is resolved by reference to the power of the two countries—if country A is more powerful then country B, then country B must make more concessions. When the countries possess different kinds of power a problem arises in how to translate issue-area power into aggregate power? This kind of situation, where the "two distributional structures do and do not line up" would itself be an "important structural datum" (Buzan, Little and Jones, 1993: 60). Because it is difficult to translate the respective powers between these two areas, an accurate judgment of who was more powerful would be difficult to make. Given this situation we would expect a MET to be difficult to form.

Testable Hypothesis B.3: *When issue-area power is concentrated in one country and aggregate power is concentrated in another, we expect MET negotiation time to be longer.*

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Theory of Goods

To test the theoretical hypothesis linking excludability and divisibility to MET formation requires some criteria for distinguishing goods. Most of the literature, while offering numerous characterization of goods, does not develop a means of distinguishing excludable from non-excludable goods. As mentioned earlier, the real barrier to exclusion is cost. It is possible to think up ways of excluding people from consuming any good, they are simply more expensive than allowing them to consume the good. Given this situation it is theoretically possible to construct a cost of exclusion scale for goods, where the physical costs of exclusion, such as patrol boats in a fishery, are weighed against the cost of allowing others to consume the good. For this study a more feasible four part scale is constructed for both divisibility and excludibility. A group of scholars, familiar with the concepts, was used to rank each of the potential treaty areas on the two scales.[40] Divisibility is ranked along a four point scale: highly divisible, slightly divisible; slightly indivisible; highly indivisible. Excludability is also ranked along a four point scale: highly excludable; slightly excludable; slightly nonexcludable; highly nonexcludable. From these responses a scale is constructed assigning a point value to each response: +2 for highly divisible; +1 for slightly divisible; -1 for slightly indivisible; -2 for highly indivisible. The same scale was also created for excludability ranging in the same manner from +2 for highly excludable to -2 for highly nonexcludable. The scale is set up in such a way that the more agreement between the experts the higher the point total,

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[40] See appendix C.

ranging from +12 for perfectly divisible/excludable to -12 for perfectly indivisible/nonexcludable. With the creation of this scale we can run a regression and see if excludability and divisibility are helpful in explaining MET formation.

What makes a good more excludable? Goods are easier to exclude when they exist entirely within, or close to, an established sovereign territory. Thus, land resources and coastal resources are easier to exclude than are oceanic resources and atmospheric resources. Further goods are easier to exclude when the product is something specifically created such as the information from monitoring, rather than the beneficial results of forsaking some behavior, such as pollution abatement.

Theoretical hypothesis: 3: *METs are more likely to form around excludable goods than non-excludable goods.*

Testable Hypothesis: 4: *METs formed around excludable goods will require less time to negotiate than those formed around non-excludable goods.*

What makes a good more divisible? Divisibility has to do with whether or not a good, or more correctly the benefits of a good, can be divided into shares. Resources that can actually be consumed are more divisible than those that cannot. For example fisheries and whales are divisible because the product, the fish or whale, is actually consumed by the harvesting country. Conversely, increased

cleanliness of the oceans from pollution abatement are not consumed, hence they are more indivisible.

Theoretical hypothesis: 5: *METs are more likely to form around divisible goods than indivisible goods.*

Testable hypothesis: 5: *METs formed around divisible goods will require less time to negotiate than those formed around indivisible goods.*

Summary

This study seeks to explain the recent growth of METs at the systemic level of analysis. Four systemic theoretical perspectives have been used to generate hypothesis that explain MET formation. In this Chapter the three theories that share a structural understanding of the international system have been developed into testable hypotheses. In addition, a research design has been constructed and will be utilized in the next chapter.

Chapter 4

Data Analysis

This chapter presents the results of the statistical test on the three structural theories of MET formation. Thirty-five treaties fit our criteria, and data were collected for these cases. The list of treaties and the power concentration ratios is presented in appendix D.

The first step is to see if the variables are normally distributed. For the dependent variable the Jargue-Bera normality test statistic was 1.626176, with a probability of 0.443487, which is not beyond the critical value of 0.10. Figure 2 presents the number of treaty signings over three year intervals: 8 treaties required 1-3 years to negotiate; 7 treaties required 4-6 years; 8 treaties required 7-9 years; 7 treaties required 10-12 years, and 4 treaties required 13 or more.

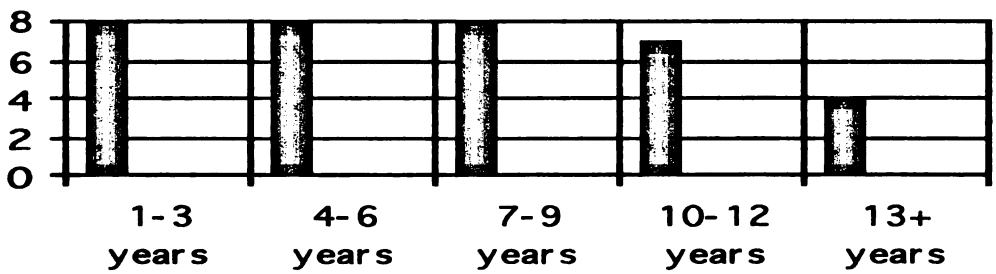

Figure 2—Years until treaty signing

The distribution of the concentration of power ratio, and the concentration of issue-area power were also determined to be normally distributed: the Jargue-Bera normality test statistic for aggregate power was 1.873757 with a probability of 0.391849: For issue-areas power it was 0.963271 with a probability of 0.617772. The data from these two variable are presented graphically in Figures 3 and 4 respectively.

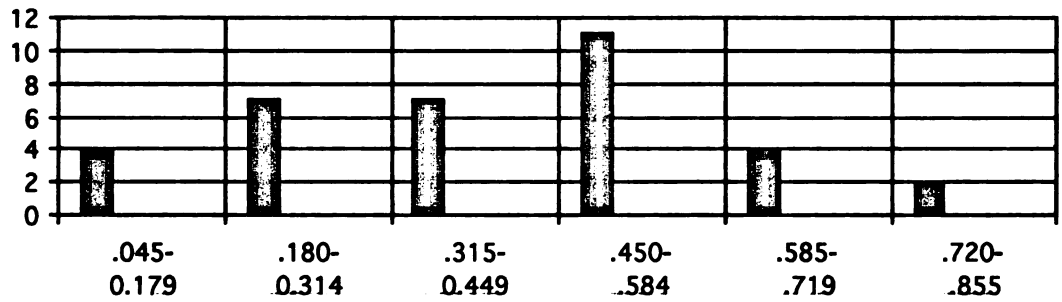

Figure 3: Number of treaties for different power concentrations

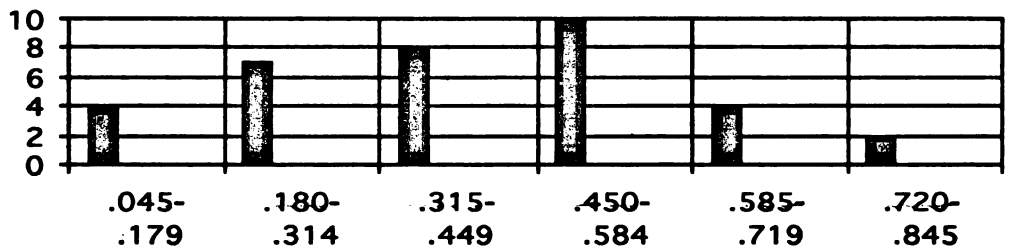

Figure 4-Number of treaties for different issue-area power concentrations

Power Concentration and MET Formation

Our hypotheses assert that power concentration will be helpful at predicting the length of time necessary to negotiate a treaty. The relationship between the variables is presumed to be negative, in that an increase in power concentration should lead to a decrease in the time necessary to negotiate a treaty. Our operational definitions have produced interval level data. Given our research question and the type of data available, regression is an appropriate statistical procedure.

Neither Aggregate power nor issue-area power had a statistically significant effect on the length of time necessary to form a treaty. In a pairwise granger causality test, aggregate power produced an F-statistic of 0.6742249 with a probability of 0.6169; while issue-area power produced an F-statistic of 1.0206890, with a probability of 0.3360. Neither relationship was statistically significant with a probability less than 0.10.

One possibility is that the effects of power concentration are different depending on the number of parties involved. As Mancur Olson has pointed out, small groups of utility maximizers are more likely to cooperate (1965). The concentration of power would be less necessary in a small group than a large. Figure 5 compares the mean time for treaty formation across those treaties with fewer than seven (12), seven to sixteen (12), and more than sixteen signators (11).[41]

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[41] This is the classification used by Haas and Sundgren, 1993.

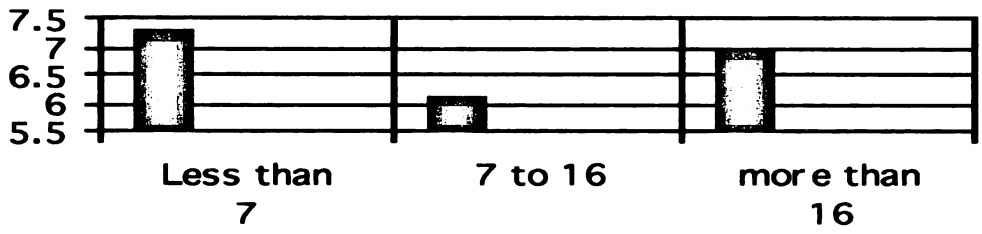

Figure 5- Mean treaty time by number of countries

There does not appear to be a significant difference between the mean time of treaty formation and the number of parties involved.

Assessment:

These results are in no way definitive for a number of reasons. First, there are some problems with the data. In compiling the issue-area power measures, appropriateness to the issue-area was occasionally sacrificed to the availability of the data. Data on land-based pollution levels or number of species are difficult to find, much less for every country going back to 1972. Unfortunately the World Resources Institute data base used for this study is the most current and comprehensive available, so this cannot be improved on in the short term. The use of proxies for issue power may not be specific enough to catch the use of power within the issue-area.

Second, these measures of power may be too blunt to catch the subtle uses to which power can be put in the course of negotiations. Surely power could effect the form and substance of a treaty as

much as the time necessary to form it. It is, however, inappropriate to use broad based statistical methods on hypotheses of this type; they would require content analysis and interviews to be properly analyzed .

Lastly, these results should not be weighted too heavily because they would go against common sense. Virtually everyone agrees that power matters in the cooperation between states. What is so far lacking is a subtle enough understanding of the many facets of power, as well as an accurate way to measure power, that allows us to analyze its effect on state behavior such as the formation of METs.

Characteristics of the Good

We distinguished two characteristics of international goods that might be helpful in explaining multilateral treaty formation: whether the good was divisible or not; and whether the good was excludable or not. We hypothesized that the more divisible or excludable a good is, the less time it would take to negotiate a MET. In order to assess the divisibility and excludability of the different treaty areas, a scale was constructed listing the issue areas, and using expert opinion to indicate the extent to which they considered these areas divisible and excludable (see appendix C). Information from six scholars was utilized and then scored as described above (Highly indivisible +2 etc.), and are listed in appendix E. The data produced was normally distributed, with a Jarque-Bera test statistic of 2.615603 and a Probability of 0.270414.

The range of possible values for each score was -12 to +12, with a score of 0 being neutral, the actual range of values for divisibility was from -12 to +3, with a mean score of -5.14 (See Figure 6). This indicates that most international goods are considered quite indivisible by scholars.

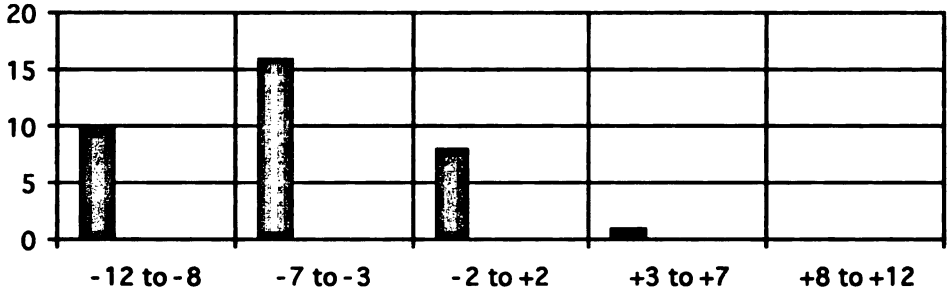

Figure 6-Number of treaties by divisibility score

The actual range of values for excludability was -12 to +1, with a mean score of -5.91. This indicates that most international goods are considered fairly nonexcludable by scholars.

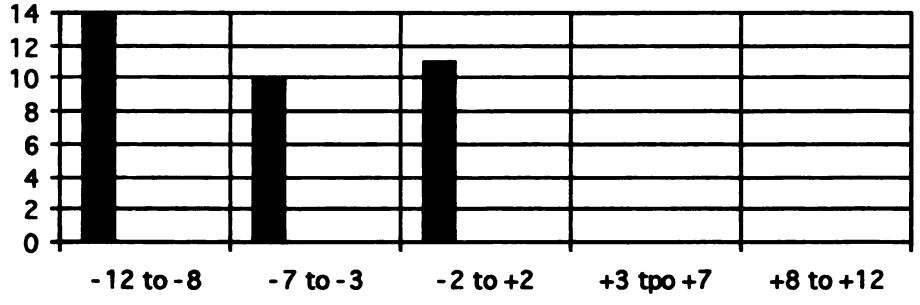

Figure 7-Number of treaties by excludability score

A regression run with these two variables found no significant relationship between the divisibility and treaty time (T-Stat= -.06730389: Prob. 0.5056) or between excludability and treaty time (T-Stat=-0.3394200; Prob. 0.7364). A further regression found that divisibility and excludability were highly correlated (T-stat=9.4465141, Prob. 0.0000).

In order to judge the effect of all of these variables a multiple regression was run including all four variables, the results of which are presented in table 1. None of the variables produced statistically significant results.

Table 1-results of multiple regression for all variables

Variable	T-STAT	2-TAIL SIG.
Constant	1.9092338	0.0658
Con. of Power	-0.7819560	0.4404
Con. of Issue-area	1.1140333	0.2741
Excludability score	0.4336797	0.6676
Divisibility score	-0.7607701	0.4527

Assessment:

The evidence does not seem to support the hypothesis that either divisibility or excludability effect the time necessary to negotiate a MET. As with our earlier test, the results from this test should be taken with a healthy dose of skepticism for a number of

reasons. First, characteristics such as divisibility and excludability are subjective categories, which could affect this study in two ways. On the one hand it could affect the way the issue-areas were coded. This study tried to overcome this danger by relying on a number of experts regarding the characteristics of the issue-areas. The sample size was still relatively small, and therefore it is possible the sample was biased. On the other hand, the perceived characteristics of the good could be affecting the negotiators themselves. If the negotiator thinks that his or her state will receive specific benefits from a MET (divisible), then they may be more willing to cooperate. Conversely, if a negotiator feels that other states will free ride on their hard work (excludable, or rival) then they will not cooperate. In both cases it is the negotiators conceptualize the good and not the actual characteristic of the good itself that is important.

As mentioned earlier, the characteristics of goods are partially determined by the surrounding society. The characteristics of goods refers to the way the human beings relate to the goods in question. Most of the work using the theory of goods is derived from an economic model of human behavior, where each individual is assumed to maximize their own utility. The "problems" that accompany particular characteristics of goods, such as excludability, are problems specifically because of this underlying assumption about human nature. What if human interests are not radically individualistic, but rather inherently social. If human beings are linked at the most fundamental level, their personal identity, then the idea of maximizing individual utility would be radically inaccurate.

If human identity is the product of social interaction, then individuals could be expected to preserve these underlying identify forming interactions as a precondition of their individuality. Without our countries, our communities, our jobs, and our families, do we really exist as individuals at all? Our "individual" preferences would be both constructed by these social systems as well as constructing them. If this is the case, then different social value systems may have no "problem" with these situations, because the people in the society find "free riding" and exploitation anathema to their individuality. The English School, discussed below, would provide one example of such a socially constructed state (Wendt, 1994). In this understanding lies the hope of many radical environmentalists for transforming the world into an ecologically holistic community through such philosophies as "deep ecology" (Naess, 1973). Studying the effect of identify formation of the characterization of international problems would require in depth interviews with the principals involved in numerous treaties.

A second problem is the relatively small number of cases. Thirty five cases may not be enough to adequately judge the effect of the character of the good on negotiation. With such a small number of cases one outlier could effect the mean substantially. It is not difficult to imagine a case where a MET was not negotiated because of historical antagonism, rather than any problem with the settlement outcome. Over a large sample such distortions would be minimized but not in the small sample we have here.

Conclusion

The statistical test performed here failed to reject the null hypothesis in each of the cases, and provided no evidence that these variables are helpful in explaining METs across the entire system. This is not sufficient to dismiss these theories but it does call into question the applicability of a structural understanding and statistical tests to many questions in international relations. The data used here, while far from perfect, are relatively good compared to data on many other broad questions in international relations. The rigorous tests which structural theorist demand of their hypothesis are admirable, but they may be impossible to meet for many interesting questions. Perhaps this difficulty is why so much effort in International relations is devoted to theoretical wrangling rather than empirical work.[42]

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[42]Both Waltz, the premier structural realist, and Keohane the premier neo-institutionalist, offer only case studies and anecdotal evidence for their theories, not the rigorous tests their assumptions would seem to require. The Theory of Goods has attempted to subject their hypothesis to empirical tests but this too has proved very difficult in practice. See Waltz, 1979: Keohane, 1984; and Axelrod, 1984.

Chapter Five

To know where your going you have to know where you start

(or as they say in New Hampshire "You can't get there from here")

The preceding chapters laid out and tested explanations for MET formation from three different theories that view the international system in structural terms. None of the hypotheses generated by these theories were supported by the evidence. Part of this is undoubtedly due to the inadequacy of the data and the statistical tests. It may be possible in the future to refine the data and improve the tests used. Even if this were done, however, I do not believe that it would provide a full account of METs as a phenomenon because the underlying ontological assumptions about the international system embedded in all of these theories prevent them from fully appreciating the generative aspects of the international system. Only by understanding the influence of the international system in generating or creating states can we understand why states behave as they do.

The purpose of this chapter is to make the case for the fundamental importance of ontology in shaping theories, and to show how it limits these theories in such a way that they cannot fully explain METs as a phenomenon. Structural explanations are not simply wrong, their variables are important and their approach is useful for answering certain questions. For explaining METs as a phenomenon, however, structural approaches are constrained by

their conceptualization of the international system and this prevents them from offering a complete explanation of METs. This argument begins by presenting an extended analogy of a cognitive map to illustrate the fundamental issues in the philosophy of science. Next, the way in which these fundamental issues in the philosophy of science have manifested in the study of international relations is explored. Next, these general discussions are specifically linked to the study of international institutions by examining the basic ontological commitments of structural and relational theories, and exploring the relation between the ontological commitments of the respective approaches and the explanations of MET formation that they generate. Ultimately, it is argued that the ontological commitments of structural theories prevent a full understanding of METs as an international phenomena.

Cognitive maps

Earlier the analogy of a map was used to illustrate how our understanding of the world conditions our view of reality. This analogy can be developed further to illustrate how ontological commitments fundamentally condition explanations of the world.[43] A map is a simplified representation of reality. No map can

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[43] The following discussion presents the fundamental issues in the philosophy of science in a somewhat stylistic way. The most influential discussion is Kuhn, 1970. I like the metaphor of a map because it keeps attention focused on the fact that there is a reality out there, which is being represented. Theories are not simply interpretations, but interpretations of reality. See especially Wight, 1996. For the basics of philosophy of science see: Winch, 1958: Lakatos and Musgrave, 1970: Chalmers 1976: Sayer, 1979: Klenke, 1988.

represent every part of reality, there is simply too much information to be represented accurately on a two dimensional plane (or in a model or theory with a reasonably small number of variables). Therefore, different maps select a few characteristics of reality as important, and focus their attention on these. For example, a political map of the Earth, divides the world into separate countries with political borders, capital cities, roads etc... commanding the primary attention. An alternate map of the Earth would be climactic, showing the general climactic regions, desert, tundra, temperate etc...[44]

Theory is also a simplification from the "infinity of data and an infinity of possible explanations for the data" (Waltz, 1979:9). It is not possible to look at all the possible variables that might influence international relations, therefore the international system is simplified by selecting a few variables to focus on, i.e. structural realism focuses on the distribution of power, and the English school focuses on the fundamental institutions of international society. Through the process of selecting which variables are important and which are not, every theory simplifies the world. It is important to note that this choice occurs before formal empirical work—theorists have decided what variables are important *before* they have demonstrated their importance. The importance of the fundamental variables of a theory are ascribed rather than demonstrated.

The choice of which characteristics to "map" is not arbitrary, it depends on who produces the map, and what the map is going to be

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[44] An alternative analogy to that of map is the idea of lenses. "Thus even though to object observed remains the same (ignoring Heisenburg), different lenses highlight different aspects of its reality. The Naked eye sees mostly

used for. The social circumstances of the cartographer will undoubtedly have an influence on the kinds of maps they are asked to create—e.g. whether their society is a sea power or a land power. The divergent ontological approaches used by the theories discussed here can be partially explained in this way. While there are many exceptions, the British have gravitated towards a sociological or interpretive framework, while Americans have gravitated to a individualistic and positivist one. Explanations for the different worldviews of British and American scholars are generally focused on the divergent social climate in which the study of international relations arose and persisted in the two countries (Smith, 1988). Two major influences are: first, the relative history and global position of the two communities after world war two up until today; and second, the internal relations within the community of scholars in the country.

Great Britain has a much longer history in international relations than does the United States. Until the end of World War Two the United States had pursued an isolationist foreign policy, preferring to stay out of European troubles. In contrast, the British have always been an integral part of the international system. This longer history imparted a richer knowledge and appreciation of diplomatic procedures and legal history. Furthermore, the sense of tradition, important for understanding British politics generally, helped to temper the enthusiasm for "new" scientific methods. Bull's initial salvo in the second debate echoes this contempt for the "whiz

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exterior shape and color. The infrared sees the pattern of heat. The X-ray sees the pattern of physical density" (Buzan, Little and Jones, 1993: 31)

kids" of science, who "see themselves as tough-minded and expert new men taking over an effete and woolly discipline." While Bull notes that this "disdain" for science was initially due largely to ignorance, it was his purpose to legitimize this disdain (Bull, 1966: 362-3).

Across the Atlantic, the appeal of the scientific approach was much greater due to the American inclination for novelty and mastery. The fundamental promise of the "scientific approach... was a belief in the idea of man's ability to progress in his understanding and control his environment" (George, 1978, p. 208). This promise of controlling the world has often been linked to American social science in general, "from the end of the nineteenth century 'progress' and 'science' [had] become the master-concepts of a distinctly American social thought" (Little, 1985:76). In Britain, the longer historical horizon made scholars inherently more skeptical of such grand promises (Nicholson, 1985).

At the end of the war, Great Britain and the US were in distinctly different positions in the world. The US was, for the first time, taking its position as the dominant power. "The need for a science of international relations was felt strongly by United States policy makers, faced with a situation in which the United States for the first time had to fulfill a world role." (George, p. 207). Thus, the United States turned to its scientific paradigm in order to find guidance in how to reshape the world to make it less hostile. The position of the British after the war was significantly different. The British were shaken by the two world wars and their loss of position in the world, particularly to the US and the Soviet Union. This ennui

led the British to "cling to a sense of separate identity from the Americans. History remained the vehicle of this sense of identity because the one respect in which the British definitely felt superior to the United States was in tradition and experience." (George. p. 208-209).

Not only were their respective positions different, but the development of the academic community within the two countries was different as well. In the United States, a commitment to science and the need for guidance led American policy-makers to channel money into the discipline for the scientific study of politics. As a result, the American academic community is much more competitive than the British system with both schools and individuals competing for funding. "It quickly became apparent in the post war years that, as in the natural sciences, behavioral research required extensive funding so that individuals and institutions came to be assessed by their capacity to generate research grants. Prestige was soon related directly to the size of grants given to an institution. If international Relations hoped to maintain [its] position...there was no alternative but to adopt a positivist orientation." (Little, p. 77).

The British academic community, in contrast, is much more hierarchical and traditional. "[T]he highest ideal in English academic life has been to achieve a position at Oxford or Cambridge... Consequently the values appropriate to Oxford life have been adopted in provincial facsimiles throughout Britain...elitism, individualism, and traditionalism. These have been translated into the implicit organizing principles of an historical approach to international relations" (George, p. 210). The traditionalism of British

culture is replicated in the University, where new methods and approaches are discouraged, leading some to comment that "the skepticism of many British academics in International Relations inhibits the progress of the discipline." (Nicholson, p. 68).

While the social histories of academic communities are interesting and helpful for explaining their proclivity for certain approaches, they do not help to explain METs. To assess different cognitive maps it is necessary to judge between them in some fashion. If two paradigms disagree on the fundamental units that make up a system, and on the criteria by which knowledge is gained about the world, can we adequately judge between, or even compare, the two? This difficulty is known as the problem of incommensurability, that different approaches are so different as to be incommensurable. (Hollis and Smith 1990: Neufeld 1993, 1995). Those agree with the incommensurability thesis commit what Colin Wight calls the "epistemic fallacy" in mistaking what is known for what actually exists. Wight argues that this is due to the acceptance of positivist epistemological assumptions, "for positivists, what 'is', is dependent upon the act of it being experienced and/or perceived in some way" (Wight, 1996: 303. cp. Banks, 1985). Ultimately, this view leads to radical relativism: because different paradigms have different ontologies and epistemologies they are fundamentally talking about different worlds.

If two paradigms are so radically different that they exist in different worlds, how do they even know that there are other theories and other worlds? As Wight explains "anyone from truly incommensurable paradigms could never know of such

incommensurability" (Wight, 1996:313). "Different points of view make sense, but only if there is a common coordinate system on which to plot them; yet the existence of a common system belies the claim to dramatic incomparability" (Davidson, 1985). Only because there is some common understanding in the ideas of the "state" or the "international system" used by different paradigms, can we discuss the idea of different paradigms.

This is similar to the problem of translating languages; only because language has some reference points outside of language itself can we translate between languages. When we first learn a language, either as our native language or as a foreign language, we learn mostly nouns like "pen," "desk," or "chair," only gradually do we move on to more sophisticated ideas. Without these initial referents, we could never learn language; (imagine trying to learn Chinese, from a Chinese dictionary without pictures—it would be impossible). METs form a similar referent for the different theories in this study. None of the theories deny that METs exist, nor do they deny that states are the major parties to them, but they do offer alternate explanations for how and why they form, and for what they are. By looking at different explanations of the same referent point, the chances of understanding both METs as a phenomena, and the heart of the theoretic differences, are improved.

The idea of some basic commensurability is consistent with the analogy of a map. Maps are more or less accurate, in that they are more or less useful for helping find our way. If two maps claim to describe the same phenomenon, there is the potential for judging between them. One way to judge between them is by their

usefulness in answering certain questions. For certain questions, some kinds of maps are simply more useful for finding out where we are, and where we are going, than others. A geological map is more useful for finding oil, but a road map is more useful for finding gas. These two maps share a common frame of reference, they simply highlight different aspects. The question is less one of validity than appropriateness.

In addition to the practical value, or usefulness, of one map over another, maps can also be judged by how they distort reality. In one sense all maps are a distortion of reality in that they represent some aspects correctly and some not. For example, the familiar Mercator projection of the Earth distorts land size as we move towards the poles, whereas a polar projection distorts size as we move away from the pole. The distortion in a Mercator projection is systematic, based on its assumptions, making longitude and latitude perpendicular. Because the distortion is systematic we can conceptually compare the Mercator projection to a polar projection and compensate for this distortion. There is a difference between a systematic simplification of reality, which is incomplete, and a distortion of reality which is misleading. Unsystematic distortion, such as distortions for political reasons, would be harder to balance with alternative maps, partly because they do not know that their map is systematically distorted. Many political maps have been deliberately distorted to overstate or understate certain features which the cartographer viewed as important. For example, many maps in the former Soviet Union were grossly distorted for political purposes (Glassner, 1996). By comparing maps to one other, as well

as to the reality they are supposed to be mapping, the accuracy of maps can be considered.

While there is potential to judge between maps of the same phenomena, it is not possible to escape the dilemma entirely. Even mapping the same phenomena, there are too many aspects of the world to map—the "most important" characteristics are still ascribed. A political map of the world could be constructed where size corresponded to wealth or pollution output, rather than geographic features. These maps would represent the same political landscape but they would indicate different things about the world. The choice of which characteristics to focus on ultimately depends on the cartographer, his/her society, and the purpose of the map. In the end, it is a human choice. The placement of the Northern hemisphere on the top of virtually every map, for example, is arbitrary from a astrological point of view, there is no 'up' in space, but politically significant.

A third consideration when mapping is to decide on the scale of the map, whether one inch equals one mile or one hundred miles. As the scale of the map increases, detail is lost, as the scale decreases, more detail is revealed but the overall picture or context is lost. This is the level of analysis problem, and the choice of scale ultimately depends on what you are going to use the map for. Imagine you want to get from the US capital to the World Trade Center. Maps of Washington DC and New York City are useful for getting across town, but they do not tell you which highway to take out of town. Maps of Maryland, and New York are useful for getting across the state, but not across the country. For this you need a US highway map (or you

could just take a plane!). Different scales of maps are useful for different parts of the journey, but to complete the journey in the most efficient way, requires all three.

This bears some resemblance to the debate between Newtonian mechanics and Quantum physics. While Quantum physics has superseded Newtonian mechanics as a world view, Newtonian mechanics is still more useful for building bridges (Heisenberg, 1958). Similarly, we know that the world is not flat, and yet to navigate across a bay or inlet we navigate as if it were flat. Different theories are useful for different things even if their assumptions have proven to be less than entirely accurate.

The debate between different paradigms (Kuhn, 1970) or research programs (Lakatos, 1970) is essentially the same as the question of which map we should use. Different theories are interested in explaining different phenomena, they want to go different places, and therefore they identify different characteristics of reality as most important for study. Because of the complexity of the world, and the society of the scientists, every paradigm chooses, or takes seriously, only a subset of the whole, whether by looking at different levels of analysis, or by looking at different characteristics of the same level of analysis.

The question of mapping is intricately linked to the idea of ontology. An ontology is a theory of being, or a theory of what things are. The initial choice of referent is perhaps the most important part of map-making. Once we decide to locate one feature, other features must be placed in a related position if our map is to be accurate. If I begin by mapping a particular characteristics such as cities, I must

continue mapping cities throughout. I cannot switch from a political to a climactic map halfway through. If I begin my map with a city of a given scale, the rest of the map must locate other cities in the same scale if the map is to be accurate. If I place my city in a particular position I must then relate other features to this initial placement. The initial ontological move of choosing the first referent 'fixes' the fundamental characteristics of the map, its scale, and its relation to other phenomena.

In the same way the choice of ontological starting point fixes the fundamental characteristics of a particular theoretical approach. As Wendt and Duvall explain: while "ontologies do not directly dictate the content of substantive theories, they do have conceptual and methodological consequences for how theorists approach those phenomena they seek to explain, and thus for the development of their theories" (Wendt and Duvall, 1989: 55). If a theory begins with the assumption that states are autonomous units, other aspects of the theory must remain consistent with this assumption, they are 'fixed' by this assumption. Alternately, if a theory begins by assuming that states are social constructs, they must remain consistent with this assumption. Depending on where they start, different theories must end up at different places.

Again, this shares some similarities to problems in quantum physics. The Heisenberg Uncertainty Principle holds that we cannot simultaneously know both the momentum and the position of an electron, because in the act of determining one we change the other. In the famous example of Schrodinger's cat we see the same idea. Imagine that you place a cat in a box with a radioactive isotope that

has a fifty-percent chance of degrading and killing the cat. Schrodinger argued that all possible realities coexist before we open the box, the cat is both living and dead. Only by opening the box does one outcome become fixed and all other outcomes collapse. In a similar way the choice of initial referent has a way of fixing where we can go from there.

Tensions in International Theory

The idea of maps developed above draws our attention to the underlying conception of reality on which researchers focus their theoretical energy. The inherent tension between competing understandings of the basic building blocks of the social world, including the international system, leads to very different explanations of behavior. These tensions have always existed in international relations, at least as far back as Machiavelli and Guicciardini, usually as an undercurrent though recently surfacing as a major area of debate (North, 1969).

These tensions manifest in three approaches to social theory: positivism, interpretivism and critical theory (Fay, 1975: Bernstein, 1978: Carr & Kemmis, 1986). Positivists believe that the universe is composed of discrete entities ordered by general laws discoverable through human reason. Originally, this belief was restricted to the material world, but through the work of Compte and others it has increasingly been applied to human behavior. For positivists, "valid knowledge can only be established by reference to that which is manifested in experience" and apprehended by the senses (Carr &

Kemmis, 1986:61). Hence, only those things that we know through sensory experience are granted ontological status. This leads to the adoption of natural science methodologies and validation criteria in the social sciences.

There is some dispute whether the atomistic individualistic conception of reality drives methodology or vice versa. Some theorists argue that an ontological framework is a necessary precursor to a theory of knowledge (Wendt and Duvall, 1989: p. 54-55). Others argue that an epistemological approach constrains and conditions what things are granted ontological status (Charles Taylor, 1980: (p. 76-78). What is agreed upon by both sides is that the atomistic ontological understanding of the world tends to go along with a positivist conception of science. There is a growing body of literature that characterizes the discipline as a debate between positivism and a host of alternative theories (Smith, 1996: Neufeld, 1995: George: 1994).[45]

Interpretivists believe that human behavior is not appropriately modeled according to general laws, because human life and understanding are inherently reflective. Human society and behavior, unlike the behavior of atoms, is at least in part a social construction.[46] Our understanding of who and what we are is inherently connected to the social context in which we live, and

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[45]In my opinion the 'dominance' of positivism is greater in the projection of its opponents than it ever was in the discipline. In an effort to slay a greater enemy, postmodernists and others have overstated the dominance of positivism within the discipline. International relations has always included a multitude of perspectives, though they have not always had the same status. Much work within the discipline seems to be as concerned with the status of the researcher, as it is with explaining the subject matter.

therefore we cannot understand human behavior without understanding the social context in which it takes place. For interpretivism it is the underlying web of rules and understandings that determine human behavior, and only by understanding this social context can we offer explanations of behavior. Validation for interpretivists requires explaining behavior within this context of rules to the satisfaction of the participants.

Critical theory agrees with interpretivism that human behavior is located in the social understanding of the participants, but it does not believe that the rules and understandings of the participants are necessarily consistent or sensible. It argues that many, if not most, people are not fully aware of the rules and understandings that determine their behavior. Critical theorists argue that most interpretations of reality are a systematic distortion of reality, attributable to the real social conditions of the actors—especially inequalities in the social structure. Thus, the task of the critical theorist is to expose these underlying contradictions, which will then usually serve as a catalyst for changes in these rules and understandings.

Critical theory is often linked to Marx through the Frankfurt school, and from these two sources many critical theorists focus on inequalities, be they inequalities in material or power resources, as the main point of study (Bronner and Kellner, 1989). Paradoxically, much of the recent critical work in international relations theory, uncritically accepts modern liberal democratic sentiments. There is

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[46]Even this hard science view of atoms as atomistic is being challenged by quantum physics and Chaos theory.

no inherent connection between the basic ontological position of critical theory—a reality always filtered by theory—and a modern liberal social theory. Arguably, much of Ancient political theory would be closer to critical theory than to either positivism or interpretivism. Consider Plato's allegory of the cave in Book Seven of the Republic, where every regime conditions us to look at the world in a particular way, and yet the true goal is to walk out into the sun. Most of the theories that Keohane calls reflexive would fall into either an interpretive or a critical theory approach (Keohane, 1989).

These broader debates in social theory represent different ways of judging the ontological status of entities, or different answers to the question of which characteristics we want to map. Positivists map only what they can see, Interpretivists map what you think, and Critical theory maps not what you *think* you see, but what you *really* see (or at least what the researcher thinks you really see). Each develops an alternative cognitive map of the same territory. Each has something to add to our understanding of the world, which, in the end, is more important than having a superior methodology. Because of their fundamental nature, debates over these issues seem to cycle over time. In the history of international theory this is generally discussed as a series of debates, with the most recent discussion considered the "third debate." (Banks, 1985: Der Derian, 1988: Lapid, 1989: Holsti, 1989: Biersteker, 1989: George, 1989). Each of the former debates was partially concerned with the question of which ontological view of the world is the appropriate one.

For example, the second debate, between Hedley Bull and Mortan Kaplan over the relative value of traditional versus scientific

approaches shows a strong ontological undercurrent. Bull argues that the very questions that international relations ask are beyond the scope of scientific methods. "Some of these are at least in part moral questions which cannot by their very nature be given any sort of objective answer, and which can only be probed, clarified, reformulated and tentatively answered from some arbitrary standpoint, according to the method of philosophy." For Bull the "scientific theories have forsworn the means of coming directly to grips with the" the major questions of the discipline (Bull, 1967, p. 366-7). Kaplan responds that many of the "major problems of macroscopic international politics... do appear to be manageable [by] formalized scientific procedures." (Kaplan, 1967, p. 7).[47]

What is in dispute here is exactly what questions form 'the major questions of the discipline', or exactly which characteristics of the system should be the focus of inquiry. Kaplan focuses on those aspects that are most amenable to scientific analysis, while Bull focuses on those that are not. While each admits that the other approach is useful in certain circumstances, they both feel that what they focus on is more important. In trying to map out different areas, they focus on different characteristics of the system as most important, and are attracted to different methods. Their understanding of what the heart of the discipline is influences their methodological choices.

The third debate is the most overtly concerned with deeper meta-theoretical issues such as ontology. Lapid identifies three

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[47]Both of these articles are reprinted in Knorr and Rosenau, 1969 with a number of useful commentaries and calls for peace and pluralism.

interrelated themes of convergence that mark off the third debate: "the preoccupation with meta-scientific units (paradigmism), the concern with underlying premises and assumptions (perspectivism), and the drift towards methodological pluralism (relativism)." (Lapid, 1989. 239). The crux of the third debate is the open admission that there is no clear way to distinguish theory from facts. Michael Banks explains the basic problem well:

> "It is wrong to think of 'theory' as something that is opposed to 'reality'. The two cannot be separated. Every statement that is intended to describe or explain anything in the world is a theoretical statement. It is naive and superficial to try to discuss IR solely on the basis of 'the facts'. [facts] are selected from a much bigger menu of facts, because they are important. The question is: why are they important? And the answer to that is: because they fit a concept, the concept fits a theory and the theory fits an underlying view of the world." (1985, p. 7)

The overt focus on meta-theoretical issues such as the ontological commitments of different paradigms provides a vehicle for examining the difficulties of structural theories in explaining METs.

International Institutions and Ontological Commitments

Ontological commitments have been used to explain the theoretical development of certain perspectives. Alexander Wendt, in a series of articles in the late 1980's, provides an excellent critique of the ontological commitments that underlie structural realism (Wendt, 1987: Wendt and Duvall, 1989). As mentioned above, Wendt and Duvall distinguish the "new institutionalism," which

comes from a neo-realist perspective, from the "old institutionalism" which comes from the "principally British school of international relations." (1989, p. 52). Wendt and Duvall identify three differences between these two schools which are directly related to the philosophy of science. "The first and most fundamental difference between the two traditions is in their underlying pictures of the nature of the states system and international life" (ibid.).

At the deepest level differences in theories are "conditioned by a more fundamental difference of ontology" (Wendt, 1987: p. 336). The answers to ontological questions determine which aspects of the international system are taken seriously in the sense as being perceived as meaningful entities for explaining state behavior. In resolving the agent-structure debate Wendt argues that there are three possible positions. The first two result from the reduction of either the agent or the structure to an ontologically primitive entity, meaning that they are thought to exist, but only in a formalistic, non-problematic way. The third alternative is to grant both agents and structures "equal and therefore irreducible ontological status" (Wendt, 1987: 339).

Structural realism defines states as autonomous individualistic entities who are not interdependent on one another for their existence. Hence, the only property left for the international system is the distribution of capabilities among units. If two entities are granted a separate existence, then their interactions will be mechanistic in form. Much of this ontological reductionism is undoubtedly due to the adopting of natural science methods and understandings to model human interaction. Once agents and/or

structures are reduced to ontologically primitive units, their interactions are likewise reduced to instrumental and mechanistic forms. Similarly, the modern trend towards radical individualism has reduced human sexuality from a potentially sublime connection between souls to a mechanical interaction between consenting adults each responsible for their own orgasm. Once this ontological step is taken, it is no longer possible to consider the international system in more than structural terms.

The alternative conception of the agent-structure relationship would grant both agents and structures an ontologically sophisticated existence. Wendt generally refers to this ontological position as structuration theory, which involves "binding agents and structures into mutually implicating ontological and explanatory roles" (Wendt, 1988: n.55, p. 356). This involves a different view of both agents and structures.

> . . . in contrast to the neo-realist definition of international system structures as consisting of externally related, preexisting, state agents, a structurationalist approach to the state system would see states in relational terms as generated or constituted by internal relations of individuation (sovereignty) and perhaps, penetration (spheres of influence). In other words, states are not even conceivable as states apart from their positions in the global structure of individuated and penetrated political authorities. (p. 357)
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> The deep structure of the state system... exists only in virtue of the recognition of certain rules and the performance of certain practices by states; if states ceased such recognition of performances, the state system as presently constituted would automatically disappear. Social structures, then, are ontologically dependent upon (though not reducible to) their elements in a way that natural structures are not.

> Just as social structures are ontologically dependent upon and therefore constituted by the practices and self understanding of agents, the casual powers and interests of agents, in their own turn, are constituted and therefore explained by agents. (p. 359)

In structuration theory both agents and structures are understood as constituting one another through time and space. Neither is reducible to the other.

The basic distinction that Wendt points to is mirrored in the discipline as well as in the recent debates about different paradigms. The rational approaches discussed by Keohane, as well as the "new insitutionalism" discussed by Wendt and Duvall, reduce the ontological status of the system to merely structural or positional influence. All three of the theories discussed above share the rationalist, or 'new institutionalist' approach to institutions. All of these theories consider states as individualistic entities, which lead them to conceive of the international system in structural and positional terms. These assumptions allow them to use economic models to explain state interactions. Both Waltz and Keohane explicitly link their analysis with microeconomic theory (Waltz, 1979: 89-101: Keohane, 1984: chs. 5,6), while the theory of goods is a direct outgrowth of that theory. States are assumed to form specific institutions to "reduce uncertainty and alter transaction costs"(Keohane, 1989, p. 166).

The reflexive, sociological or British approaches discussed above are more likely to grant ontological states to the social history that produced an institution. New institutions, such as METs,

"emerge from prior institutionalized contexts, the most fundamental of which cannot be explained as if they were contracts among rational individuals maximizing some utility functions. . . These fundamental practices seem to reflect historically distinctive combinations of material circumstances, social patterns of thought, and individual initiative. . shaped over time by path dependent processes." (Keohane 1989: 171). Explanations from this ontological standpoint would focus, at least in part, on the underlying long term institutions that created, and still create, the field of interaction on which negotiations over novel institutions are played.

The second difference that Wendt and Duvall see resulting from differences in ontology is "in the *kinds* of institutions with which they deal." The new insitutionalists focus on those institutions that are "intended artifacts of hegemonic or collective action created by preexisting state actors, and as a result they tend to be located at a less fundamental level of structuring in the international states than those of concern to the old institutionalists" (p. 54). Keohane notes that "[r]ationalitic research on international institutions focuses almost exclusively on specific institutions" (Keohane, 1989: 166). Since states are assumed to exist as autonomous entities, their interactions are instrumental, directed at specific goals in specific situations. Hence it is only logical to focus on specific institutions and the relationships between states within them. Structure, in these theories, is limited to the positional or situational attributes of the particular case and does not extend across the universe of cases, or across time.

The reflective, old insitutionalism and English School tends to focus on deeper more long term institutions. Since the goal of reflective sociological approaches is to uncover the underlying context for meaningful social action, they focus on the underlying institutions that form the arena of international relations across history. Hence, they focus on institutions such as "balance of power, international law and diplomacy" which "represent the shared intersubjective meanings about the (not necessarily uncoerced) preconditions for meaningful state action"(Wendt, 1987: p. 53). It is not clear whether these deeper institutions will be helpful in explaining more specific institutions. One of the criticisms of this approach is that their focus on the big picture leaves them unable to explain particular events. They can explain the context in which those events happen, but not the events themselves.

The third difference, between the two approaches is the kind of explanations they generate, or the "role of international institutions in 'ordering' the practices of state actors." The way that the old and new insitutionalism understands how they order the international system is explained by Wendt and Duvall.

> Because [old institutions] are the preconditions for sovereign states and meaningful state action rather than consciously chosen artifacts, the 'fundamental institutions of international society will appear to state actors (and Scholars) as defining possibilities for, rather than constraints on, state action—as 'structuring' the interactions of state actors (in the sense of making those interactions possible). On the other hand, because [new institutions] are created by preexisting state actors to serve certain purposes vis-à-vis each other, less 'fundamental' institutions like monetary and trade 'regimes' will appear to state actors (and scholars) as defining constraints

> on, rather than possibilities for, state action—as 'organizing' the interactions of state actors (1989, p. 54).

This is the difference between structural views of the system which constrain states and the relational view of the system, which generates state action. The divergence between these two perspectives also mirrors the distinction between positivism and interpretivism/critical theory. Positivism focuses only on empirically observable entities and is unable to consider social relationships as ontological entities, Interpretivism and Critical theory, on the other hand, explicitly focus on these relationship as constructing at least part of reality. Wendt and Duvall identify this difference in perspectives as the "basic problem in the contemporary analysis of international institutions" (p. 54).

As Wendt and Duvall point out, "the state-centered, choice theoretic formulation of the problem of creating international institutions and order blinds scholars to some equally important, if not even more fundamental, processes of 'ordering' in the international system" (1989, p. 51-52). Structural theories look at institutions as individual specific entities centered around solving specific problems. They are limited by their ontological commitment to autonomous state actors from appreciating the generative function of international institutions. By assuming the existence of states, structural theories cannot appreciate the role of institutions in forming these states. States were not simply formed in 1648 with the Treaty of Westphalia, rather they are continually formed through the process of acting in the state system.

The rationalist position on institutions would have a hard time explaining the fact that there have been almost no failures in environmental treaty negotiations once began. If treaties are merely the outcome of bargaining between individual utility maximizers, shouldn't collective action be more of a problem? Wouldn't we expect that there would be many issue-areas in which these self-interested states did not ultimately come to an agreement? A response to this critique could be that the METs are non binding and therefore irrelevant. If this were true, why would states spend the resources to negotiate them and generally obey them? Further, why have states specifically not signed agreements, as the US declined to do with the Law of the Sea, if they were meaningless?

To understand these questions requires looking deeper into the function of institutions in international society. The next two chapters will explore the contribution of an English School perspective to the study of METs. Up until this point reflexive approaches have been grouped because they reject positivism and share certain ontological assumptions. This fundamental agreement masks a host of disagreements between the English School and postmodern and critical theory based perspectives in international relations theory (Brown, 1997: Ch. 3). From this point on, I concentrate almost exclusively on the English School perspective, leaving aside postmodern and critical perspectives. While these perspectives raise interesting critiques of existing theory, the more developed English School perspective has a better chance of explaining METs as a phenomenon of the international system. If the reflexive approach of the English School is helpful in understanding

METs, this would justify exploring the contributions of critical theory and postmodernism to this question as well.

Chapter Six

The English School

This chapter lays out the basic understanding of the English School. The next chapter develops this approach to test the hypothesis developed earlier and shed new light on the specific question of MET formation. The English School represents a developed "reflexive" research program, to use Keohane's terminology, facilitating consideration of how the alternate ontologies and epistemologies of the two kinds of systems theories affect explanations of international relations. The English school has a long tradition of exploring the underlying institutions that form the international society. While much work in the US uses a similar ontological approach, it has not coalesced to the extent that the English School has.

The use of the term "English School" is not itself without difficulty. There is some debate regarding the question of whether a distinct "English School" exists in the study of international relations(Grader, 1988; Wilson, 1989: Smith 1985). The term is used here to denote those theories that take state sovereignty and international society as their central concepts. Sovereignty can be defined as "The idea that an absolute and final authority exists within the political community and that no final and absolute authority exists elsewhere." (Hinsley, 1966: 25-26). This chapter begins by examining the significance of the notion of sovereignty in

international society. Next, the term sovereignty is "unpacked" to understand how the modern world based on sovereignty is different than the medieval world that preceded it. Lastly, the fundamental institutions that make the international system an international society are identified.

International Society

International society and sovereignty are mutually interrelated terms that operate as a cognitive map of the broadest level of human interaction. Human behavior is organized at numerous different levels of interaction, from the strictly interpersonal, to the international. International society and sovereignty represent the fundamental ontological move of the English School's cognitive mapping of the international system. All other human interaction can be understood as a subsystem or a part of this architectonic level. This is not meant to imply that the international level is necessarily the most important level of human life, only that it is the most inclusive level of human interaction. If we ask the questions: The individual is part of what? The family is part of what? The city is part of what? Eventually we reach a level which is comprehensive, one that includes all other relations, the level of the international system.

But already language causes problems. To speak of an "international system" presupposes the existence of separate nations. As Martin Wight puts this problem: "our political vocabulary is inadequate for writing in the same sentence about the states-system

and its medieval precursor" (1977:132). We are already reading from the key to our cognitive map, and not penetrating to the ideas that it represents. The star on my map of the United States tells me that Denver is the capital of Colorado, but it does not tell me what it means to be the capital. Are all capital cities the same? Why are certain cities deemed capitals and not others? What are they capitals of, and why? These questions are hidden if we accept the existing categories. To understand why the world is divided up into states rather than one of the numerous other conceptual possibilities, empires, cities, religious cults etc... requires challenging the existing categories and assumptions.

To understand what "international system" or "international society" represent requires questioning the very things that are assumed in the word "international," and this means primarily the state. International relations, and international society, presuppose a world divided into independent states. What is a state? Why are some social groups deemed to be states and some not? What do states control, and why? These are the questions that need to be answered to go beyond merely reading the key to the map, and beginning to understand what its symbols actually represent.

To understand the term "state" involves consideration of what states possess that other social groups do not. Both international law and introductory international relations texts identify territory, population and independent government as integral parts of an international state. Domestic states, such as California, are not considered international states, because their governments are not constitutionally independent (James, 1986). A difficulty arises

internationally, because there are two facets of international statehood. First, there is the physical existence of a certain territory, encompassing a certain population and ruled by an independent government. Second, part of being an international state is to be formally "recognized" as such by other states in the system, through the mutual recognition of sovereignty. For example, the United States did not formally recognize the People's Republic of China until 1979 (von Glahn, 1993).

In international law these two aspects are discussed as the difference between a "constitutive" and a "declarative" understanding of recognition. According to the constitutive view "through recognition only and exclusively a state becomes an international person and a subject of international law" (Brierly, 1963: 138). This view is problematic, in that it leads to the ridiculous contention that the People's Republic of China did not exist as a state (at least for the US) until 1979. According to the declaratory view the "primary function of recognition is to acknowledge as a fact something which has hitherto been uncertain, namely the independence of the body claiming to be a state, and to declare the recognizing state's readiness to accept the normal consequences of the fact, namely the usual courtesies of international intercourse" (Brierly, 1963: 139).

This can be related to the internal and the external aspects of sovereignty. Sovereignty, discussed much more fully below, includes both the internal sense of having absolute and final authority within the political community, as well as the external sense of having no absolute and final authority elsewhere. Hence to be sovereign

requires both control over territory and population, and the recognition of the government's right to exercise this authority by the other states. Clearly the recognition of sovereignty is not sufficient to create states as physical entities, but it does confer on them the rights and duties of states. It is a change in status similar to the change from resident alien to citizen within a particular political community. As a resident alien, the laws of a particular country apply, but the status of the individual is such that they are denied the full rights of citizens, such as voting. In the same way the lack of recognized sovereignty denies states the rights of "citizenship" in the international society, such as voting in the United Nations.

The term "state" derives from the Latin word *status*, which is a characteristic of a thing which is ascribed rather than innate. (Russet and Starr, 1992, p. 57). By being recognized by the other members of the system, through the principle of mutual recognition of sovereignty, states join that system as full members, or "citizens" of international society. It is the mutual recognition of sovereignty that creates the international system, and the states within it. Not the assertion of sovereignty by any one state, but by numerous interlinked states. Even within the declarative view of recognition, the status of states was "uncertain" prior to recognition, and the recognition involved an acceptance of the principles of international intercourse, which can be considered international society. Thus, sovereignty and international society develop at the same time, and are not really separable. This would be an example of an agent and a structure that mutually constitute one another. It is not sensible to discuss sovereignty as an attribute of states, without reference to the

other states in the system, at the same time international society can only be understood through the medium of sovereign agents.

An interesting comparison can be made between the mutual recognition of sovereignty and Hegel's understanding of civil society. For Hegel individuals seek the recognition of their authority from others of equal stature. Only through this recognition by others of equal stature do individuals feel satisfied. In a similar way the recognition of states is the backbone of the international system. "The fact that states reciprocally recognize each other as states remains, even in war—the state of affairs when rights disappear and force and chance hold sway—a bond wherein each counts the rest as something absolute. Hence in war, war itself is characterized as something which ought to pass away" (Hegel, 1952: P. 215).

Sovereignty is one of those terms that is both central to understanding international relations, as well as a barrier to understanding international relations, because it is a notoriously "protean" word, meaning different things to different people in different circumstances. In 1905, Lassa Oppenheim remarked that it was "doubtful whether any single word has caused so much intellectual confusion" (quoted in Philpott, 1995: 354). Despite repeated calls for its abandonment by academics, "the term has so often been appealed to or claimed, in both polemics and preambles, by statespeople, diplomats and members of parliaments concerned about the integrity of their authority, and because it comprises the struts and joists without which statecraft would not exists, it cannot be scuttled" (Philpott, 1995). The term sovereignty is part of the

grammar of politics and cannot be abandoned until the underlying understandings and relationships that it expresses are overcome.

It is in part the rhetorical power of the term sovereignty that leads to its rhetorical abuse. Claiming that her "sovereignty" has been violated is the strongest claim a state can make. It is analogous to individuals claiming that their "rights" are violated. Both "sovereignty" and "rights" form part of our basic understanding of justice and morality, and therefore these terms carry rhetorical power. This importance however leaves them open to rhetorical overuse. As individuals increasingly use the language of rights to press their interests, so do politicians use the language of sovereignty to press their interests. In both cases the rhetorical overuse of the term runs the risk of undermining the fundamental agreement over its meaning that forms the bedrock of liberal society on the one hand and international society on the other.

To clear up some of these problems it is useful to distinguish the authority to make decisions from the capacity to carry them out—or the *right* to act from the *ability* to act. People often presume, erroneously, that the right to make decisions automatically carries with it the ability to have these decisions carried out. Individuals are presumed to have the right to self-defense; does this mean that they are all equally capable of defending themselves? Clearly not. But if some people are incapable of defending themselves, we do not say that they never possessed the right of self-defense. The right of self defense is a characteristic of individuals, regardless of their capacity to actualize it. Both quadriplegics and black belts in Karate

are recognized as possessing the right of self-defense; they differ in their capacity to make use of this right.

Likewise, sovereignty refers to the right or *authority* of a state to make absolute and final decisions, it does not guarantee their *capacity* to carry them out. States have widely divergent capabilities to actualize their sovereign rights, including their right to self-defense. States are not stripped of their sovereignty merely by the fact that they lack the capacity to defend it. The fact that Kuwait did not have the capacity to defend itself against Iraq did not deprive Kuwait of its sovereign rights. This division mirrors what Fowler and Bunck call the "chunky" versus "basket" views of sovereignty (1995: ch. 3). A chunky view sees sovereignty as a binary term, you either possess it or you do not. This would be similar to the constitutive view in international law. A basket view sees sovereignty as a continuum of attributes, which like the regulatory theory of recognition, is more difficult to identify precisely. I would argue that the authority of sovereignty is binary while the capacity flows on a continuum.

It is this confusion that has led many to claim that the increasing interdependence of the modern world undermines their sovereignty. For example, environmentalists often claim that the ecological interdependence of the Earth, and globalization of world politics, undermines sovereignty. Jessica Mathews claims that "[e] environmental strains that transcend national borders are already beginning to break down the sacred boundaries of national sovereignty, already rendered porous by the information and communications revolutions and the instantaneous global movements

of financial capital" (1989. P. 163). In a later article, Mathews argues that states are now having to share the powers that form the "core of sovereignty" (1997: p. 50: see also Camilleri and Falk, 1992: Soroos, 199 : Conca, 1995:). In this case it is the capacity of states that is eroding, not necessarily their authority.[48]

There is clearly a relationship between the authority and the capacity of states. Part of the reason states were vested with authority in the first place was because they had the capacity to protect security, and satisfy the material wants of their population. In addition, states had the ability or power to take the authority from the church—they demanded authority based on their capacity. In the short run these two terms are distinguishable, but in the long run they become more intermixed. This is similar to the relationship between power and authority.

Power has been defined as the ability to get people to do what they would not normally do. One aspect of power is physical, the ability to physically force people to do as you wish. This is not very efficient, requiring constant pressure and vigilance. A more effective kind of power is through intimidation and fear. In these cases others do what you want out of fear rather than out of force. A still more effective kind of power is to get people to do what you want because they think you are right, rather than through force or coercion. The most effective use of power is to turn it into authority.

Part of the difference between power and authority is that power is arbitrary, in the sense that the those who have it can use it

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[48] Many critics of sovereignty notice that the current system preserves sovereignty as an idea, and they try to press their attack at a more conceptual

as they wish. With authority, on the other hand, the use of power is constrained and channeled in "legitimate" ways. Therefore, if those who hold power wish to maximize its effectiveness, they will constrain and channel their power into those channels that are deemed legitimate, or they will deem legitimate those channels in which they wish to use their power. Either way, the only way for power to be taken as legitimate is if it is constrained and channeled—if it acts like authority. In this way power becomes institutionalized, or civilized, and turns into authority. In one sense the critical theorists who argue that social relationships are all based on power are correct, except that power has a self-interest in becoming authority.

In the same way states in the international system find that the best way to exercise power is by institutionalizing it, turning it into authority. But once this has occurred those in power no longer can act as they want. The most efficient way to exercise power is to vest it in an institution, but by so doing the power to act as you wish is also constrained by the institution. The US clearly set up the Bretton Woods system with an eye to their interest, but the institutions, once in place, have constrained US actions as well as those of other states.

This process of institutionalizing power, or the adaptation of authority to reflect the changes in power, is an ongoing process. As we will see below, what kind of rights the term sovereignty entails has changed over time, often dictated by changes in power. In fact the very institution of the system around nation states, was due to

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level, often from a postmodernist perspective (Walker, 1994: George, 1994).

the rising power of states versus other institutions such as The Church. Sovereignty was vested in the state because the state had the capacity to demand it and the capacity to control territories and populations. As the capacity of the state weakens there will be alternate sources of power that try to adapt the authority structures to reflect their interests. These sort of tensions can be seen in the development of human rights, which undermines the authority of states to treat their own population as they see fit (Krasner, 1993: Kratochwil, 1995: Charvet, 1997).

The increasing scope and intensity of international activity such as trade and environmental treaties are not abrogation's of a country's sovereignty but an exercise of that sovereignty. Keohane explains that "[i]nterdependence does indeed challenge the effectiveness of purely national policy, but not the formal sovereignty of states; and on the whole, international institutions reinforce rather than undermine formal state sovereignty" (1989: 91). Individuals in the liberal tradition have the right to dispose of their property as they wish. If I hire a lawyer to manage my money, have I given up my right or merely exercised it? I have merely exercised my rights. Likewise, when states create international institutions, they are exercising their sovereign rights, not giving them up. After all, it is states who have the power to form

international institutions and treaties.[49] Both individuals and states recognize the need to create associations in order to get the things they want. The creation of an association does not destroy the formal individuality of its members, whether they be persons or states, though in the long run participation in associations does effect what it means to be a person or a state.

The on-going creation of the European Union is an interesting case for this argument. Does the EU represent the gradual trend towards a "post-sovereign" world, or does it merely represent the exercise of sovereign power? Ole Weaver argues that the EU does establish a new kind of political reality somewhere between the broad international society and the narrow sovereignty of the individual state. By creating a new space "different from traditional supranationality" the EU has been able to "avoid direct confrontation over sovereignty" (Weaver, 1995: 430). Change in the international system is gradual, and only in retrospect do incremental changes reveal themselves as major changes in perspective. The change to sovereignty occurred gradually, over hundreds of years, eventually supplanting the preexisting system. Perhaps the development of the EU is such a incremental divergence?

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[49]There have been occasions when non-state actors have been parties to international treaties, but there could not be a multilateral treaty without states.

Sovereignty

We defined sovereignty earlier as "The idea that an absolute and final authority exists within the political community and that no final and absolute authority exists elsewhere." (Hinsley, p.25-26). As with many definitions, this one fails to elucidate the myriad of subtle nuances that exist in the word "sovereignty." The word sovereignty is not merely a symbol that represents a specific thing or concept, such as "chair" or "up." The meanings contained in the word sovereignty organize and formalize international human interaction, by providing a common referent over time. The word sovereignty has been the foundation of international relations, but the meaning of the word has changed over time to reflect state practice. Marx argues in *Capital*, that the "commodity" is a social artifact, embodying the social relations that went into its production. In a similar way the word "sovereignty" is a linguistic artifact of the international society, embodying the social relations within that system. The development of the idea of sovereignty and the corresponding development of international society represented a radical change in the way human beings understood the world; how they constructed their cognitive map.

As discussed at length below, the change to sovereignty represents numerous changing social relationships. One of particular concern for the environment, is the change towards private property versus the complicated ownership patterns of feudalism. The movement of the means of production towards private hands goes along with the move towards individual state control over territory.

"In the period roughly from the fifteenth century until the end of the seventeenth century one see the idea of man as controller of nature beginning to crystallize" (quoted in Camilleri and Flak, 1992: p.171). The linking of political power to territorial entities facilitated the development of mercantile enterprises and charter companies. In addition, the notion of private property and territorial control is a prerequisite for colonialism (Knutsen, 1992). To the extent that the entire modern system is interconnected in some ways, radical reforms in the environmental area will necessitate adjustments throughout the entire system.

The origin of the term sovereignty in the fifteenth century coincides with the development of the modern world. To appreciate the fundamental change that sovereignty represents it is useful to compare the medieval view to the modern view (Ruggie, 1986). The following discussion focuses almost exclusively on European history and development. The idea of sovereignty developed out of the European system and has gradually spread, usually by force, to the rest of the world (Bull and Watson, 1984).

The change to the modern world did not take place at a single moment, nor did the change to sovereignty. Many modern authors look to the Treaty of Westphalia as the definitive starting point for the international system. Others look to the states-system in Northern Italy, still others look even further back in time (Wight, 1977: ch. 4,5). The search to identify the critical moment of the formation of the state system is illusory. Social systems do not spring to life fully formed as Athena did from Zeus' head. Social system are continuously evolving, with new forms and institutions

existing simultaneously with older ones (Spruyt, 1994). It is not possible to identify the exact date that the international society formed around the idea of sovereignty. Nor is it necessary for this study to analyze how the change from the medieval world to the modern world took place. It is sufficient to demonstrate the fundamental nature of sovereignty by comparing it to the preexisting medieval order.

To appreciate and compare the two different world views of the medieval and the modern world, three interrelated social changes that set the stage for the emergence of the modern notion of sovereignty will be discussed: the Renaissance, the Reformation and the Scientific Revolution. These social changes can be linked to changes in three organizational principles that had to occur to move the medieval system towards the modern international system (Cammilleri and Falk, 1992). Martin Wight identifies changes in the following three principles that marked the transition from the medieval system to the modern states-system: the move from the notion of right to that of interest; from unity to separateness; and from hierarchy to equality. The three social changes and organizational changes will be treated as a series of dyads. This simplification highlights the major changes and their social context, which will help illuminate the social relationships inherent in the idea of sovereignty.

The Renaissance and the Change to Interests

The first dyad to consider is the Renaissance and the change from arguments based on "right" to arguments based on "interest."

The Renaissance developed in Northern Italy for numerous reasons, including the economic success of the Northern Italian city states, the discovery of the New World, and the dissemination of the Greek and Roman thought recovered (or pillaged) during the crusades (Knutsen, 1992). Among the many important contributions to the trajectory of history made by the Renaissance, the development of Humanism seems the most important for the argument here. Humanism marked a turning in human thought and concern from the sacred to the secular. Prior to the Renaissance most scholars focused their attention, with St. Augustine, on the City of God rather than the city of man. They thought that the aim of political life should be to approximate the heavenly city and bring men closer to salvation. The Humanists in Italy deliberately turned their focus to the lives of men, freeing up the mind to apply itself to the material problems of the day.

This change of focus from the sacred to the secular finds its political expression in the change from notions of right to interest. Prior to the Renaissance, political speculation was focused on aligning with the natural order given by God. This is given its highest expression in Aquinas's Summa Theologica. The nature of the world is given by God and it is the task of humans to understand and make manifest God's will. Any particular prince or ruler should be primarily concerned with the right way to order their realm so that it aligns with God's, or so argues Aquinas (Knutsen, 1992).

This is not to say that all princes acted in this way all the time. Surely princes occasionally acted out of self-interest rather than to fulfill God's plan. To our modern eyes they often seem to have acted

amazingly similarly to modern politicians. From this fact many modern commentators project their understandings onto medieval actors, attributing to them the motives and understandings that we use to explain political activity today. This is unacceptable. Medieval princes justified their own rule and actions through divine right and God's will, not national interest and reason d'état; they should be taken at their word.

The Humanist focus as well as the change from right to interest converge in Machiavelli.

> because I want to write what will be useful to anyone who understands, it seems to me better to concentrate on what really happens rather than on theories or speculations. For many have imagined republics and principalities that have never been seen or known to exist. However, how men live is so different from how they should live that a ruler who does not do what is generally done, but persists in doing what ought to be done will undermine his power rather than maintain it (The Prince, Ch. 15).

This passage shows the concern for what is useful rather than what is right. A lowering of the political sights in order to increase the efficacy of political action. In Machiavelli we also see the explicit

advice to do what is necessary, or what is in your interest, rather than what is right.[50]

This change finds its expression in sovereignty in the notion that absolute and final authority rests within the *political* community. There is no higher power, nor greater purpose than the sovereign ruler. This does not mean that the notion of sovereignty brushed aside all notions of natural law or natural right; clearly it did not. What sovereignty did was identify the political ruler as the final authority or interpreter of that law. Later, the question of whether this sovereign power rested with the monarch or with the people, had to be resolved.[51]

The Reformation and Political Fragmentation

The second dyad concerns the Reformation and the move from a unified Europe to a fragmented one. The Reformation changed the character of Europe both religiously and politically. It permanently ended the monopoly that the Roman Catholic Church held on medieval society, and in so doing undermined the Church as the primary unifying force in Europe. No longer was Europe thought of primarily as united Christendom—it was now divided against itself (Wight, 1977: Knutsen, 1992). After the Reformation, religion was separated into numerous different sects: Lutherans; Calvinists;

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[50] Many of these themes are also found much earlier, especially in Thucydides' The Peloponnesian War. See esp. the Melian dialogue

[51]This is part of the debate between Hobbes and Locke. In Hobbes the sovereign power is created by the social contract in the person of the ruler. Whereas in Locke the social contract delegates absolute power from the people to the ruler. For more on the relation to political theory see Christopher Brewin, "Sovereignty" in Mayall ed. 1982.

Huguenots; etc.... This change affected both the view of Europe as a whole as well as the relationship between church and state.

The medieval system was understood to be unified into one system by Christianity, with authority flowing from the Church to the kings. The fact that Europe was Christian, and the surrounding people, including the Ottoman Empire, were not, was the most important factor for explaining the political world. Writers in this period were more concerned with the differences between Christians and others than with differences among Christians themselves. They were more concerned with the external relations of Europe rather than the internal relations between princes (Wight, 1977). Conversely, writers in the modern international system are more concerned with the differences between the European states, rather than between Europe and the rest of the world. Theoretical effort was increasingly directed towards understanding the internal relations between the parts of the European system, how the parts of the system were separate rather than how they were unified.

The change in focus from the external relations of the system to the internal relations of the system should not be understood as a denial of the other realm. Prior to this change in focus, medieval scholars considered the differences between states, and after this change the states of Europe still considered themselves different and separate from the world outside the system (Keens-Soper, 1978). This 'difference' is critical, as it is precisely these shared understandings of the Europeans that differentiated them from the rest of the world and formed international society.

The Reformation also led to a change in the relationship between church and state, making the state more independent of the Church. Prior to the Reformation, princes justified their rule through religious arguments of divine right. With the Reformation concluding at the Treaty of Westphalia, the princes asserted, and the church recognized, the prince's authority to decide which religion would be recognized within their realm. Princes relied less on God to justify their authority.[52]

This change is embodied in the notion of sovereignty. Absolute and final authority rests in the *Political* community, not in God, not in the church, not in the community of mankind, nor in Europe.[53] After Westphalia, politics did not need to be legitimized by the church; rather politics could legitimize certain churches within their political borders and exclude others. While Princes did not need to have divine authority, they often claimed it anyway. As Rousseau explains:

> the legislator can use neither force, nor argument, [to convince the people of their right to rule, therefore] he must, of necessity have recourse to authority of a different kind which can lead without violence and persuade without convincing. That is why, in all periods, the Fathers of their country have been driven to seek the intervention of Heaven, attributing to the Gods a Wisdom that was really their own (208).

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[52]The undermining of the traditional justification for ruling required a new justification. Such a justification was provided by the work of Hobbes and especially Locke whose First Treatise shows the falsity of divine right and whose Second Treatise then constructs a new justification for rule in a social contract and popular sovereignty.

[53]The development of Human Rights is an interesting modern challenge to this assertion. The trying of Nazi war criminals for "crimes against humanity" could represent a significant bypassing of sovereignty where authority flows directly from the community of mankind to the individuals. This challenge has always been present in the system, though usually at the margins in cases such as piracy.

The sovereign power had the right to decide which churches to recognize, though often not the capacity to control which churches existed. In addition, the power granted in sovereignty is absolute, making the use of force, including death, legitimate. Vengeance was no longer the Lord's, sayeth the princes.[54]

The Scientific Revolution and Egalitarianism

The last dyad of social forces and organizational form to consider is the scientific revolution and the change from hierarchy to egalitarianism. The unleashing of the power of reason on nature through technology had immense effects on politics. The invention of the compass and advances in shipbuilding, both occurring in the fifteenth century, made the discovery and conquest of the New World possible. This in turn accelerated the development of merchant classes and mercantile powers such as the United Provinces and England.

Another example is the development of gunpowder, which profoundly changed the social system of Europe. Prior to its development, feudal society was organized around a noble land-owning class that was trained in cavalry warfare. The advent of gunpowder destroyed the need for such a warrior class and made the

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[54]This leaves open the problem of justifying the modern sovereign state. If there is no higher authority can all states use their authority in whatever manner they deem appropriate? This claim has been made repeatedly by states to justify their internal actions, especially in their repression of their citizens. This claim is becoming increasingly problematic with the development of international concern for human rights. This question is very important to the survival of the international system based on sovereignty, but it is beyond the present study.

infantry the most important branch of the armed forces—any peasant with a musket could kill a knight. This led to the expansion of armies and the consolidation of power in the monarch (Knutsen, 1992, P.43-48). The advances in military technology also facilitated the growth of the territorial state, and the hastened the demise of kingdoms based on vassalage and marriage.[55]

The medieval world was organized along hierarchical lines typified by the system of feudalism with the complex web of lords and vassals. The scientific revolution was a great equalizer, destroying the previously existing hierarchy. The technologies of the scientific revolution destroyed the social necessity of an aristocratic warrior class, while the enlightenment undermined its justification. The scientific revolution held reason to be the key to human development, and all humans possessed reason. The invention of the printing press allowed these ideas to spread throughout society. These are but a few ways in which the scientific revolution was an equalizing force.

The notion of sovereignty, that there is no final and absolute authority elsewhere, expresses this movement towards equality. All states claimed equal authority by claiming to be sovereign. The Renaissance, the Reformation and the scientific revolution transformed the hierarchical power of the Pope and Emperor over Christendom into a group of sovereign, though still European and

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[55]While the military superiority of the colonial powers was important in explaining the successful acquisition of the New World by the Europeans, it was not the sole factor. Cortez had only 13 muskets, and Sixteen horses, not enough technology to destroy the vast Aztec empire. As Howard puts it "they owed their victories to their single-minded ruthlessness, their desperation and their fanaticism" Howard, in Bull & Watson, 1984. (p. 35)

Christian, princes. In addition, all the princes claimed to have the same authority of sovereignty within their territories. In this very important sense they were equal.[56] The emergence of the notion of sovereignty reflected revolutionary changes in the organization of the political world (Hinsley, 1966: Wight, 1977: Bull and Watson, 1984: Knutsen, 1992).

International Society: Revisited

Sovereignty is the constitutive idea of both the state and international society—with the idea of sovereignty, both the state and international society are born. It contains both the internal notion of sovereignty as absolute and final authority within the political community, as well as the external notion of sovereignty that no final and absolute authority exists elsewhere. The international society had been in gestation long before Westphalia, but at Westphalia the notion of sovereignty is explicitly recognized; international society became self-conscious (Wight, 1977).

The international society formed by the mutual recognition of sovereignty is consistent with the definition of an international society given earlier: "a group of states, conscious of certain common interests and common values, form a society in the sense that they conceive themselves to be bound by a common set of rules in their

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[56]The extent to which states within the system are equal, and what this equality means, has been disputed over time. For most of European history the great powers were held to have a special place in the system. The doctrine of great power supremacy is still enshrined in the veto power of the permanent members of the UN Security council (Wight, 1978).

relations with one another, and share in the working of common institutions" (Bull, 1976, P. 13). Three parts of this definition require further clarification. The first is the emphasis on consciousness or conception in the understanding of international society. Society is, after all, a cognitive creation, existing in the minds of the participants. International society is not formed by documents and explicit agreements, it is the shared understandings of the participants that form international society. Treaties and documents are merely tangible expressions of these underlying understandings.

The second part of the definition asserts that states share common interests and values. It is not difficult to see how all states share an interest in the idea of sovereignty. Sovereignty is a justification for absolute and final authority within a particular political community, and a promise that other states will not interfere in that community. Internally, sovereignty provides a justification for ruling that does not necessarily rely on the explicit consent of the ruled, but rather comes from outside the community. It is in the self-interest of every ruler to be recognized as legitimate by other rulers. External recognition strengthens their own claim to rule regardless of how they justify this claim internally.

Externally, the idea of sovereignty entails a promise that other states will not intervene in the domestic affairs of a state. While this promise is sometimes broken in the actions of states, it is the standard of justice that organizes international relations. Whenever a state invades or interferes with another, it offers a justification for its actions, almost invariably phrased in the language of sovereignty. For example, Iraq argued that Kuwait had violated its sovereignty by

side-drilling into its oil wells prior to its 1990 invasion. The United Nations defended its military response as restoring sovereignty to Kuwait.

Obviously there is a large divergence between state actions and state principle, which has led many to discount principle as a meaningful explanation of state action. The mere fact that states do not always follow the rules does not invalidate the efficacy of the rules. The constantly repeated efforts of states to show that their actions do conform to the rules shows how much they care about them. As Northedge puts it "hypocrisy is surely the tribute that vice pays to virtue." "[I]t is no exaggeration to say that a good deal of the hypocrisy often laid at the doors of governments derives from their efforts to conform to the rules" (1971, p. 20: 1976, p.26) Only because there exist common rules of international behavior can states be accused of hypocrisy. The fact that states feel compelled to justify their interventions shows their concern for the opinion of international society.

These narrow self-interests shared by states are part of a broader set of values that states generally agree on. James Mayall identifies a "modernization mythology" that is diffused throughout the globe and professed by virtually all states. This mythology involves: "a rather specialized notion of national self-determination as the basis of legitimate authority; a secular and materialist approach to social and economic affairs; a belief in and a desire for technological advance; and an ethical position which is, notionally at any rate, egalitarian" (Mayall, 1978:133). These are closely linked to the aspects of sovereignty discussed earlier—secular rather than

sacred authority; a lowering of purpose towards material fulfillment; authority diffused to separate states; and the professed equality in their authority.

The next part of the definition of international society asserts that the states see themselves as bound by a set of common rules. One of the major objections realists make to an international society approach is that it does not make sense to say that states are *bound* to any rules in an anarchical system. There is no higher power that can force states to obey the rules so they cannot properly be called "bound." As Hobbes puts it: "covenants, without the sword, are but words, and of no strength to secure a man at all" (Leviathan, 1985: 223). For realists, it is the enforcement of rules that determines the existence of society; since international society lacks an enforcement mechanism, it must not be a society. Following this argument there could be no society prior to the state; prior to the state was a chaotic state of nature. It is now recognized that there are many precivil societies which lack formal institutionalized enforcement. Does this lack of enforcement invalidate these groups as societies? Enforcement is not assured in domestic society and yet it is still considered a society. Therefore, international society, which lacks a clear, effective, enforcement mechanism, must be admitted to be a society as well, so long as there are shared norms and understandings.

This is part of the difference between Locke and Hobbes. Hobbes' argued that the State of Nature is composed of atomistic individuals unconnected to one another. Only through the social contract and its enforcement does society become possible at all.

Locke disagreed, arguing that the state of nature is composed of social beings who suffer from the inconveniences of unknown laws, the lack of impartial judges, and inconsistent enforcement. Realists tend to look to Hobbes' state of nature as the model for international relations where those from an international society perspective tend to gravitate towards Locke (Bull, 1977: p.46-51). They view the international society as a pre-civil society lacking known laws, impartial judges and consistent enforcement.

It is also inaccurate to say that international society lacks any enforcement; rather, it lacks a centralized enforcement mechanism. The recognition of a state within international society does have a certain constraining effect on state action. In order to be recognized as having the *status* of a state, countries must agree to certain conditions, especially recognition of the doctrine of sovereignty. In essence, it is a kind of social contract between princes or rulers: "you agree that I have absolute and final authority in my country and I will agree that you have absolute and final authority in yours". It is this mutual recognition that creates states as sovereign entities and it is this same act that binds them together. This agreement offers an enforcement measure through the denial of this recognition or status. If states or rulers systematically violate the sovereignty of the other states in international society, they run the risk that their own sovereignty will no longer be recognized. While this may be a "rather ineffectual political measure" there are still numerous disadvantages and states work to avoid it (von Glahn, 1996: 69). States are bound by the doctrine of sovereignty, because it is this

doctrine that creates, or grants standing, to any particular political entity in international society.

The Basic Institutions of International Society:

The constitutive idea of sovereignty forms the cognitive foundation of the international system. It divides up the political space into states, and identifies their primary attributes, determining the kind and scope of interactions that will take place between the units. It does not, however, determine how these interactions will take place, or even if they will take place. Norms evolve into institutions to regulate international interactions between states.

The term "regulate" denotes: to make regular, customary, and comprehensible. The actions of states are regulated by international society when they occur in ways that are comprehensible to the other states. They are comprehensible because the action can be located in a linguistic rubric of past behavior and expectations. This does not mean that international society has control over these areas, in the way that the US government regulates imports. For example, war is regulated in the first sense but not the second. States understand what it means to declare war, send embassies, and surrender, though they cannot ultimately control whether wars occur. Most of the institutions of international society regulate states' expectations more than their behavior, though over time the two tend to merge.[57]

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[57] The interaction between language, institutions and change will be discussed further below.

The term institutions can refer to a broad array of human interaction from the very general to the very specific. Keohane provides a broad definition of institutions as "persistent and connected sets of rules (formal and Informal) that prescribe behavioral roles, constrain activity, and shape expectations" (Keohane, 1989, p. 163). A refined version of this definition is to add the idea that these rules are centered around particular areas of human interaction. Institutions are persistent and connected sets of rules (formal and Informal) that prescribe behavioral roles, constrain activity, and shape expectations within a certain area of human interaction. This definition is consistent with the definition of 'regimes' developed by Krasner, "sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given areas of human interaction" (Krasner, 1982: p. 186). The idea of regimes is compatible with the idea of institutions developed here, regimes would be understood as auxiliary institutions to the main institutions of international society (Buzan, 1993). Institutions establish patterns of interaction within human society that delimit expectations and behavior allowing us to understand our interactions. The terms institution and pattern of interaction are used synonymously in this study.

Institutions vary along two dimensions. First, the rules can be either informal or formal. The same interaction can be regulated by both formal and informal rules, with most activities combining the two. A game like basketball, for example, has specific rules regarding the handling of the ball and contact between players; in addition there are informal rules such as passing to the players on

one's own team. Institutions also vary according to the scope of human interaction they seek to regulate. Some institutions regulate interpersonal interaction, such as marriage, while others regulate the interaction of groups, such as corporate law. The world can be conceptualized in concentric circles of organization, moving from the interpersonal level to the community, the state, and ultimately to international society and humankind. Each of these levels of human interaction is regulated by different, though interrelated, formal or informal institutions.

Martin Wight identifies three stages of society and law, where he represents the state, international society and mankind as three concentric circles each governed by a separate understanding of law: municipal law, the law of nations and natural law, respectively. This scheme could be continued in the other direction laying out narrower ranges of human interaction and the institutions which regulate these areas (1992, p.73) The analogy of concentric circles is entirely consistent with the idea of a cognitive map used earlier. One can buy maps with increasing detail, such as a map of Boston, or a schematic of the sewer lines in Frostburg. The mapping of ever narrower fields of interest is exactly the same as regulating smaller concentric circles of interaction. This metaphor will be used in Chapter Eight to model change in the international system.

The framework developed here shares many aspects with the one developed by Buzan, Little and Jones in The *Logic of Anarchy.* They disaggregate the international system into its deep structure, distributional structure and process functions. In their model, the deep structure conditions the distributional structure, which in turn

conditions the process formation. They argue that the development of the international system is fundamentally influenced by the interaction capacity of the states in the system. In different historical periods the capacity of states to affect other states has varied depending on technological and sociological attributes of the states and the system. As technology has evolved over time the interaction capacity of states has increased necessitating the development of more formal international institutions (Buzan, Little and Jones, 1993: esp. ch. 4).

Once the basic constitutive idea of sovereignty was accepted, auxiliary institutions developed to regulate the interaction of states. There are four primary institutions discussed by the English School: the balance of power; codification of the regulatory rules of war and peace—which became international law; the practice of settling affairs through international congresses; and the institution of diplomacy (Bull and Watson, 1984, P.24-25). These four institutions form the primary understandings that regulated the interactions of states. As an example of how these function, consider the institution of diplomacy.

The institution of diplomacy developed over time from the customary practice of the European system which served the self-interest of the Princes. "The reciprocal interest in the flow of information, in facility of negotiation, and in opportunities to 'present' their majesty, which bound the states of Europe together in a continuously active network of arrangements, was able to find expression in the legal inviolability of envoys and the extra-territoriality of embassies because those involved were legatees of a

customary order of common understandings." (Keens-Soper, 1978. p. 35).[58]

Diplomacy increasingly developed as "an increasingly cogent set of arrangements whose purpose was to focus and articulate the business of the states-system." Schools developed across Europe that explicitly taught the language of diplomacy and the art of negotiation. In these schools, diplomats were socialized into the common practice of international society. The development of diplomatic institutions often manifested an excessive concern for protocol and precedence in international relations. These formalized activities provided a "civilized and civilizing force among states frequently inclined to violent remedies." Diplomacy provided the fragmented states of Europe a common language and framework of understanding that allowed them to conduct their business in a peaceful manner. "If *raison d'état* was the principle of state policy, then perhaps it is true to say that the civility and corporate sense of the *corps diplomatique* was the visible embodiment of the *raison de systéme* of Europe" (Ibid., p.33-36).

The development of the institution of diplomacy helped facilitate communication and understanding between international actors. The other primary institutions performed other basic functions for international society. The balance of power kept any one state from growing so large that it threatened the system. The development of international law established a predictable manner

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[58]The next two paragraphs draw heavily on the arguments made in Maurice Keens-Soper "The practice of States-Systems" in Donelan, 1978. Esp. pg. 33-36. For more on the historical development of Diplomacy as an institution see: Anderson, 1993; Mattingly, 1970.

of state interaction, particularly in the most challenging area—war. The rules of war, including the inviolability of envoys and the rights of non-combatants, helped to contain disputes within the system by establishing predictable behaviors and practices. Lastly, the system of settling disputes through international congresses provided international society with a forum for discussion and action. All of these examples could be linked to the increasing interaction of states. As this capacity increased, states found it useful to regulate these interactions through increasingly formal institutions (Buzan, Little and Jones, 1993).

Conclusion

These four institutions form the basic landmarks of the cognitive map of international society. They create a framework of reference by which the actions of sovereign states become comprehensible. Actions by states can be located within the conceptual framework of sovereignty and these auxiliary institutions. Within this landscape, states can get their bearings and set a course of action to realize certain goals. As the interactions between states become more common and complex states required a more detailed framework for understanding their interactions. They needed to refine their cognitive map to include new areas of interaction including the environment. The Growth of METs can be understood as the response of international society to this new area of interaction.

Chapter Seven

METs as International Social Institutions

Chapter Six discussed how the development and acceptance of the idea of sovereignty formed an international society of states. These states then developed institutions to regulate their interactions. As the level and scope of international interactions grew, new international institutions developed to regulate these new areas. One of these areas was the environment, and the growth of METs can be understood as the response of international society to this new area of interaction. METs are the current institutional form linking the idea of sovereignty to the global environment.

Testing the hypothesis derived from the English School requires a careful consideration of the history of the traditional institutions linking state sovereignty to the international environment. Next, the changes in technology and the constituency of the international system, the two variables for the English School, have to be considered. Further, it needs to be explained how these changes led to the replacement of the old institutions with METs. The vast changes in technology and the distribution of power will not be difficult to document, so the focus will be on how these changes affected the existing institutions, and how METs represent an adaptation to these broader social changes.

Since the English school is concerned with the mutual recognition of rules and regulations, the primary evidence for the

importance of state sovereignty lies in the understandings of the actors who negotiated and made the new treaties. This evidence will be contained in the documents themselves, which almost invariably use the language of sovereignty in describing their function. Most treaties will not openly say that they are replacing the existing institution with a new one, but they are expected to refer to the notion of sovereignty as the critical foundation upon which the new METs lie.

For the English School the ultimate evidence for all theories of international relations is actual state practice: "for it is state practice that provides the basis for the claim that sovereignty is what makes an entity eligible for admission to international society" (James, 1986, p. 8). Treaty texts are hotly contested, requiring long sessions of negotiation to complete. Treaty texts are, therefore, the most authoritative statement of the sentiments of international society, especially the broad multilateral treaties that make up the bulk of METs. It is through state practice, especially the practice of negotiating and signing treaties, that "sovereign states give meaning to the word 'sovereignty'" and justify their own existence (ibid.).

Along with trying to flesh out the idea of international society that conditions the development of METs, this Chapter will also try to appreciate the importance of the other variables discussed above. The English school does not discount or ignore the distribution of issue-area or aggregate power concentration among the members of the international system. In addition, changes in technology have effected the excludability and divisibility of the international environment. In the course of the describing, the change in

institutional form to METs, the significance of these variables will be appreciated.

In order to present the English School explanation of METs systematically, this Chapter begins by identifying the previous or preexisting institutions linking sovereignty to the natural environment prior to METs. To understand how the institutions changed, requires understanding what the institutions were before the change. The next step is to look at how technology and changes in the distribution of power disrupted the existing institutions. The final step is to show how the new institutions were able to contain these disruptions, and bring international social regulation to the global environment. Before considering the historical development of institutions linking sovereignty to natural resources, a brief consideration of the idea of change in international society is needed.

Change in International Society

It is difficult to analyze change in the complex international system. The international system is especially complex and includes all other human subsystems as potential influences.[59] The problem is particularly acute when we try to analyze change; what causes change at any particular level and how do changes at different levels interact? Do changes at one level lead to changes at other levels? These questions are too complex to answer fully here (maybe

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[59]This is often referred to as the levels of analysis problem, though it is not always thought of as multiple levels of systems. The most cited discussion is J.

anywhere). Still, we need a model of change in which to locate the English School's explanation of METs, therefore, a brief model of change is sketched out below.

The English School conceives of the international system as organized in ever narrower fields of interaction. The most comprehensive field is the division of the world into sovereign states which imposes an overarching, or architectonic, order on the world.[60] This field is organized by the four institutions discussed above that regulate the basic interactions of states within this field. Overlaying these four basic, or *first order,* institutions would be a number of *second order* institutions, focused on narrower areas of interaction, and so on, with numerous patterns of interaction overlaid one upon the other.

Two points should be kept in mind as we discuss these multi-layered patterns of interaction. First, institutions are ways of organizing *human* interaction, they are not things in themselves. As individuals we perform a series of roles in different circumstances; e.g., parent, teacher, spouse. In each of these different circumstances there are different rules of behavior and conduct. Actions that are inappropriate as a spouse may be totally appropriate as a parent. In each realm the rules of behavior regulate our actions and give others

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David Singer in "The Level of Analysis Problem in International Relations," in Singer et al, 1961.

[60]This is seen every day in world maps which usually highlight the political divisions. Recently many new maps have been created which specifically go against this standard. Some portray the Southern Hemisphere on top, some portray the world from space without any political distinctions, reflecting challenges to both the hierarchy of the current system, as well as perhaps the fundamental division of the world into sovereignty states. These maps are anecdotal evidence for the cognitive challenges to sovereignty, which we will consider below.

a context for understanding what we are doing. The actions of states are also composed of individuals acting within certain existing patterns of interaction, or rules of behavior, such as international law and diplomacy. When discussing numerous patterns of interaction it must be understood that these patterns exist simultaneously in the individuals involved.

The second point to keep in mind is that the greater breadth of a field of interaction does not necessarily mean that it is more important to human lives—only that other fields are less comprehensive than the international system. For Aristotle the polis provided an overarching standard of justice and the good which conditioned, though it did not determine, all other human relations. In the modern world this function of the polis has been divided between the modern state and international society. Only by understanding both the state and international society can we see how our lives have been conditioned by our social environment. For this study narrower or broader fields of interaction are merely differences in scope, not importance.

To analyze changes in the international system we need to appreciate the interactive nature of different levels of interaction with each other. Important changes are those that result in one or both of the following—first, a meaningful change may result in a substantial reorganization of the pattern of interaction at one level; second, a meaningful change in one level may spill-over to other levels of interaction, just as a major fight with your wife or husband often affects your job performance. A full understanding of change in

the international system requires keeping in mind how changes in various levels are interrelated.

The English School does not generally lay out a systematic model of change. While they discuss *why* the system has changed, they do not generally lay out a theoretical explanation for *how* it changed.[61] The most theoretical discussion with which I am familiar is provided by F.S. Northedge. In his discussion of change in the international system, Northedge identifies two major reasons why institutions have had to change; changes in technology, and changes in the distribution of power (1971: 83-94). These can be considered as the two most important variables in explaining changes in international society over time. Chapter Eight will develop a model of change based on our discussion of METs.

A preliminary model of how the international system is organized according to the English School has been developed, and the two most important variables accounting for change in the international system have been identified. The next step is to describe the dominant pattern of interaction prior to the change to METs.

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[61]For example, neither Watson's *The Evolution of International Society*, 1992, nor Bull and Watson's, *The Expansion of International Society*, 1984, offers a theoretical explanation for the events they describe. This is in part due to their focus on international society, whose basic institutions have not changed markedly over time. We will consider this further below.

Sovereignty establishes a system of political authority over the Earth, by including some areas within the sovereign jurisdiction of states while excluding others. Most land based natural resources are directly under the control of the state because sovereign states are traditionally granted absolute and final authority over both the individuals within their territory, and over the territory itself. Up until the end of the nineteenth century the effects of resource use within any given country were not usually sufficient to cause international concern.[62]

The traditional sovereignty of the territorial state did not solve the problem of natural resource control in the oceans. The idea of sovereignty was inherently connected to land, to the actual possession of territory, and it was difficult to extend this principle over the oceans. Internal lakes and rivers could be considered within the sovereign jurisdiction of states, and shared lakes or rivers could have the jurisdiction split between bordering states. The regulation of the oceans, however, posed a serious problem for a system based on territorial sovereignty. This problem has been recognized since the beginning of international society. The Spanish and the Portuguese had attempted to divide the oceans between themselves into a *Mare Clausum*, or a closed sea. Grotius, the first great writer of international law, responded in *Mare Liberum* (literally, open seas) published in 1609, arguing for freedom of the

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[62]The first specifically environmental areas of international concern appears to be either river basins or migratory birds, states have attempted to regulate the latter since 1872. See Caldwell, 1990, Ch. 2.

seas.[63] Over time, the doctrine of freedom of the seas, where no state has more rights than another, has dominated.

It is interesting to look more closely at the reasons Grotius gave for freedom of the seas, as they mirror many later arguments. The first rationale for freedom of the seas is based on natural law: "since not every place is supplied with the necessaries of life.. 'divine justice' ..brought about that one people should supply certain needs of others. Those who deny this law and remove the opportunities for mutual service do violence to Nature herself" (Butler, 1990: cp. Locke, Second Treatise: chs. 2, 5). This sense of a higher law has consistently permeated international society since its beginnings, and continues to today. The second and third justification used by Grotius relate to the character of the ocean itself. First the use "of the sea by one country does not make the sea unnavigable for others." Second, "actual occupation of the seas accompanied by a situation of custody or possession is physically impossible." In addition "part of the ocean cannot be owned: for they are part of a corporeal whole" (Butler, 1990: p. 214). These justifications are virtually identical to the thinking in the theory of goods, jointness of consumption, excludability and divisibility, respectively. The underlying situation that characterizes international relations has not changed markedly over time, underscoring the need for historical knowledge (Buzan, 1994).

Freedom of the seas won out partly for practical reasons. The fact that the oceans have no permanent human population makes it

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[63] Mare Liberum, by Hugo Grotius ; tr. by Ralph Van Deman Magoffin ; ed. New York, Oxford University Press, 1916.

difficult to extend the idea of sovereignty to them. They are also incredibly vast, making it exceedingly difficult to regulate what happens within them; it is virtually impossible to keep people from using the resources—to exclude people. Lastly, many ocean resources, such as whales, are not fixed in one place, making regulation difficult.[64] In order to solve these problems, states developed customary practices, which became known as the Law of the Sea, that regulated the use of the oceans in a way consistent with the idea of sovereignty. The historical Law of the Sea divided the ocean into two realms: the territorial sea and the high seas.

The territorial sea was that portion of the coastal region claimed as part of the sovereign territory of the state. It was generally agreed that "the extent of the adjoining sea over which a neighboring state is entitled to exercise dominion is limited to the range of guns from the land" (Fulton, 1911 p. 349). For most of modern history this limit was set at three miles. The principle of sovereignty was extended directly over the territorial sea because it *could* be, because it was feasible to exclude other states from coastal areas. Eventually, this principle became the accepted practice in international law such that, "[w]ith hindsight[65] it is possible to see

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[64]This problem is not unknown with land based resources such as migratory birds. As mentioned above, this was the subject of the first explicit international environmental treaty Fulton, 1911).

[65]I am uncomfortable with attributing a "steady" course to development, 'with hindsight.' Hindsight gives almost every present doctrine an air of inevitability because we know how the story ends. In reality the success of a particular doctrine, especially sovereignty as it relates to our subject, has consistently been challenged. There was no guarantee that sovereignty would win out against rival doctrines, nor that the meaning of sovereignty would not change as part of that contest. We will return to these considerations below. Spruyt, 1994, provides a good discussion of the fallacies of attributing inevitability to the present situation.

that the trend in doctrine and state practice was steadily towards recognition of coastal states' sovereignty over their territorial sea" (Churchill & Lowe, 1985 p. 55-56).

The second division of the ocean was called the high seas, which referred to those areas outside the territorial seas. On the high seas no state had more rights than any other—freedom of the seas. Since the beginning of the modern international system rulers have attempted to incorporate these areas within their sphere of authority, or sovereignty. This created fierce debates over which principle was to guide the use of the oceans; whether there was to be freedom of the seas or whether particular princes could claim dominion over them (Fulton, 1911). Over time, the doctrine of the freedom of the seas rose to dominance; this included the right of "states, their navies, and their nationals [to] travel freely, extract, and keep the ocean resources that they found as long as they did not occupy or claim permanent and sovereign rights to any part of either the ocean floor beyond the territorial sea or the water column lying above it" (Eckert 1979. p. 3). The doctrine of the freedom of the seas succeeded partly for the practical reasons mentioned above, but also because it was in the interest of the stronger states in the changing nature of the world economy. There appears to be a relationship between a strong hegemonic power and free trade policies (Gilpin, 1979: Keohane, 1984). Advocates of the open sea were able to triumph over their rivals because "the importance of free trade and navigation in the service of overseas and colonial trade came to overshadow national interests in coastal fisheries..." (Churchill &

Lowe, 1985 p. 145). This change in domestic coalitions in many countries gave political support to free trade advocates.

The doctrine of freedom of the seas is an outgrowth of the doctrine of territorial sovereignty. As we have discussed, sovereignty provides a cognitive map delimiting the range and extent of state authority. The Law of the Sea performs the same function for the rest of the surface of the Earth by differentiating that part of the ocean that is within individual sovereign jurisdiction from that part of the ocean without individual sovereign authority. In the high seas sovereignty is still the dominant idea in that no state enjoys a privileged position. The idea and definition of the high seas reaffirms territorial sovereignty by creating an arena in which sovereigns act as equals.[66] Furthermore, only states were granted these equal rights, those without states were deemed 'pirates.'

Even as the institution of the territorial sea/high seas came to dominance, it was continually contested in practice. Neither the territorial sea, nor the high sea, was universally proclaimed at one conference, instantly becoming international law. International law forms over time through customary practice. As state practice evolves, international law adapts to fit these changing circumstances (Birnie, 1988). The meaning of 'freedom of the seas' and 'high seas', as well as their application and legitimacy, are constantly being recreated through state practice.[67] It is only in retrospect that the

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[66] In a sense, the institutions of international society, such as diplomacy, also create a 'space' or arena for states to act as equals. Arenas of interaction are both physical and cognitive simultaneously.

[67]For example, Churchill and Lowe (1985) state that the principle of territorial sea "was sufficiently well established in State practice for Francios to adopt it in his first report to the ILC [International Legal Commission] in 1950, and for

doctrines of the freedom of the seas and the territorial sea seem to be firm principles of international law. This 'relative' firmness was disrupted by changes in technology and the distribution of power.

The development of new technologies consistently effects the patterns of interaction in the oceans and on land. Major changes in manufacturing and production, the transportation of goods, and international communication, created tensions in the existing institutional system. This study is primarily interested in the changes that precipitated the development of METs after World War II.[68] Technologies developed along with industrialization vastly increased the ability of human actions to impact the natural environment.

These technologies and their deleterious effects had three related impacts on international institutions. First, it disrupted the preexisting institutions governing international relations and the natural environment, most importantly, the Law of the Sea. Second, it forced a reconsideration of the traditional understanding of unlimited domestic control over natural resources. And third, it forced states to consider entirely new areas of interaction, previously ignored or unknown, such as Ozone depletion. Virtually, all of the current METs can be understood as attempts to bring these three changing areas under international regulation.

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it to survive, *almost unquestioned*, throughout the ILC debates and the 1958 Geneva Conference (emphasis added, p.56-57).

[68]The United Nations Register of International Treaties and Other Agreements in the Field of the Environment lists only one treaty prior to 1940. The paucity of treaties before the war supports the argument made here, they were not really necessary until after the war as explained below. Only after the war did states feel it necessary to formally codify the existing customary practice into specific treaties.

Changes in the Law of the Sea

Three related changes resulted from technological innovations that dramatically impacted human relations with the oceans—first, the ability of humans to recover and use natural resources from the sea increased dramatically; second, the effect that humans could and did have on the oceans greatly expanded; and third, innovations in technology, particularly military technology, increased the feasibility of excluding other states from wider areas of the sea. Each of these changes influenced the growth of METs.

Changes in Recovery Capacity

The ability of states to exploit minerals on the Continental shelf and the ocean floor increased markedly in the early twentieth century, raising the incentive to capture resources beyond the traditional territorial sea. The territorial sea extended the principle of sovereignty only a few miles out into the ocean, the right to exploit those minerals and resources which fell beyond this limit was agreed to be held in common. This made sense at the time because "ocean values were relatively small and enforcement costs were high, so expansion of jurisdiction by coastal states was unattractive" (Eckert, 1979, p. 7). As it became more economically and technically feasible to recover these resources, pressure on the existing pattern of interaction increased as states tried to capture more of these resources for themselves. A number of states unilaterally increased their territorial seas to six or twelve miles, raising "the thorny

question of whether states had either the authority or the power to impose their jurisdiction over areas established by long usage as high seas" (Buzan, 1976, p. 4). An international conference called in 1930 to resolve this problem was unable to either reestablish the existing convention, or agree on an adequate reform of the territorial sea. Following the failed conference, increasing numbers of small states began to unilaterally expand their territorial seas, further eroding the existing institution. Among these were a number of Latin American states who expanded their territorial seas to encompass greater exclusive fishing zones (Churchill & Lowe, 1985. Buzan, 1976).

The pattern of territorial/high seas continued to fray, increasing in pace until World War II. At the end of the war the United States would begin the process of supplanting the preexisting institution, now in disarray, with a new one. On September 28, 1945, President Truman declared that: "the government of the United States regards the natural resources of the subsoil and seabed of the continental shelf beneath the high seas but contiguous to the coasts of the United States as appertaining to the United States, subject to its jurisdiction and control." The explicit justification for this declaration was that "modern technological progress" had made the exploitation of the continental shelf "already practicable or [likely] to become so at an early date" (Reprinted in Eckert, 1979). The Truman Declaration, as it came to be called, was not merely an extension of the territorial sea outward; this had been done before the war. The Truman Declaration also provided the beginnings of a new conceptual

framework for organizing state interaction in the area beyond the territorial sea.

Prior to the Truman Declaration territorial seas were measured by the distance from the shore, with any additional rights to the seabed resulting from long established use. The Truman Declaration justified US actions by considering the continental shelf as an extension of the land mass of the coastal state and thus subject to its jurisdiction. Truman was careful to phrase US claims in language that did not include sovereignty, presumably because the existing institution linking sovereignty to the oceans, the territorial sea, was still the dominant, if emaciated, institution (Buzan, 1976). He also specifically supported the principle of the high seas by stating "[t]he character as high seas of the waters above the continental shelf and the right to their free and unimpeded navigation are in no way thus affected." Truman's Declaration, followed by numerous other states, including the new justification for coastal states' rights, signaled the end for the existing institution—the territorial/high seas division. By marking off a new area of interaction, and asserting a claim within it, the Truman Declaration undercut the neat division of the oceans into territorial or high seas, forcing a reassessment of this institution.

The first effort to establish a new pattern was the First United Nations Conference on the Law of the Sea (UNCLOS I), held in Geneva, in 1958. During the thirteen years between the Truman Declaration and UNCLOS I, the principle that states had exclusive rights to their adjacent continental shelf had been widely asserted and recognized. At the conference, this was one of the few areas that was decided with little controversy. The Convention on the Continental Shelf

states: "The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources" (Art.2).

Increasingly, state practice had diverged from the principles of state interaction laid out in existing international law. The initial change away from the previous institution explicitly avoided the term sovereignty, as the actions that were being taken were not currently acceptable under the existing institution linking sovereignty to use of the oceans. By avoiding the use of the term sovereignty, the US was able to act without explicitly subverting the legitimacy of international law or the international system. UNCLOS I was an effort by international society, through the UN, to relink changing state practice to existing institutions, especially the fundamental institution of sovereignty. Through the adoption of the Convention on the Continental Shelf, existing state practice was once more linked directly to the idea of sovereignty. While state practice changes over time, these new forms of interaction are continually linked to existing language and institutions as a way of incorporating these new areas into international society.

While the adoption of the Convention on the Continental Shelf had solved one problem regarding regulation of the oceans, it left major problems unresolved, including the width of the territorial sea, and the extent to which the sovereign rights of states extended into the ocean itself, as opposed to the sea bed. These unresolved problems resulted in two further conferences, UNCLOS II in 1960, and UNCLOS III in 1982. Eventually, the question of the territorial sea was settled by extending it out to twelve miles and creating a

new category of interstate institution lying between the territorial sea and the high seas—the Exclusive Economic Zone or EEZ.[69]

The EEZ was first proposed in the early nineteen seventies and quickly gained prominence as a compromise between the continually eroding status quo, and the expansion of the territorial sea to two hundred miles, which several states had claimed. The adoption of an EEZ gives the state "sovereign rights" over non-living resources, living resources, other economic resources, construction of artificial islands and installations, marine scientific research, and pollution control. Presumably, there is a difference between full sovereignty, as is exercised in the territorial sea, and the exercise of sovereign rights to which states are entitled within the EEZ. This difference is identified as the withholding of certain 'high seas' rights for other states within the EEZ such as navigation and over-flight. In reality, these activities are subject to ultimate control by the coastal state and thus reserve 'high seas' rights may not be meaningful in practice (Churchill and Lowe, 1985).[70] The EEZ, like the Continental Shelf Convention, incorporated evolving state practice into the state system organized by sovereignty.

The currently evolving institution regulating the ocean is more complex then the previous institution. It now includes a territorial sea, the contiguous zone, the EEZ, and the High Seas, as well as certain other rights to the sea floor. In the process of creating this new

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[69]There is an additional interim area called the Contiguous zone that was set at twelve miles beyond the territorial sea. We do not consider its development here because of space limitations. For more on this see Churchill and Lowe, 1985. Chapter 7.

pattern of interaction most of the old terms and concepts were kept, such as "territorial seas" and "high seas", but their meaning was adapted to the new realities of changing technological capacity and state practice. Adaptation alone proved insufficient, and new concepts such as the EEZ and the continental shelf were employed to regulate interaction between these two traditional realms. Throughout the adaptation of the existing institutions and creation of new institutions, efforts were made to link these changes to the idea of sovereignty.

Patricia Birnie points out that "the establishment of jurisdictional boundaries or allocation of jurisdictional competencies so that states can identify both the nature and source of authority of behavioral code for particular areas or particular activities" is one of the most important roles that international law performs (1988, p.105). The traditional institutions establishing the boundaries of state behavior within the oceans were becoming porous and unclear. Changes in technology had made expansion into the deep oceans profitable as well as increasing the potential for excluding other states. The elaboration of a more complex system of boundaries under the current Law of the Sea reestablished boundaries in accord with modern state practice.

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[70]If the argument made here is correct, we would expect the reservation of less than full sovereignty over the EEZ to quickly be abandoned, and full sovereign rights to be asserted and eventually adopted.

Increasing Demands on the Oceans

The second way that changes in technology put pressure on the existing institutions was by increasing both the demands on ocean resources and the negative impacts associated with these demands. After World War II growth in population and industrialization put new demands on the resources of the oceans. World merchant tonnage increased at an annual rate of 8 percent per year, with tanker tonnage increasing at an even faster rate. This increase led to pollution problems such as the Torrey Canyon oil spill, and numerous others since. Increasing human population and changes in fishing technology, such as sonar and drift nets, led to a doubling of the world wide fish catch between 1955 and 1967, leaving many areas over-fished. In addition, the use of the ocean as a sink for dumping land-generated waste was steadily increasing (Morrell, 1992 : 9-10).

These changes resulted in a flurry of international effort to bring these new activities under international regulation. The usual method in these areas was to attempt to control the actions of individuals through the regulatory power of their resident state, through such mechanisms as registration criteria for ships. The specific area of pollution from oil was the focus of the International Convention for the Prevention of Pollution of the Sea by Oil, negotiated in 1954. Since that time thirteen other treaties or amendments have been negotiated in the specific area of oil pollution on the high seas.[71] There have also been numerous additional

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[71]Specifically: International Convention on Civil Liability for Oil Pollution Damage, 1969; International Convention relating to Intervention on the high Seas in Cases of Oil Pollution Casualties, 1969; International Convention on the

regional conventions regulating smaller areas. If we look at the development of the subject matter of these treaties over time (listed in n.77) they move from the general control of dumping to issues of liability and compensation. International society lays out the ground rules and then refines them over time, expanding the principles and regulation, into increasingly specific areas (Birnie, 1988).

International regulation of fisheries has developed along similar lines. In the late 1940's and 1950's a number of treaties were negotiated dealing with specific species, such as the Whaling convention (1946) or the Tropical Tuna Commission (1949), or specific areas, such as the Convention for the High Seas Fisheries of the North Pacific Ocean (1952).[72] In 1958, as part of the UNCLOS I

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establishment of an international Fund for the Compensation for Oil Pollution Damage, 1971; Convention for the Prevention of Marine pollution by Dumping from Ships and Aircraft, 1972; Convention on the Prevention of Marine Pollution By dumping of Wastes and other matter, 1972; Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances Other than Oil, 1973. International Convention for the Prevention of Pollution from Ships, 1973; Protocol to the International Convention on Civil Liability for Oil Pollution Damage, 1976; Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1976; Amendments tot he Convention on the Prevention of Marine Pollution by Dumping of Wastes and other matter concerning Settlement of Disputes, 1978; Protocol to Amend the International Convention on Civil Liability for Oil Pollution Damage, 1984; Protocol to amend the International Convention on the Establishment of an international Fund for Compensation fro Oil pollution Damage, 1984; International Convention on Oil Pollution Preparedness, response and Cooperation, 1990.

[72]Species specific treaties include: International Convention for the Regulation of Whaling, 1946; Convention for the Establishment of an Inter-American Tropical Tuna Commission, 1949; Agreement concerning Measures for protection of the stocks of deep-sea Prawns (Pnadalus Borealis), European Lobsters (Homarus Vulaaris), Norway Lobsters (Nephropsnorveaicus) and Crabs (Cancer Paqurus), 1952; Interim Convention on Conservation of North Pacific Fur Seals, 1957; International Convention for the Conservation of Atlantic Tunas, 1966; Convention for the Conservation of Antarctic Seals, 1972; Agreement on Conservation of Polar Bears, 1973; Convention for the Conservation of Salmon in the North Atlantic Ocean, 1982.

Regional treaties include: North Atlantic Fisheries Convention, 1959; Convention Concerning Fishing in the Black Sea, 1959; Convention on fishing

meeting, a general statement on fishing in the high seas was drafted—The Convention on Fishing and Conservation of the Living Resources of the High Seas. This convention stated the relationship of the new institution to the development of technology explicitly:

> Considering that the development of modern techniques for the exploitation of the living resources of the sea, increasing man's ability to meet the need of the world's expanding population for food, has exposed some of these resources to the danger of being over-exploited . . . Considering also that the nature of the problems involved in the conservation of the living resources of the high seas is such that there is a clear necessity that they be solved, whenever possible, on the basis of international cooperation through the concerted action of all the States concerned (Preamble).

This convention reaffirmed the rights of "States . . . and their nationals to engage in fishing on the high seas," subject to certain restrictions, while it also imposed on them the "duty to adopt, or to cooperate with other States in adopting, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas" (Art. 1). Since the 1950's numerous other regional agreements have been signed to augment this basic structure—nearly 2/3 of all environmental treaties negotiated during the 1980's were regional treaties. Again, the effort was made to

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and Conservation of the Living Resources of the Baltic Sea and Belts, 1973; Agreement concerning the Protection of the Waters of the Mediterranean Shores, 1976; Convention on the Conservation of Antarctic Marine Living resources, 1980; Convention on Future Multilateral Cooperation in North-East Atlantic Fisheries, 1980.

General treaties include: Agreement Concerning Cooperation in Marine Fishing, 1962; Convention for the International Council for the Exploration of the Sea, 1964.

This list excludes a number of treaties negotiated as part of the Regional Seas Program that are concerned with both pollution and marine resources.

work through the right of states to govern their own nationals even in international waters. International conventions allow the international society to regulate the actions of individuals in international waters by passing the regulations through the sovereignty of the state.

Unrestricted access to ocean resources was not problematic for most of modern history. States generally lacked the capacity to over-consume the resource, and their actions produced few negative effects on other states. Technological development changed this over time. Increasingly, open access became problematic, putting pressure on the current institutions regulating the high seas.[73] In dealing with both oil pollution and over-fishing, the change in institutions was explicitly linked to the problems of overuse that technology was creating in areas of open access. The Truman Declaration stated that the change to "recognized jurisdiction over these resources is required in the interest of their conservation and prudent utilization." In the Convention on the High Seas the "danger of over-exploitation" is mentioned. The problem of over-consumption and externalities linked to technological change was explicit in the reform efforts of the parties involved.

Increases in Excludability

The third way that changes in technology put pressure on the existing patterns of interaction is by increasing the

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[73]See Eckert, 1979, for a good discussion of this argument in economic terms. The economic argument for enclosure that he presents is incomplete insofar as it does not appreciate the role of international society and politics in both the creation and solution of "economic" problems.

feasibility of excluding other states from parts of the oceans. Eckert provides a good list of these developments:

> The speed and range of aircraft and naval vessels rose. Radar, transponders, and other navigational aids were introduced. In addition, there was a large surplus of unused military equipment left from the war. Eventually, the use of satellites for surveillance purposes would drastically reduce the cost of monitoring ship movements and other activities over extensive areas (1979, p. 14).

The existing institution of territorial/high seas served the interests of international society as long as it was too costly to exclude other states from the oceans. This pattern, however, could not contain the tension created by the increasing feasibility of exploiting new resources and the decreasing cost of excluding other states. With these two developments both the means and the motive for states to break with convention and improve their positions were provided.

Changes in the technology for recovering ocean resources, the negative effects of this recovery, and the feasibility of excluding others from enjoying these benefits, all put increasing pressure on the international institutions regulating the use of the oceans. The border between the territorial sea and the high seas began to lose its factual and conceptual validity. This border had organized the expectations of states on either side: they knew how to act in territorial waters and on the high seas. Changes in technology increasingly led state practice to diverge from these expectations, causing the existing pattern of interaction to unravel. Over time, efforts were made to adapt or redesign institutional structures to regulate state actions in the oceans. These new institutions, or

patterns of interaction, linked emerging state practices to the fundamental principle of sovereignty. International society adapted its lower-order institutions, which regulate actual state practice, in order to preserve the fundamental institution of sovereignty, which defines the international society as such.

Technology and Environmental Harm

The disruptions that changes in technology caused in international institutions has been less dramatic for land-based pollution than it was for the oceans. For the oceans, a huge area of the world became economically and politically valuable in a relatively short time. Increasing state activity and conflict in this area undermined the existing institutions and necessitated a concerted effort to develop new institutions to regulate international intercourse. Technological changes in land-based pollution were less disruptive, for two major reasons; first, the institutions regulating land-based interaction were more fully developed, and, second, the changes in technology and the increasing negative effects developed over a longer period of time and, therefore, the negative effects were more well known and better understood.

The continuing development of the industrial revolution markedly increased the capacity of human beings to produce negative effects in the environment.[74] Previously, most negative effects were small and local in character, affecting primarily the

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[74]For a catalogue of such effects see Managing Planet Earth: Readings from Scientific American Magazine, W.H. Freeman and Company, New York, 1990.

producing country. Over time these negative effects, increased exponentially by technology, began overflowing into neighboring countries. Jeremy Rifkin explains this process as moving from one energy watershed to another; as society overreaches one energy source, another energy source is developed. (1980). For much of human history the primary fuel, or energy source, was wood. Wood was almost always gathered and consumed locally, which concentrated the ecological harm on specific areas. While the globalization of the tropical timber trade has disconnected some of the relationship between consumption and cost, much deforestation is still related to fuelwood consumption (Guppy, 1987).

The second energy watershed identified by Rifkin is the movement towards coal. Coal is more overtly disruptive to the environment than is harvesting wood. It requires excavation and transportation systems far more disruptive of natural systems than is fuelwood gathering. Not only are these environmental disruptions greater, but they are more widespread. Not only does the process of coal extraction and transportation cause disruption over a wider area, but the burning of coal leads to acid rain over a far greater scope.[75] Over time, fuel consumption moved towards oil, which has required even greater excavation technologies and transportation systems. The threat of oil spills from deep sea drilling and supertankers is not confined to the consuming or producing state.

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[75] Clearly the destruction of forests can have negative impacts across wide areas or even the globe. For example, the deforestation in Nepal has major impacts in India and Bangladesh, and the deforestation of the Amazon, may adversely affect the global climate.

The development of nuclear energy likewise spreads the potential of harm over a greater area as evidenced by Chernobyl. In all of these cases the development of new energy sources went along with new extractive technologies which increased the potential severity and scope of environmental damage.

The international society had a long history of dealing with exchanges between countries, including the exchange of costs. The practice of paying reparations for damages incurred in a war, for example. For many land-based international environmental problems, this preexisting system could be adapted so that it could deal with environmental problems. This is not meant to imply that environmental issues were easy to place on the international agenda, nor that environmental problems are easily solved. They are hotly contested and many, if not most, remain unsolved. Still, the rise of environmental issues involving state to state negative externalities did not cause major disruptions to the existing pattern of institutional organization, as it had done with the oceans.

There is a substantial history of states recognizing the principle of liability for environmental harm, with the Trail Smelter case being a watershed in international environmental law (Caldwell, 1990: Von Glahn, 1996). In the Trail smelter case, the US sued Canada over the fumes produced in British Colombia that were damaging Washington State. The international tribunal ruled that "no state had the right to use or permit the use of its territory in such a manor as to cause injury by fumes in or to the territory of another state" (von Glahn, 1996, p. 139). This principle was universally recognized at the Stockholm Conference in Principle 21 which reads:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

In addition, Principle 22 calls for states "to develop further the international law regarding liability and compensation for victims of pollution and other environmental damage caused by activities within their jurisdiction or control of such states to areas beyond their jurisdiction." These principles have led to the development of a number of specific METs—Convention on Long-Range Transboundary Air Pollution, 1979, Convention on Environmental Impact Assessment in a Transboundary Context, 1991, and Convention on the Transboundary Effects of Industrial Accidents, 1992. Each of these responds to a difficulty in Transboundary pollution by trying to strengthen international communication and coordination.

The institutions of international society have been amazingly resilient to disruptions, proving to be quite dynamic; as state practice changes, they have adapted, preserving their basic functions within international society. International law, for example, "has been able to respond to new environmental demands by developing a flexible approach" (Birnie, 1988, p. 102). Many initial environmental treaties are general statements of principles or intent that rarely bind states to specific actions. Over time, however, these treaties are amended by a series of protocols that increasing move towards specific guidelines that are binding on states. When dealing with ozone depletion, for example, international action moved from general

guidelines at the Vienna Convention for the Protection of the Ozone Layer, to strict targets in the Montreal Protocol in just four years. Many recent treaties call for continual adjustment and dialogue by the states involved, creating an ongoing process rather than specific outcomes. These evolutionary forms of law-making are one way of adapting to the ongoing character and scientific uncertainty of environmental problems (Birnie, 1988, see also Susskind, 1994).

A similar adaptation has occurred in the international institution of diplomacy. Bjorkbom argues that traditional diplomacy was ill-suited to the challenges of international environmental problems because diplomatic circles are organized around specific sectors, such as trade or defense, whereas the environment permeates all traditional sectors without really being a sector on its own. Given this problem, Bjorkbom argues, "it is only natural that much of the efforts so far have been devoted to the creation of special instruments through which diplomacy can act in its search for solutions or at least the containment of international environmental problems" (Bjorkbom, 1988, p. 124).

Technology and New Areas

The third change in international society due to technological change is the emergence of entirely new areas of interaction. Many of the major environmental issues that dominate the current political landscape were virtually unknown only a short time ago. Most environmental problems that states contend with are relatively local problems, with local effects. With changes in technology the range of

these effects broadened, spilling over national boundaries; but most problems were still seen as local, or perhaps regional. During the 1960's the world was reconceptualized into the idea of a biosphere, precipitating a revolution in environmental thinking. The Biosphere refers to the thin layer between the molten rock of the earth and frozen vacuum of space in which life exists. The world was now conceived of as one interrelated system (Caldwell, 1990). With this new paradigm, scientists began to discover threats to the planetary system as a whole. The two most discussed threats are global warming and ozone depletion. Both global warming and ozone depletion are directly related to the increasing sophistication and dispersion of technology, and both may produce dramatic changes in the global climate to which no country or region is immune. It is the truly global scope of these problems that is unique.

As we have seen, when confronted with new areas of interaction international society responds by incorporating these areas into the existing language and institutional structure of the system. This happened with both ozone depletion and global warming. Treaties have been developed to deal with both of these problems; the Vienna Convention for the Protection of the Ozone, 1985, and the United Nations framework Convention on Climate Change, 1992. The Ozone Convention was refined through a series of protocols that amount to a new mechanism of international law.[76] In dealing with both of these areas the treaties explicitly link their

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[76]Montreal Protocol on Substances that Deplete the Ozone Layer, 1987; Adjustments and Amendments to the Montreal Protocol on Substances that deplete the Ozone Layer, 1990; Adjustments and Amendments to the Montreal Protocol on Substances that deplete the Ozone Layer, 1992.

actions to the principles laid out at the Stockholm Conference, especially article 21, which both treaties cite. In addition, the Framework Convention on Climate Change "Reaffirm[s] the principle of sovereignty of States in international cooperation to address climate change"(Preamble). Even as they turn to deal with new areas of interaction, the underlying principles are reestablished.

Changes in Power

The second variable that is considered by the English School is the distribution of power. Major changes in the distribution of power are thought to affect the institutions of international society. As with changes in technology, changes in the distribution of power are contained within the system by adapting certain aspects of the system. Changes in the distribution of power since World War II have affected the way in which environmental institutions and METs have formed. Consider the two most obvious changes in the distribution of power since World War II: the rise in US hegemony, and the huge increase in the number of states.

US Hegemony

The rise of US power has had a major effect on the international institutions regulating the environment. In almost every system the dominant actors are instrumental in molding the institutions of the system. With the rise to global dominance of the US, we would expect some changes to result, though we would expect these changes to be contained within the underlying institutions

through adaptation. The major change that resulted from US power, the disruption and reformation of the law of the sea, was discussed above.

In the time between the conference in 1930 and the Truman Declaration, a number of small states had defected from the traditional institution of the territorial/high seas. The defections of these minor states showed the weakness of the existing system, but they did not fundamentally challenge the existing system, nor did they offer any new principles by which to organize new institutions. It was only with the defection of the US "the first claim by a major maritime power to jurisdiction over the continental shelf beyond the territorial sea," that the existing pattern broke down (Buzan, 1976, p. 7). Interestingly, there was little international outcry over this unilateral US action.

Normally, we would expect change in the system to be somewhat contested, as changes in the system inevitably affect the power and interests of states. It is somewhat surprising then that the unilateral action of the US, expanding its jurisdiction into previously international territory, was virtually unopposed. A number of reasons can be given for this. First, the power of the US at the end of World War II was simply overwhelming. Second, "the US then led in the development of recovery technologies and would in any event have been the first nation to exploit these resources" (Eckert, 1979, p. 2). Third, the US had generally allowed other nations to develop US natural resources, so claiming additional jurisdiction would not necessarily exclude other countries from the resources (Buzan, 1976). Regardless of the reasons for the relative

ease with which the US changed the system, there is broad agreement that it was the uniquely powerful position of the US that was decisive.

The defection of the US from the existing institution effectively undercut its international legitimacy, while beginning the process of developing a new one. By articulating and legitimizing the principle that states had special rights to the adjacent sea floor, the US served as a catalyst for the change in the sea bed institutions. The US had the economic and political power to effectively disrupt the system, where previous defections by smaller states had not been able to. Still, the defection of the US alone was not sufficient to create a new institution; patterns of order in the international system require the acceptance of the bulk of states. The US was careful not to overstate its claims in the Truman Declaration. Over time, its actions became the dominant practice of the states system and were institutionalized by the Convention on the Continental Shelf. As Birnie puts it "[u] nilateral actions can bring about changes in the law in the long run but are not *per se* a source of law, except in the state taking action. They do not become part of international law until they are accepted into custom or incorporated in a treaty" (Birnie, 1988, p. 116).

The mere existence of a powerful state does not mean that it can remake the system as it wishes. The US has often been instrumental in frustrating environmental cooperation rather than facilitating it. In the UNCLOS negotiation the US has consistently held back its support, and ultimately did not sign the agreement until well after the conference (Morrell, 1992). In negotiations over climate change the US has consistently rejected European calls for strict

guidelines and timetables (Porter and Brown, 1996: Sebenius 1993). The reluctance of the US did not stop either of these treaties, but it did change their form and content. The effect of US hegemony on the formation of METs is mixed and depends on the specific issues involved.

Change in the Number of States

The other major change in the state system has been the huge increase in the number of states as former colonies gained their independence. Given the fact that the international society is created by the practice of states, this huge influx of new states can be expected to have had an impact on the institutions. One of the most interesting results of the incorporation of these new states into the system has been their staunch allegiance to the term sovereignty. In many ways the recently independent states are the strongest defenders of the idea of sovereignty. Many of these governments did not have solid domestic support for their legitimacy, making the international recognition of their authority, through sovereignty, more important.[77]

During the process of decolonization the term sovereignty was reinvigorated by the attempts of newly independent states to overcome the oppressive trade relationships that had developed under colonialism. Many of the contracts and agreements undertaken during colonial times were on terms unfavorable to the

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[77]This defense has been particularly strong in the UN where developing states have resisted broadened human rights, and intervention powers, on the basis of protecting there sovereignty, See Luard, 1994. See also Jackson and Rosberg, 1982.

colony. Upon gaining independence the question arose as to whether or not these agreements should be honored.[78] As a way of combating these arrangements, the principle of "permanent sovereignty over natural resources" was articulated. This principle, which asserts that countries have an inalienable right to control their own resources, has allowed newly independent governments to gain control of their resources through nationalization and other methods (Hossain & Chawdhurry, 1984; Elian, 1979).

This effect of incorporation of new states can be seen in a more tangible way in the express claims by, and concessions to, underprivileged states that exist in numerous multilateral environmental treaties. A recent example is the Framework Convention on Climate Change, which includes numerous explicit references to the special needs and consideration due developing countries including—an explicit recognition of culpability for the problem by developed countries; recognition that preventative action be according to the "differentiated responsibilities and respective capabilities and their social and economic conditions"; recognition that environmental standards will be lower in developing countries; and that developing countries should have special access to resources (Preamble). This accommodation has become more common over time as the majority of major conventions now contain reference to the position of developing states.[79]

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[78]Interestingly, Aristotle opens the most important book of the Politics, Book III, with the same question. The fundamental issues of politics change little over time, though our understanding of this fact tends to wax and wane.

[79]see: Vienna Convention for Protection of the Ozone Layer, 1985; Montreal Protocol on Substances that Deplete the Ozone Layer, 1987; Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1990; United nations Framework Convention on Climate Change, 1992; The Convention on Biodiversity, 1992; and United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, 1994. In addition see the Rio Declaration, 1992, in which the claims of developing countries have a higher profile then in the Stockholm declaration.

Conclusion

The development of METs is seen by the English School as an institutional response to the new challenges posed by the environment. Both of the hypotheses generated by the English School are confirmed by the evidence. There were major disruptions in both technology and the distribution of power, and these did have major impacts on the institutions of international society. Furthermore, the importance of maintaining the existing system based on sovereignty, even as the system was being adapted, has been shown. Virtually all METs negotiated since World War II have been referred to above as part of the response of international society to specific problems. The expansions of international institutions locates these new problems within the existing pattern of relationships, and allows them to be regulated by the system. It is important to remember that this 'regulation' means only that international interactions on the environment are brought within known regular patterns. It does not mean that these patterns are beneficial to the cause of environmental preservation. The patterns that are 'regulated' in international institutions may be the very patterns that caused the environmental problems in the first place (Camilleri and Falk, 1992). The establishment of known regular patterns of interaction on the environment maintains the international society; its effect on the international environment is currently unclear.

The English School provides an overarching context in which to locate the development of METs. It is therefore helpful in answering

the general question of why METs arose as a new institutional form after World War Two. It is less helpful in explaining specific treaties, and why they are formed the way they were. Here the variables of the Rationalist approaches are perhaps more helpful, as the influence of the power position of US in the extension of sovereign jurisdiction to the continental shelf shows. One other problem with the English School is that it is missing a model of institutional adaptation. The next Chapter attempts to develop such a model.

Chapter Eight

Change and METs

This chapter develops a model of change for international society. One of the problems with the English School is that in rejecting the push towards quantitative methodology, they occasionally seem to digress from methodology into storytelling. The English School identifies technology and distributions in power as reason *why* international society might change, but they do not offer us a model for *how* the international society changes. This critique could equally be applied to structural realism and neo institutionalism. In these theories "units operate within an international system defined by a rigid and unchanging anarchic structure. As a consequence of these restrictions, [these theories] are unable to entertain the possibility of either differentiated units or an evolving international system" (Buzan, Little and Jones, 1993: 83).

To improve the explanatory power of the English School and structural theories, I want to extrapolate a model of change from the preceding discussion of the change to METs. This necessitates a brief discussion of the problems of analyzing change in the complex systems (Scholte, 1993).

Change in the International system

As previously discussed, analyzing and understanding change in complex systems, such as international society, is immensely difficult because of the vast number of phenomena and numerous levels of interaction. To understand changes in the international system requires taking into account changes at all levels of analysis, from the international to the individual. Changes in individual perceptions, such as the development of nationalism as a form of identity, may be as important for understanding change in the international system as more traditional international factors such as the distribution of military power. The various levels of human interactions are intertwined, overlapping in the lives of any particular individual. For example, people are parents, members of the community, and citizens at the same time. Given this plethora of interaction it is often difficult to distinguish meaningful changes from the incessant 'white noise' of life.

To measure changes in institutions requires a "benchmark with which one can differentiate between significant and trivial changes" (Buzan, Little and Jones, 1993: 26). This is particularly difficult in systems, like international society, which are inherently dynamic. The parts of a system are constantly in motion while the system itself is thought to exhibit a stable pattern, or equilibrium, over time. When systems are disrupted by an external or internal force, certain inherent feedback mechanisms activate, moving them back towards the preexisting pattern of interaction.

In dynamic systems things are both constantly changing and amazingly similar, depending on the time frame of analysis. Our experience of time presents us with both change and continuity: looking at the motion of the parts we see constant change, looking at the pattern of these motions over time we see some continuity. If I examine one day in my life, it appears to have a lot of activity and change within it: I get up; go to work; play basketball; play with the kids; read; and go to bed. If I look over the course of a month, however, my days seem to be remarkable similar: I get up; go to work; etc... Lastly, if I look over a year, or a number of years, changes again become apparent; I have a new child; finish my dissertation; get a new job; etc... Our personal experience of time is related to the horizon against which we fix our eyes; whether we look at a day, a month, a year, etc...

The time frame is also important in analyzing the international system. By fixing the baseline across different temporal horizons the system seems to be either in constant flux or amazingly stable. By focusing on the major elements of the system, very little change appears over time. For structural realism, for example, the most fundamental fact of the international system is that it is anarchic. With this as the baseline there has been no real change in the system since at least Wesphalia.[80] A somewhat softer view holds that the distribution of capabilities can change from bipolar to multipolar to

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[80] Buzan, Little and Jones argue that this choice is mostly a "matter of preference." While I agree, it is still a choice with political and theoretical ramifications. We might have to simplify the world in order to understand it, but we should not think that we understand the world merely because we have simplified it. We must continually move back and forth between levels and

hegemonic. With this as a baseline the world was essentially the same from World War two until 1989 (Gilpin, 1981: chs. 1,2). The same problem occurs in the English School as well. Their primary focus has been identifying and explaining the basic institutions of international society, such as sovereignty and diplomacy. The focus on the fundamental aspects of a system runs the danger of underestimating the changes that occur within these institutions. These underlying institutions are in part created by the more narrow institutions which they structure, and changes within that 'parts' should manifest in the 'whole.'

The historian Fernand Braudel delineates three time horizons in history: event history; cycle history; and the *longue durée.* Event history is focuses on a "short time span, proportionate to individuals, to daily life." Cycle history, focuses on a "decade, a quarter of a century and, at the outside, the half century of Krondraitiev's classic cycle."[81] Lastly, the *longue durée* is focuses on the "organization, a coherent and fairly mixed series of relationships between realities and social masses" (Braudel, 1980:26-31). Each of these time horizons would view particular acts differently. It is vitally important to the question of whether change has occurred where the initial bearings, or baseline, is fixed. This is directly analogous to the problem of fixing the first point on our cognitive map discussed

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simplifications to see what each has to contribute, and keep our own simplifications in perspective.

[81] For a good review and application of Kondratiev's cycles to international relations see Joshua Goldstein, *Long Cycles: Prosperity and War in the Modern Age.* Yale, 1988.

earlier.[82] Once focused on a particular time period, the world will appear in a particular way.

This tripartite delineation of time could be extended to include effects of human action on the environment. Event history of the environment would be the history of the yearly vicissitudes of the environment such as drought, or flooding. Over a longer time, cycle history, changes in specific environmental systems would become apparent. For example, the deforestation along the Sahel might lead to an expansion of the Sahara, or deforestation in Nepal may lead to increased flooding in Bangladesh. Over the longue durée, major changes to broader ecological system would become apparent. Increasing tropical deforestation (along with many other factors) might contribute to global warming, altering the climate on a planetary scale.

As Camilleri and Falk point out, there is a disparity between the political and ecological experiences of time. The incentive structures of the political and market systems are very short term, extending only to the next election or the next annual report. Since many environmental problems are long term, it is difficult for actors located within current political and market structures to act accordingly. "In the short term the close planning horizon of any single government is likely to distract it from initiating those difficult changes which will produce little result by the next election, but may be essential for the amelioration of the long-term environmental degradation" (1992, p. 185). This disparity of time horizons is one of

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[82] "To know where you are going you have to know *when* you start?"

the major challenges facing environmental policy, whether domestic or global.

Modeling change in the international system requires an appreciation of the pattern interaction across different fields of interaction, as well as across different temporal horizons. This perspective is similar to the refinements on Waltz's realism proposed by Buzan, Little and Jones (1993). Their effort introduces a layered conception of the international system that incorporates different sectors of international interaction. While they do not explicitly model change in such a system, the model developed below should be able to fit their theoretical assumptions, as well as the English School.

A Model of Change

The English school conceptualizes the international system as organized in successive layers, or fields, of interaction.[83] Within each of these fields of interaction there are institutions that work to structure the behavior and expectations of the people involved. A simplified version of this model is represented in figure 8, below (page 173). At the narrowest level there are rules that govern specific practices within a given area. The right of passage on the high seas would be an example. At the next level of interaction there is a process that governs the making of rules; in the diagram the

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[83] See Wight, 1991. (p. 73). While my model below is slightly different it borrow the basic framework from Wight. The further development of using this as a model of change is my own.

process is international law. International law as an institution governs how the rules for the high sea are made. At the highest level is sovereignty, which forms the context of the system as a whole. Sovereignty identifies states as the major parties in the system—as having standing under international law.

There are, of course, more strata then this model represents, including implicit and explicit rules, as well as implicit and explicit processes and contexts. A fuller model of the system could follow quantum physics. In conceptualizing the atom, quantum physics has moved away from the assignment of electrons to specific pathways, or orbits, towards a probabilistic assignment (Heisenberg, 1958). This accords with the functioning of institutions which increase the probability of certain outcomes, though not guaranteeing them, while decreasing the likelihood of other outcomes, without precluding them.

There are close similarities between the model of change developed here, and the structurationalist view Wendt and Duvall, point to in "Institutions and International Order", 1989, (see esp. p. 64-66). They identify two implications of a structuration perspective on the analysis of change in international institutions. First, that the international system is composed of layered institutions, hierarchically ordered in the sense that more fundamental institutions enable the interactions at the less fundamental level. While they are ordered hierarchically in this sense, all institutions are important in constructing states as arenas for state practice.

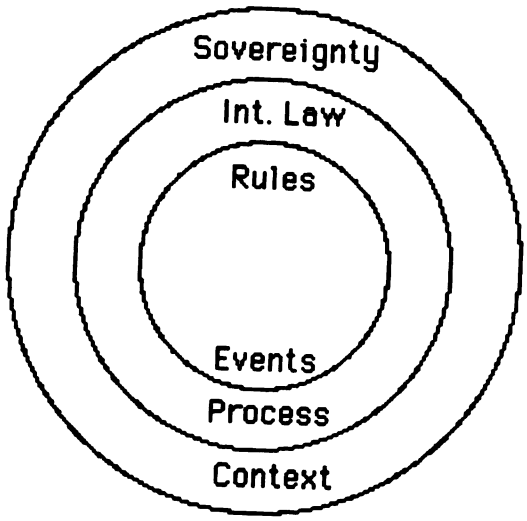

Figure 8:
Alignment

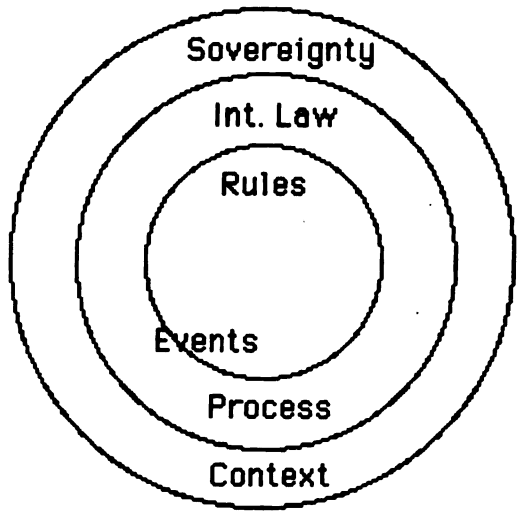

Figure 9:
Practice shifts outside rules

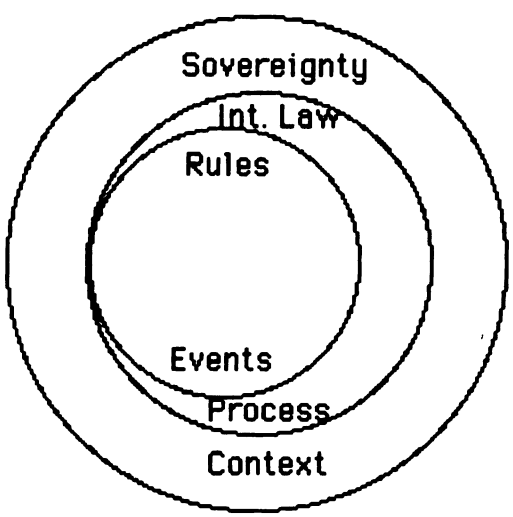

Figure 10:
Rules shift to contain practice

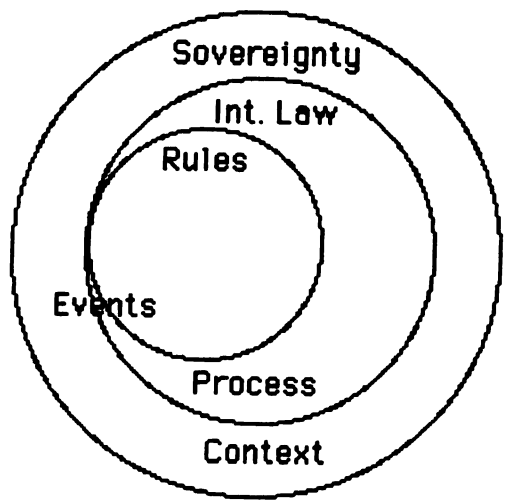

Figure 11:
Practice shifts outside process

Thus, one cannot study one in isolation from the others. Second, theories of international institutional change must be sensitive to the effect of both changes in "constitutive principles" and "state practice." The model developed here, while not deliberately structurationalist, would fit these criteria.

Like all models, this one does not capture all the elements of the system. In the real world there are numerous areas regulated within one process area. Not only the rules of the high sea are filtered through the institution of international law, the rules for interstate pollution, ozone depletion and a host of others are as well. In addition, each area of rules is regulated by numerous process areas. Both diplomacy and international law, for example, govern the process of rule formation. Lastly, there are different contexts in which actors organize the world. I have argued that actors within international relations view the state system and sovereignty as the overarching context of action. World Systems Theory would see a greater context in the global economy that transcends the context of the state system.

Using this model of the international system we can explore how changes within the system might occur. There are constantly changes within a level of interaction, such as new leaders or new weapons, which may not effect the pattern of interaction. A 'meaningful' change for the English school would be one that disrupts the existing pattern of interaction within one or more fields of interaction resulting in significant changes in the international institutions governing them. Changes may be initiated within the field of interaction at which they manifest, or they may 'spill-over'

from other levels. Changes could begin within any of the fields of interaction, initiated by changes in practice or theory. There are two ways to conceptualize change occurring in the international system. Change can be initiated by changes in practice, or changes could be initiated by changes in theory or understanding.

A model of how change initiated by practice is presented in figures 9 through 14. In figure 8 (page 173), the three fields of interaction and their regulating institution were aligned—rules regulate practice; international law regulates the process of rule formation; and sovereignty provides the overarching context for action. What happens if state practice starts to put pressure on the existing rules? Situations would develop that cannot be dealt with within the existing framework of rules (figure 9: page 173). As this occurs the rules shift to bring state practice within the existing framework (figure 10: page 173). This initial change in rules can occur within the existing process and context, representing changes within one field of interaction. Within each of these fields there would be a certain amount of 'play' allowing adaptation without necessarily affecting the next level of interaction.[84]

What would happen if state practice continued to diverge from the rules, eventually outstripping the capacity of the existing process (figure 11: page 173)? In some situations the existing process for making rules would not be sufficient for the problems at hand. In this situation, the changes in practice would be so great that they

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[84] In a sense interactions at any level always effect interaction at other levels, as they are interconnected. They may reinforce the underlying institution or undermine it, forcing its adaptation. Again, the problem is distinguishing

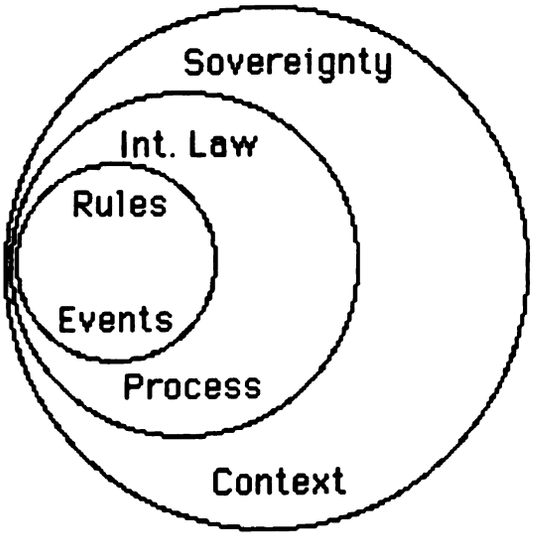

Figure 12:
Process shifts to contain practice

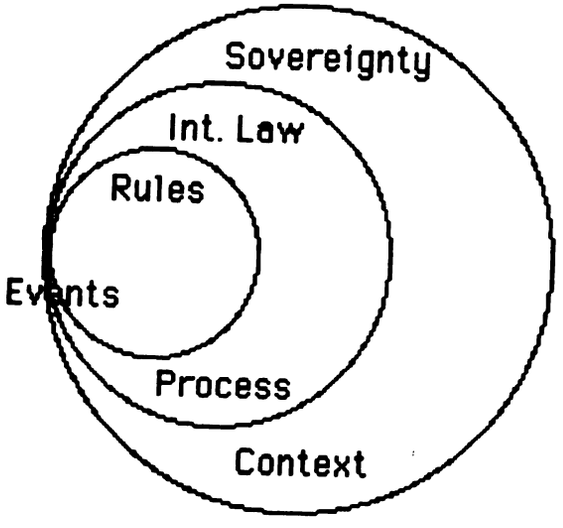

Figure 13:
Practice shifts outside context

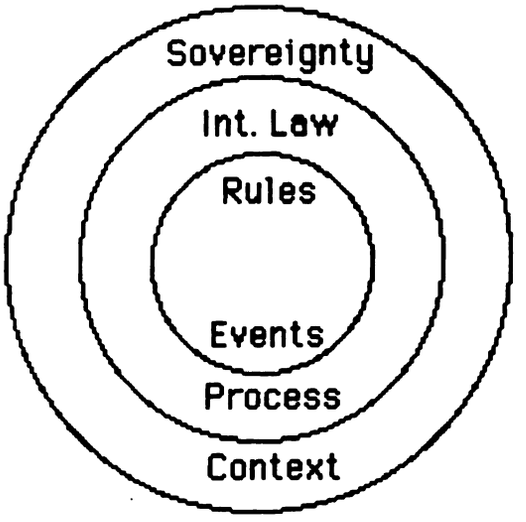

Figure 14:
Realignment

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meaningful disruptions of the underlying pattern of interaction which is particularly difficult over the short term.

would require a change in the process of international rule-making (figure 12: page 176).

Lastly, what would happen if practice continued to shift? Eventually this would put pressure on the underlying context of the system itself, in our model, on sovereignty (figure 13: page 176). When this happened, the only way to contain the change in state practice would be to change the underlying context of interstate action (figure 14: page 176). The change in the meaning of sovereignty discussed above may be such a change in context.

Divergent practice can be an impetus to change throughout the system. In a similar manner changes in theory or understanding can also reverberate through the system. This is the reverse direction of the previous diagrams. Figure five can be reinterpreted as a shift in context, putting pressure on the process and ultimately the rules and state practice. Eventually the process and state practice would have to change to realign with the underlying conception of sovereignty. The change to popular sovereignty, initiated by the French revolution, would be a possible example of this kind of change. Once the idea of sovereignty included the idea that the ultimate authority of a state rested with the people, international law would have

adapted.[85] Pressure could also come from the process sphere of interaction. In developing new processes for dealing with certain problems, or as part of general refinement and development, the process sphere could put pressure on both practice and the greater context.

In reality, all of these spheres are interdependent and interconnected. The different fields of interaction between theory and practice are mutually constructing. Practice only make sense in the context of theory, and theory only makes sense if it relates to practice (Giddins, 1984). Likewise the various fields of interaction only make sense as a whole. Context is meaningless without content and content is meaningless without context. This model represents this fact by overlaying the different fields of interaction between practice and theory.

Explaining the Change to METs

This model can be used to explain the development of METs discussed in the last chapter. The international society reacted to the changes brought about by technology by incorporating the new areas into existing institutions. Changes in technology forced adaptations in international institutions at a number of levels. While all levels adapted, the broader levels appear to adapt less than the

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[85] It would be interesting to see if this change in the meaning of sovereignty precipitated a change in domestic policy towards legislative ratification of treaties.

more narrowly focused ones.[86] The normal pattern was for the changes to be absorbed by adapting the more narrowly focused institutions first, minimizing the effects on the deeper institution. The rules changed first, and when necessary, the process adapted as well. New laws were designed to deal with new problems, such as the increase in oil pollution from ships. While this is a change in the laws, or the rules, it is not necessarily a change in the underlying process.

Looking deeper, however, it is possible to discern changes in the process of international law and diplomacy as well. In dealing with environmental problems new mechanisms for making international law were created. The practice of continual negotiations over time to deal with specific on-going problems, such as ozone depletion, represented a new pattern of interaction. Similarly, the development of a new diplomatic framework to deal with environmental effects across traditionally narrow issue-areas represented a change in the process of diplomacy. In adapting to changes in specific state practice the underlying institutions of international law and diplomacy adapted as well. The process of changing these deeper institutions can be expected to take some time, and it is not clear how significant these changes in process will be in the long run.

In adapting to the changing practice of states international institutions reestablish their relevance. In order to change environmental practices and design specific METs, the institutions of

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[86] The appearance of change is relative to the temporal horizon used as a baseline. As noted below, all levels are changing simultaneously.

diplomacy and international law were used. While they may adapt somewhat in the process, the use of international law and diplomacy to reform the specific rules regulating the environment legitimizes these deeper institutions. By forming the process by which novel problems are considered the legitimacy of the institutions of diplomacy and international law are strengthened, even if the mechanisms by which they function have changed. "In making such agreements [and using existing processes], states explicitly confirm each other's sovereignty and therefore actively help to reproduce the deep structure of the system" (Buzan, Little and Jones, 1993:152). The very adaptability of these international institutions helps to maintain their relevance and, therefore, their authority and legitimacy over time. If any institution were entirely ineffectual at performing its functions it could not maintain legitimacy over time.

If the institutions of international law and diplomacy adapted over time to regulate state practice, might not the fundamental institution of sovereignty also have adapted over time? Before considering this directly, I want to relate the idea of institutions and change to language. Institutions, patterns of interaction, and cognitive maps have been used synonymously throughout this study. All of these are expressed in the medium of language. Part of the reason the international system appears consistent over time is because we use the same words to describe it, even as the practice of states has changed. The words 'state' 'power' and 'sovereignty' do not mean the same thing over time. To understand change in international institutions requires at least a basic understanding of

language as both an overarching structure that contains change and as a conduit through which change occurs.

Change and Language

Human beings are confronted with an immense array of experiences, providing millions of inputs through our senses. This overwhelming cascade is brought under control by imposing on these discrete sensory imputs the unifying categorical system of language. Language is a huge filing system in which individual sensory imputs are catalogued and sorted.[87] Similar experiences are 'named' reducing vast amounts of experience to one linguistic marker which represents the category of experience. In the process of cataloguing and sorting out these inputs repetitive patterns between experiences are identified and catalogued as well. Hence, language is organized in progressive layers of abstraction from the naming of things, to the expressions of relationships, to pure ideas like geometry.[88]

Language can be understood as the primary way humans impose order on a changing world. Events can be understood because they are linked to experiences that have happened before through language. The consistency of language, in the sense of using

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[87] Language too is a 'map' of the world, using linguistic symbols to represent phenomena.

[88] This is analogous to the fields of interaction discussed above. Specific rules are organized by the process of international law, just as the names of things are organized by grammar and relational terms. Layers of patterned complexity seem to form in all systems. My thinking of this point has been heavily influenced by Gregory Bateson's, *Steps to an Ecology of Mind*, Ballantine, 1972. And *Mind and Nature*, Ballentine, 1979. It is also similar to

the same words, imposes an order on the world over time. As new phenomena are discovered or invented they are incorporated within the existing lexicon, partly through analogy and metaphor.[89] The process of Scientific naming, for example, involves linking new phenomena to Latin or Greek words. Rather than randomly making up new words novel phenomena are linked to the fundamental languages of Western-European history. In this way they are ordered and catalogued within the existing framework. The dominance of western language over even the naming of things is not without its implication for power relations between people and cultures (Shapiro, 1984: Ashley, 1986: Der Derian & Shapiro, 1989).

An interesting characteristic of social systems is how the fundamental ideas can be used by underprivileged groups to gain status. In the international system the assertion by developing states of permanent sovereignty over natural resources allowed them to gain a more complete independence from their former colonial powers. In a similar way, civil rights leaders like Martin Luther King gained civil rights by asserting the natural rights in the Declaration of Independence. In both cases the adoption of the fundamental principles as the basis for their claims proved an effective strategy. In addition to being an effective strategy, the adoption of the fundamental principle by underprivileged groups serves to reinvigorate those underlying principles even as the

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many aspects of Chaos theory, See James Gleick, *Chaos: The Making of a New Science*, Penguin, 1987.

[89] Buzan, Little and Jones point out how the use of the term "limes" changed in the course of the development of the roman empire from "denoting a route to an as yet unconquered land. . . to identify the defense barrier enclosing the established territory of the empire" (1993: 161).

secondary institutions of the system are changed to accommodate the new groups.

Though our language imposes an order on the world, it does not necessarily correspond to the actual state of the world. There are always some discontinuities between our linguistic description of the world and the world itself (Quine, 1990). Unfortunately there is no sure way to discern their true connections. This is again the problem of mapping discussed above. Cognitive maps are composed of linguistic markers, which hopefully correspond to the world, or at least our experience of the world. Much of the initial ontological move is undoubtedly linguistic, as there is a connection between naming and what is thought to exist.[90] There are well known difficulties in the translation of texts between languages; much of the subtlety and beauty of poetry, for example, is lost.[91]

This discrepancy between language and reality leads to changes in language over time. This can be seen in the difference between the denotation and the connotation of words. The denotation of a word is the specific definition given in the dictionary whereas the connotation is the associated meaning that is given by the use of the word in actual speech. While these two are obviously related, they are not identical. The denotation of a word is the accepted definition of a word at a given time; it imposes a structure, or meaning, on language. It is this denotation that allows us to communicate at all. If we did not understand what people were

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[90] I am not concerned here with the true ontological status of words, whether they exist as things or concepts or what have you. Suffice it to say that there is nothing which we feel or experience for which we have not devised a name.

saying, if we did not have definition for what the words are, we could not communicate at all. Still, the denotation of a word is not the only way that the word is used. Words are continually being used in new ways to mean new things. Words like "regime", and "game theory" have been added to the international relations lexicon by adapting their traditional meanings. We constantly imbue words and language with meaning through the practice of speaking and writing. Over time, a new connotation of a word may become as common as the denotation given in the dictionary. If language were purely static all that would be necessary would be appendices to dictionaries incorporating new words. Instead we need entirely new versions of dictionaries to keep up with the fluid nature of language.

Language provides both a way to order the world as well as a conduit through which change occurs. Language serves the same functions in international relations, it imposes a framework that allows states to understanding the actions of other states. The language of diplomacy, with its precise meanings and practices, allows state to communicate through a common, if imperfect medium. It reduces the uncertainty of international relations by specifying what it means when a state says that it is "deeply troubled" by certain action, or that it is going to hold "military exercises" of the coast of Taiwan. Language also allows international society to respond to disruptions in practice by adapting and expanding the existing lexicon. As new phenomena or principles develop, the existing lexicon is adapted and reinterpreted until it

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[91] See Donald Davidson, *On the Very Idea of a Conceptual Scheme*, in Rajchman and West, 1985.

aligns with the new state practice, in the same way that other institutions were adapted earlier.

The dynamic nature of language provides both constraints and opportunities for the adaptation of the international system. On one hand, language is remarkably conservative, using the same words for millennia. Many of our words and concepts owe their existence to Latin and Greek. "Continuity is most apparent to those who feel that the key terms ('state,' 'nation,' 'anarchy') have been referring and continue to refer to essentially similar things over the past few centuries." (Buzan, Little and Jones, 1993:27). This causes problems when it comes to theorizing and understanding the international system historically. "Attention has been focused almost exclusively on the sovereign state system which prevails today. As a consequence, when consideration has occasionally been given to world history, the temptation to think of the past in the terms of the present has often proved overwhelming" (ibid.: 91). The continuity of the international system seen by researchers is often a projection of their own understanding into the past through the medium of language.

The path dependency of our language often frustrates revolutionaries who "have repeatedly striven to introduce new vocabulary ('transnational') implying inadequacies in the ability of the existing terms to capture new (and very old) realities" (ibid.: 27). They correctly realize that our social reality is connected to the language that we know and speak. But they overestimate the human capacity for learning a new language, or new Weltenshaung. They think mere force of argument, or complexity of prose, will change the

world (Ashley, 1986). On the other hand, the flexibility of language allows it to adapt preexisting understandings to new circumstances. By incorporating new experiences into the existing framework they are made less threatening and destabilizing. Incorporating new changes in the established lexicon imposes an order on the changing nature of the world. While things may change too quickly, our ability to relate new things to old concepts helps us adapt to the changes.

Sovereignty' and Change

Martin Wight remarked that the "stuff of international theory.... is constantly bursting the bounds of the language in which we try to handle it" (Wight, 1966:33). As noted above, the institutions of international law and diplomacy changed to accommodate new state practice. Partly, this was done by calling new phenomena by the words 'international law' and 'diplomacy.' The words and concepts were expanded to fit new practices. During the history of the international system there have been times in which the defining element of the system, sovereignty, has also been adapted to fit new state practices, and/or understandings (Barkin and Cronin, 1994). At first sovereignty was offered primarily as a justification for royal absolutism. Over time the term was adapted to the doctrine of popular sovereignty, as a defense of the right of the people against the right of the King or Prince (Hinsley, Ch. 4). The adaptability of the term sovereignty has perturbed analysts, but it provides a

continuous linguistic framework for incorporating new practices into existing institutions and understandings.[92]

It may well be that METs represent a new shift in the meaning of the term sovereignty. The understanding of sovereignty adopted in Principle 21 is slightly different from the previous understanding of the term. Principle 21 includes " the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction." This principle assigns a duty not to negatively affect other countries or the global commons, which seems to go against the traditional understanding of sovereignty as absolute authority at home and absolute independence abroad. If states have a responsibility to refrain from negatively effecting the global commons, isn't there a higher authority outside the state?

This principle has increasingly been cited in arguments and has found its way into numerous multilateral treaties.[93] The exact meaning of this responsibility to other states and the commons is not entirely clear and will eventually be worked out in state practice and international law over time. So far the incorporation of this expanded notion of sovereignty into treaty-language has had little substantial effect on policy (Brenton, 1994, ch. 3). Still, the more a

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[92]It is this very "protean" quality of the term sovereignty that has led critics to call for dispensing with the term because its meaning seems to shift. This would be a mistake, the very adaptability of 'sovereignty' has allowed us to find our way through modern history. Proteus was after all a seer.

[93]See: Convention on Long Range Transboundary Air Pollution, 1979; Vienna Convention for the Protection of the Ozone Layer, 1985; Convention on the Transboundary Effects of Industrial Accidents, 1992; United Nations Framework Convention on Climate Change, 1992; The Rio Declaration, 1992 (Where it had moved up to Principle #2); and United Nations Convention to

particular notion of sovereignty is used in official statements of the international society, the more legitimate it becomes. If this understanding of sovereignty, including a duty to other states and the global common, becomes the dominant understanding of the word, state practice can be expected to change as well.

The development of international concern on Human Rights may serve as a useful model for this change. International discussion on human rights began prior to the end of World War I, and continued in the interwar years, eventually culminating in the Universal Declaration of Human Rights in 1948 (Weiss et. al. 1994). Since that time Human Rights have become a major issue in international relations, tainting security and economic matters, as the annual debate on China and most-favored-nation status shows. While it is easy to be cynical about the protection of human rights recent interventions, such as Somalia, justified on humanitarian grounds, would have been virtually unthinkable thirty years ago (Charvet, 1997). The convergence of understands on the norms of rights and the environment have led some the speculate that this is the emergence of a "global civil society" (Wapner, 1995: Lipschutz, 1996).

Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, 1994.

Chapter Nine

Conclusion

The environment has emerged as one of the major issues in world politics, and one of the greatest challenges for the human species. One of the ways to meet this challenge is through a greater understanding of the international responses that have developed to deal with these problems. A sound understanding of what is happening is a necessary precondition for affective action in the future. One of the most notable international responses to environmental challenges is the development of a myriad of Multilateral Environmental Treaties. This study has explored different theoretical approaches to try to understand why these METs have formed.

Four theories were used to generate explanatory hypotheses for MET formation; structural realism, neo-insitutionalism, the theory of goods, and the English School. Each of these theories identified variables believed to be important to explaining international cooperation and the creation of international institutions. Structural realism focuses on the concentration of power; neo-insitutionalism focuses on the power within the issue-area; the theory of goods focuses on the characteristics of the resources in question; and the English School focuses on the underlying international society.

A hypothesis test was set up for the first three theories because these theories share a positivist understanding of the world

as composed of autonomous units. Given these assumptions this is the kind of evidence and validation procedure that would follow. Data was collected relating power, issue area power, and characteristics of the good to the length of time necessary to form a MET. In these tests, none of these variables had a statistically significant effect on MET formation across the entire range of treaties. While there are problems with the tests constructed here, it is not obvious how they could be markedly improved, or how much of a difference such improvement would make.

One possible objection to these tests it that these theories generally restrict their focus to specific institutions, and it is therefore inappropriate to generalize them across the entire system. This is unpersuasive. If they contend that these variables are helpful for explaining one treaty or institution, there is no reason then that they should not be helpful in explaining them all. Further, it is exactly this restriction to specific treaties that keeps these theories from appreciating the influence of greater systemic forces and changes. Part of the difficulty lies in the ontological assumptions that these theories make; by assuming that states are individual autonomous units, they reduce the effects of the system to a constraint.

The explanation developed from the English School confirms the two hypotheses generated from this school, but that in itself is unsurprising. The hypothesis from the English School are somewhat limited and circular. To argue that changes in technology and the distribution of power affect international institutions is not likely to provoke much disagreement. Likewise, the contention that new

institutions would use much of the language of the existing system is also easily accepted. It would be difficult for anyone to create an entirely new institution that did not utilize some preexisting forms and language. Still, the explanation developed from an English School perspective provides a useful context for understanding the development of METs.

METs can be understood as an adaptation of the existing institutions of international society. The particular adaptation of METs was precipitated by the increasing negative effect of human interaction on the environment. Changes in technology and the distribution of power helped to provoke these changes. The international system responded to these new environmental challenges by negotiating a series of METs that regulated the actions of states in given issue-areas. METs structure the expectations of states by providing a language for discussing environmental concerns and practices and by spelling out the jurisdiction of sovereign states. In responding to changes in state practice the institutions of the international system have adapted, including, perhaps, the fundamental institution of sovereignty.

The important question of whether or not METs will help to mitigate the deleterious impact on the environment has not been answered. I would argue that the development of a conceptual map of the area of environment that METs provide is a necessary first step to dealing with these issues. Without a language and process for discussing these issues it is doubtful that they could be resolved. This is an inherently conservative process in the short run. By working through existing institutions new issues seem to be co-

opted, or normalized, loosing their revolutionary potential. Many have wished for the environment to provoke a rethinking of the Dominant Social Paradigm of the west.[94] Unfortunately, they underestimate the adaptability of international institutions. For example, the change in the understanding of sovereignty, from justifying absolutism to popular rule, was a major change that occurred by adopting the meaning of the fundamental institutions of international society. One possible way to effectively deal with environmental problems may be to focus more overtly on changing the underlying meanings, rather than trying to remake the world by rejecting the current institutions, such as sovereignty.

A secondary goal of this study was to assess different theoretical approaches in international relations theory by comparing their explanations of MET formation. Part of their difference, it was argued, resulted from their ontological assumptions about states and, therefore, systems. Those theories that conceive of states as autonomous units and the system as structural have not proven particularly useful for explaining METs as a new systems level phenomenon. Conversely, more sociological theories have provided a more complete explanation for MET formation. A summary explanation for this result can related to our general model of the international system as organized in concentric circles (Figure 8: page 170). Rationalistic structural theories focus on the most narrow level; at how specific rules are formed in specific areas. In this field of interaction, where we can assume an international process that

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[94] Dennis Pirages expresses this sentiment in "Environmental Security and Social Evolution"

specifies meaningful actors and actions, this approach would be useful. Unfortunately, it does not take into account how the process and context would help to structure the interactions within this field. These must be kept in mind to understand how the context structures the preferences or utility calculations of the individual states.

Relational theories are useful for looking at the greater context of action, and seeing the interactions, but they would not be very useful for explaining the particular rules in a particular area. The concepts of international law and sovereignty are not very useful for explaining why the Convention on Climate Change called for emission reductions phrased in terms of loose guidelines rather than firm targets. To understand this we would have to look at the dynamics of the actors, including their bargaining power.

One of the reasons the English School is more useful, is that the underlying understanding of the English school does not preclude and appreciation of the variables of the rationalist approaches. The English School does not deny the importance of power, understood as either aggregate or issue specific power, to the interaction of states. It merely locates these characteristics within the broader context of international society. The Truman Declaration relied on both kinds of power for its ultimate efficacy, but it also relied on the acquiescence and acceptance of its use of power by other states. Without an understanding of the social context of interstate power, explanations of international actions are mechanistic and reductionist.

In addition, the English School incorporates the insights of the theory of goods, including excludability and divisibility. These

concepts are indispensable in understanding the problems of the oceans. The English School, again, adds context and depth to explanations based on the characteristics of goods alone. Most goods commonly thought of as excludable, such as housing or our physical person, rely for their excludability on the power of the state. The main factors excluding people from my house are social convention not the coercive power of the state, nor the deadbolt on my door. The same is true in international relations, where the social construction of sovereign boundaries is at least as important as military force in providing security.

Rationalistic theories on the other hand are generally not likely to consider broader social institutions because these are assumed out of meaningful existence by their fundamental ontological position on the state. The combination of numerous theoretical positions creates the best hope of understanding international phenomena in all its complexity, including METs. The myriad of problems that face the international system, such as the environment, should be the focus of debate, and theory should work to understand these problems by exploring them thoroughly from many perspectives. Maybe then we will know it's an elephant.

Appendix A

Issue areas for potential METs

The Issue-areas below are taken from the Report of the United Nations conference on the Human Environment are referred by the number of the recommendation in the action plan. Those taken from The World Environment 1972-1992, published by the United Nations Environmental Programme are marked TWE92.

Protection of species in international waters (Rec. 32)
Strengthen the International Whaling Commission—10 year Moratorium (Rec. 33)
Set aside ecosystems of international significance (Rec. 38)
Wetlands (TWE92)(Rec. 48)
International program to preserve the world's genetic resources (Rec. 39, 40-46)
Trade in endangered species (TWE92)
Integrate policies to prevent pollution of "Regional Seas" (Rec. 46, 50. Also Annex III 5, 9. Also The world Environment 1972-1982: A Report by the UNEP.P. 108.

- Black Sea Region
- Caribbean Region
- East African Region
- East Asian Region
- Kuwait Action Plan Region
- Mediterranean Region
- North-West Pacific Region
- Red Sea and the Gulf of Aden Region
- South Pacific Region
- South-East Pacific Region
- South-West Atlantic Region
- South-West Pacific Region
- West and Central Africa Region

More general Oceanic pollution
Ocean Dumping by ships (Sec. 86)
Nuclear Dumping and waste at Sea (sec. 86)
Land based sources of oceanic Pollution (Sec. 86)

River Basin commissions (Sec. 51, 52)
    Amazon
    Zambezi
    Lake Chad
Atmospheric Pollution
Acid Rain (TWE92)
Atmospheric Monitoring (Sec. 57, 78)
Stratospheric ozone (TWE92)
Climate Change/Greenhouse gases (TWE92)
Oil Pollution Monitoring (Sec. 57)
Nuclear Monitoring (Sec. 57)
Radioactive Waste (Sec. 75)
Environmental Impact Assessment (Sec. 61)
Regulating pollutants of International Significance (Sec. 72)]
Hazardous wastes ([1982] TWE92)
Monitoring of food contamination (Sec. 78)
World Heritage sites (TWE92)

Appendix B

Issue area power measure

Treaty Area	Issue area power measure	Source
Cooperation on protecting the Amazon Basin	Rains forest extent	WDR
Protecting Antarctic Marine Resources	Marine Fish catch	WDR
Protection of the South East Asian marine environment	ICUN Category I-V Protected Areas	WDR
Protecting the Marine Environment of Baltic Sea	Maritime Area-EEZ	WDR
Belgium, Netherlands, Luxembourg Nature Conservation	ICUN Category I-V Protected Areas	WDR
Conservation and protection of the Caribbean region	Maritime area-EEZ	WDR
Controlling Chemical Pollution of the Rhine	Fertilizer Consumed	WDR
Protecting the North Atlantic marine environment	Marine fish catch	WDR
Protecting the Mediterranean marine environment	Maritime area-EEZ	WDR
Conservation of Polar Bears	Number of threatened species	WDR
Conservation of European Wildlife	Number of threatened species	WDR
Conservation of Migratory Species	Number of threatened species	WDR
Protection of Living Resources in the Baltic Sea	Marine Fish Catch	WDR
Protection of the East African Marine Environment	Maritime area-EEZ	WDR
Protection of the Kuwait marine Region	Maritime area-EEZ	WDR
Law of the Sea	Maritime area-continental shelf	WDR
Controlling Long Range Transboundary Air Pollution	Industrial CO2 Emissions	WDR
Protection of the Niger River Basin	Fresh Water fish catch	WDR
Regulation of Oil Pollution in the North Sea	Offshore Oil Reserves	WDR
Regulation of substances that deplete the Ozone	CFC emissions/metric tons	WDR
Prevention of Land Based Marine Pollution	Fertilizers/metric tons	WDR
Prevention of Pollution from Ships at sea	Goods loaded on ships	WDR
Protection of the Nordic ecosystem	Common Pollutants-hydrocarbons	WDR
Protection of North Atlantic Fisheries	Marine Fish Catch	WDR
Protection of the Rhine	River flow from other countries	WDR
Protection of the Vicuna (an Andean Llama)	Mammal Species threatened	WDR
Protection of the marine environment of the Red Sea	Maritime area-continental shelf	WDR
Drought Control policies for the Sahel	Deforestation/1000's of hectares	WDR
Sea Bed Protection from Oil pollution	Offshore production (1982)	WDR
Protecting the South Pacific marine	Maritime Area-EEZ	WDR

Environment		
Protecting the South-East Pacific marine environment	Maritime Area EEZ	WDR
Preventing Trade in Endangered Species	Number of threatened species	WDR
Regulating Tropical Timber practices	Rains forest/ extent	WDR
Protecting the West/Central African marine environment	Maritime area-EEZ	WDR
Protecting the Zambezi River system	Fresh water fish catch	WDR

Appendix C

Divisibility Spreadsheet

Treaty Area	Highly Divisible	Slightly Divisible	Slightly Indivisible	Highly Indivisible
Cooperation on protecting the Amazon Basin				
Protecting Antarctic Marine Resources				
Protection of the South East Asian marine environment				
Protecting the Marine Environment of Baltic Sea				
Belgium, Netherlands, Luxembourg Nature Conservation				
Conservation and protection of the Caribbean region				
Controlling Chemical Pollution of the Rhine				
Protecting the North Atlantic marine environment				
Protecting the Mediterranean marine environment				
Conservation of Polar Bears				
Conservation of European Wildlife				
Conservation of Migratory Species				
Protection of Living Resources in the Baltic Sea				
Protection of the East African Marine Environment				
Protection of the Kuwait marine Region				
Law of the Sea				
Controlling Long Range Transboundary Air Pollution				
Protection of the Niger River Basin				
Regulation of Oil Pollution in the North Sea				
Regulation of substances that deplete the Ozone				
Prevention of Land Based Marine Pollution				
Prevention of Pollution from Ships at sea				
Protection of the Nordic ecosystem				
Protection of North Atlantic Fisheries				
Protection of the Rhine				
Protection of the Vicuna (an Andean Llama)				
Protection of the marine environment of the Red Sea				
Drought Control policies for the Sahel				
Sea Bed Protection from Oil pollution				
Protecting the South Pacific marine Environment				

Protecting the South-East Pacific marine environment
Preventing Trade in Endangered Species
Regulating Tropical Timber practices
Protecting the West/Central African marine environment

Excludability Spreadsheet

Treaty Area	Highly Exc	Slightly Exc	Slightly Nonexc	Highly Nonexc
Cooperation on protecting the Amazon Basin				
Protecting Antarctic Marine Resources				
Protection of the South East Asian marine environment				
Protecting the Marine Environment of Baltic Sea				
Belgium, Netherlands, Luxembourg Nature Conservation				
Conservation and protection of the Caribbean region				
Controlling Chemical Pollution of the Rhine				
Protecting the North Atlantic marine environment				
Protecting the Mediterranean marine environment				
Conservation of Polar Bears				
Conservation of European Wildlife				
Conservation of Migratory Species				
Protection of Living Resources in the Baltic Sea				
Protection of the East African Marine Environment				
Protection of the Kuwait marine Region				
Law of the Sea				
Controlling Long Range Transboundary Air Pollution				
Protection of the Niger River Basin				
Regulation of Oil Pollution in the North Sea				
Regulation of substances that deplete the Ozone				
Prevention of Land Based Marine Pollution				
Prevention of Pollution from Ships at sea				
Protection of the Nordic ecosystem				
Protection of North Atlantic Fisheries				
Protection of the Rhine				
Protection of the Vicuna (an Andean Llama)				
Protection of the marine environment of the Red Sea				
Drought Control policies for the Sahel				
Sea Bed Protection from Oil pollution				
Protecting the South Pacific marine Environment				
Protecting the South-East Pacific marine environment				
Preventing Trade in Endangered Species				
Regulating Tropical Timber practices				
Protecting the West/Central African marine environment				
Protecting the Zambezi River system				

Appendix D

Concentration of power, and issue-area power

Treaty	Years Until Treaty	POWER	ISSUE POWER	No of States
Amazonian Cooperation	6	0.63	0.68	8
Antarctic Marine Resources	8	0.41	0.25	26
ASEAN Conservation	13	0.32	0.69	6
Marine environment of Baltic	2	0.81	0.71	7
Benelux Nature Conservation	10	0.57	0.82	3
Caribbean Conservation	11	0.71	0.48	17
Chemical Pollution of the Rhine	4	0.59	0.54	5
Cooperation in the North Atlantic	8	0.44	0.33	12
Mediterranean Convention	4	0.43	0.5	18
Conservation of Polar Bears	1	0.89	0.53	5
Conservation of European Wildlife	7	0.25	0.45	21
Conservation of migratory Species	7	0.33	0.15	33
Living resources of the Baltic	1	0.81	0.13	7
East African Marine	13	0.99	0.51	5
Kuwait Regional Convention	6	0.38	0.56	8
Law of the Sea	10	0.16	0.16	156
LRTAP	7	0.49	0.37	30
Niger Basin Convention	8	0.77	0.27	9
Oil Pollution of the North Sea	11	0.38	0.52	8
Ozone	13	0.17	0.26	66
Prevent Land Based Marine Poll.	2	0.36	0.34	12
Prevention of Poll. Form Ships	1	0.45	0.55	19
Protection of the Nordics	2	0.45	0.44	4
Protection of North Atlantic Fish	6	0.78	0.27	7
Protection of the Rhine	4	0.54	0.45	5
Protection of the Vicuna	7	0.43	0.36	4
Red Sea Convention	10	0.81	0.34	7
Sahel Drought Control	1	0.37	0.38	6
Sea Bed Protection from Oil	5	0.55	0.79	6
South Pacific Convention	4	0.75	0.27	10
South-East Pacific Convention	9	0.31	0.29	5
Trade in Endangered Species	1	0.36	0.05	108
Tropical Timber Agreement	11	0.35	0.52	46
West/Central African Marine	9	0.68	0.2	10
Zambezi River Action Plan	15	0.46	0.69	5
	6.771428571	0.519	0.4242857	20.11429

Appendix E

Divisibility and excludability scores

Treaty Area	Divisibility Score	Excludability Score	Years Until Treaty
Cooperation on protecting the Amazon Basin	- 3	0	6
Protecting Antarctic Marine Resources	- 1 0	- 9	8
Protection of the South East Asian marine environment	- 5	- 7	13
Protecting the Marine Environment of Baltic Sea	- 1	- 1	2
Belgium, Netherlands, Luxembourg Nature Conservation	- 2	- 2	10
Conservation and protection of the Caribbean region	- 7	- 8	11
Controlling Chemical Pollution of the Rhine	0	- 2	4
Protecting the North Atlantic marine environment	- 5	- 9	8
Protecting the Mediterranean marine environment	- 5	- 6	4
Conservation of Polar Bears	- 4	- 9	1
Conservation of European Wildlife	- 4	- 6	7
Conservation of Migratory Species	- 1 0	- 1 2	7
Protection of Living Resources in the Baltic Sea	- 3	0	1
Protection of the East African Marine Environment	- 5	- 4	13
Protection of the Kuwait marine Region	- 2	1	6
Law of the Sea	- 1 2	- 1 2	10
Controlling Long Range Transboundary Air Pollution	- 1 0	- 1 1	7
Protection of the Niger River Basin	2	- 1	8
Regulation of Oil Pollution in the North Sea	- 4	- 8	11
Regulation of substances that deplete the Ozone	- 1 2	- 1 2	13
Prevention of Land Based Marine Pollution	- 6	- 5	2
Prevention of Pollution from Ships at sea	- 1 1	- 1 2	1
Protection of the Nordic ecosystem	- 6	- 7	2
Protection of North Atlantic Fisheries	- 5	- 1 0	6
Protection of the Rhine	0	- 2	4
Protection of the Vicuna (an Andean Llama)	0	1	7
Protection of the marine environment of the Red Sea	- 3	- 2	10
Drought Control policies for the Sahel	3	- 3	1
Sea Bed Protection from Oil pollution	- 1 1	- 1 2	5

Protecting the South Pacific marine Environment	- 9	- 10	4
Protecting the South-East Pacific marine environment	- 7	- 7	9
Preventing Trade in Endangered Species	- 8	- 6	1
Regulating Tropical Timber practices	- 5	- 4	11
Protecting the West/Central African marine env.	- 9	- 9	9
Protecting the Zambezi River system	- 1	- 1	15
	-5.14286	-5.914286	6.77143

Appendix F

DATA FOR INDIVIDUAL TREATIES

Cooperation on Protecting the Amazon

Country	GNP 1973	Rain Forest Extent/1000, Hectares
Bolivia	1349	0
Brazil	73161	291597
Colombia	9809	47455
Ecuador	2452	7150
Guyana	304	11671
Peru	10042	40358
Surinam	285	9042
Venezuela	18155	19602
	0.63311612	0.683096925

Country	GNP 1973	Fish Catch Metric Tons 1973
Australia	60783	72700
Argentina	42557	260587
Belgium	39674	49800
Brazil	73161	592361
Canada	122660	896301
Chile	10824	581100
Finland	16388	70600
France	219909	594473
Germany, DDR	na	na
Germany, FDR	372528	765102
India	77222	983900
Italy	155211	302418
Japan	349978	8515700
Netherlands	55558	219900
New Zealand	10718	43300
Norway	16755	2892964
Peru	10042	2265000
Poland	na	539700
Korea, S	13251	1110387
South Africa	23448	1352975
Spain	62363	1157601
Sweden	47642	211600
USSR	na	7485467
United Kingdom	180532	1045500
USA	1361944	1670800
Uruguay	2567	17000
	0.40951916	0.25271212

Protection of the South East Asian Marine Environment

Country	GNP 1973	GNP 1985	ICUN Category I-V Protected Area (thousand Hectares)
Brunei	na	3934	88.297
Indonesia	14236	92032	19338.51
Malaysia	6429	31040	1486.761
Philippines	9391	29913	572.866
Singapore	3854	20157	1.622
Thailand	9774	41461	6475.05
	0.32588591	0.42112777	0.691572317

Protecting the Marine Environment of the Baltic

Country	GNP 1973	Maritime Area
Denmark	24117	1464.2
Finland	16388	98.1
DDR	na	9.6
Germany FDR	372528	40.8
Poland	na	28.5
Sweden	47642	155.3
U.S.S.R.	na	4490.3
	0.80865686	0.71424254

Belgium, Netherlands, Luxembourg Nature Conservation

Country	GNP 1973	GNP 1982	ICUN Category I-V Protected Area/100 Hectares
Belgium	39674	103238	77.129
Luxembourg	1762	5752	0
Netherlands	55558	159838	352.589
	0.57279832	0.59457348	0.820512522

Conservation and Protection of the Caribbean Region

Barbados	252	1009	167.3
Colombia	9809	39337	603.2
Cuba	na	na	362.8
France	219909	581082	3493.1
Grenada	na	na	27
Guatemala	2450	8803	99.1
Jamaica	1877	2981	297.6
Mexico	54329	173821	2851.2
Netherlands	55558	148204	84.7
Panama	1461	4136	306.5
St. Lucia	na	na	
St. Vincent and Grenadines	27	91	
Trinidad and Tobago	1104	7575	76.8
United kingdom	180532	524364	1785.3
USA	1361944	3417138	9711.4
Venezuela	18155	79329	363.8
	0.71402905	0.68508963	0.480054178

Controlling Chemical Pollution of the Rhine

Country	Fertilizer consumed (1000 metric tons)	GNP 1973
France	5827	219909
Germany, FDR	3181	372528
Luxembourg	na	1762
Netherlands	633	55558
Switzerland	159	34482
	0.594591837	0.54444134

Protecting the North Atlantic Marine Environment

Country	GNP 1973	GNP 1979	Fish Catch, Marine Metric Tons
Bulgaria		21819	75410
Canada		237028	1034284
Cuba		na	121965
Denmark		60892	1653529
Germany, DDR		906189	514830
Iceland		2673	1626259
Japan		1001160	8194180
Norway		44751	2610071
Poland		na	550258
Portugal		20170	235577
Romania		na	128127
USSR		na	7657705
		0.43629575	0.33579684

Protecting the Mediterranean Marine Environment

Country	GNP 1973	Maritime Area—EEZ
Albania	na	12.3
Algeria	7528	137.2
Cyprus	na	99.4
Egypt	9779	173.5
France	219909	3493.1
Greece	15328	505.1
Israel	8676	23.3
Italy	155211	552.1
Lebanon	na	na
Libya	5507	na
Malta	311	66.2
Monaco	na	na
Morocco	5613	278.1
Spain	62363	1219.4
Syria	3197	10.3
Tunisia	2320	85.7
Turkey	17935	236.6
Yugoslavia	na	52.5
	0.42810755	0.502980647

Conservation of Polar Bears

Country	# of Threatened Species	GNP 1973
Canada	11	122660
Denmark	17	24117
Norway	11	16755
U.S.S.R.	61	na
USA	117	1361944
	0.539170507	0.89279936

Conservation of European Wildlife

Country	GNP 1978	ICUN Category I-V 1993	Habitat extent
Austria	52219	2118.4	193.9
Belgium	86592	77.129	6.2
Burkina Faso	na	2661.9	4964
Cyprus	na	2	
Denmark	51325	409.38	16.5
Finland	34722	850.4	15.4
France	452687	5300	130.6
Greece	30858	102.5	64
Hungary	16096	576.9	266.6
Ireland	11440	38.6	3.2
Italy	275421	2008.3	1214.6
Liechtenstein	na		na
Luxembourg	3945	0	0
Netherlands	127537	352.58	38.1
Norway	38713	1609	95.7
Portugal	18055	559.8	na
Senegal	1988	2180.2	2454
Spain	135549	3504.3	581.9
Switzerland	74295	752.9	94.8
Turkey	51932	239.4	606
Great Britain	293901	4635.5	200
	0.25760738	0.189426506	0.453519711

Conservation of Migratory Species

Country	GNP 1973	GNP 1978	Bird	Mam	Total
Belgium	39674	86592	13	2	15
Benin	na	na	1	11	12
Burkina Faso	na	na	1	10	11
Cameroon	1498	4090	17	27	44
Chile	10824	14383	18	9	27
Denmark	24117	51325	16	1	17
Egypt	9779	15938	16	9	25
Finland	16388	34722	12	3	15
Germany	372528	748896	na	na	na
Ghana	2433	3604	8	13	21
Hungary		16096	16	2	18
India	77222	125539	72	39	111
Ireland	6156	11440	10	0	10
Israel	8676	15880	15	8	23
Italy	155211	275421	19	3	22
Luxembourg	1762	3945	na	na	na
Mali	471	1115	4	16	20
Netherlands	55558	127537	13	2	15
Niger	721	1569	1	15	16
Nigeria	18651	58712	10	25	35
Norway	16755	38713	8	3	11
Pakistan	9235	17735	25	15	40
Panama	1461	2864	14	13	27
Portugal	10803	18055	18	6	24
Senegal	1088	1988	5	11	16
Somalia	463	804	7	17	24
Spain	62363	135549	23	6	29
Sri Lanka	na	na	na	na	na
Sweden	47642	90837	na	na	na
Tunisia	2320	5685	14	6	20
Great Britain	180532	293901	22	3	25
Uruguay	2567	4569	11	5	16
Zaire	7038	12192	27	31	58
	0.325654	0.33738674			0.15

Protection of the Living resources in the Baltic Sea

Country	GNP 1973	Fish catch-Marine
Denmark	24117	1390902
Finland	16388	70600
Germany, DDR	na	na
Germany, FDR	372528	765102
Poland	na	539700
Sweden	47642	211600
U.S.S.R.		7485467
	0.80865686	0.132930582

Protection of the East African Marine Environment

Country	GNP 1984	Maritime EEZ
France	548291	3493
Madagascar	3375	1292
Seychelles	156	1349
Somalia	921	782
	0.99194562	0.50506073

Protection of the Kuwait Marine Region

Country	GNP 1978	Maritime Area-Shelf		EEZ
Bahrain	3355	5.14	1982	5.1
Iran	55154	107		155.7
Iraq	27272	0.6		0.7
Kuwait	18788	12		12
Oman	2489	61		561.7
Qatar	3640	24		24
Saudi Arabia	65193	77.8		186
United Arab Emirates	17181	59.3		59.3
	0.3376616	0.308499596		0.55918367

Law of the Sea

Country	GNP 1973	Maritime area Shelf to 200m
Afghanistan	na	0
Algeria	7528	13.7
Angola	na	66.88
Antigua And Baruda	na	na
Argentina	42557	796.42
Australia	60728	2269
Austria	23400	0
Bahamas	586	85.74
Bahrain	na	5.1
Bangladesh	5792	54.9
Barbados	525	0.34
Belgium	39674	2.7
Belize	71	na
Benin	461	na
Bhutan	na	na
Bolivia	1349	0
Botswana	167	0
Brazil	73161	768.6
Brunei	na	na
Bulgaria	na	12.3
Burkina Faso	na	0
Burma	na	229
Burundi	288	na
Byelorus	na	na
Cameroon	1498	10.6
Cambodia	na	na
Canada	122660	2903
Cape Verde	46	na
Central African Rep.	236	na
Chad	387	na
Chili	10824	27.43

China		133732	869
Colombia		9809	67.9
Cameron		41	na
Congo		465	8.9
Costa Rica		1401	15.8
Cote d'Ivoire		1994	10.3
Cyprus	na		6.5
Czech Republic	na		0
Korea, N.	na	na	
Denmark		24117	68.59
Djibouti	na	na	
Dominica		24	na
Dominican Republic		2350	na
Ecuador		2452	46.9
Egypt		9779	37.4
El Salvador		1285	17.8
Equatorial Guinea	na	na	
Ethiopia		2293	47.7
Fiji		365	2.1
Finland		16388	98
France		219909	147
Gabon		487	45.9
Gambia		71	na
Germany, DDR		372528	na
Ghana		2433	21
Greece		15328	24.7
Grenada	na	na	
Guatemala		2450	12.3
Guinea	na		38.4
Guinea-Bissau	na	na	
Guyana		304	50
Haiti		523	10.6
Honduras		893	53.5
Hungary	na	na	
Iceland		896	133.8
India		77222	452
Indonesia		14236	2776
Iran	na		107

Iraq		5983	0.7
Ireland		6156	125.9
Italy		155211	144
Jamaica		1877	40
Japan		349978	480
Kenya		2298	14.4
Kiribati	na	na	
Kuwait		3799	12
Laos	na	na	
Lebanon	na	na	
Lesotho		170	na
Liberia		484	19.5
Libya		5507	83.7
Liechtenstein	na	na	
Luxembourg		1762	na
Madagascar		1372	180
Malawi		443	na
Malaysia		6429	373
Maldives		11	na
Mali		471	na
Malta		311	13
Mauritania		261	44
Mauritius		371	91
Mexico		54329	442
Monaco	na	na	
Mongolia	na	na	
Morocco		5613	62
Mozambique	na		104
Namibia	na	na	
Nauru	na	na	
Nepal		988	na
Netherlands		55558	84
New Zealand		10718	242
Nicaragua		956	72
Niger		721	na
Nigeria		18651	46
Niue	na	na	
Norway		16755	102
Oman		270	61
Pakistan		9235	58

Panama		1461	57
Papua New Guinea		962	na
Paraguay		888	na
Philippines		9391	178
Poland	na		28
Portugal		10803	39
Qatar		645	24
Romania	na		24
Rwanda		287	na
Samoa	na		na
Sao Tome		23	na
Saudi Arabia		7500	77
Senegal		1088	31
Seychelles		33	na
Sierra Leone		478	26
Singapore		3845	0.3
Solomon Islands	na		na
Somalia		463	60
South Africa		23448	143
Spain		62363	170
Sri Lanka	na		26
St. Kitts and Nevis	na		na
St. Lucia	na		na
St, Vincent & Gr.		27	na
Sudan		2261	22
Surinam		285	na
Swaziland		167	na
Sweden		47642	155
Switzerland		34482	na
Tanzania		1796	41
Thailand		9774	257
Togo		371	1
Trinidad and Tobago		1104	29
Tunisia		2320	na
Tuvalu	na		na
Uganda	na		na

Ukraine	na		na	
U.S.S.R.	na			1249
United Arab Emirates	na			59
Uruguay		2567		56
Vanuatu	na		na	
Vietnam	na		na	
Yemen	na			24
Yugoslavia	na			36
Zaire		7038		1
Zambia		1960	na	
Zimbabwe	na		na	
	0.16499068		0.16018938	

Controlling Long Range Transboundary Air Pollution

Country	GNP 1973	GNP 1979	Industrial CO2 emissions MTs,1979
Austria	23408	52219	61056
Belgium	39674	86592	134450
Bulgaria	na	21819	106431
Byelorus	na	na	na
Canada	122660	222623	424848
Czechoslovakia	na	na	240607
Denmark	24117	51325	65255
Finland	16388	34722	52673
France	219909	452687	501663
Germany, DDR			302060
Germany, FDR	372528	748896	789936
Hungary	na	16096	88390
Iceland	896	2235	1985
Ireland	6156	11440	26175
Italy	155211	275421	237552
Liechtenstein	na	na	na
Luxembourg	1762	3945	11545
Netherlands	55558	127537	155038
Norway	16755	38713	36585
Poland	na	55107	441523
Portugal	10803	18055	na
Spain	62363	135549	194247
Sweden	47642	90837	83132
Switzerland	34482	74295	39226
Turkey	17935	51932	76305
Ukraine	na	na	na
U.S.S.R.		na	3262990
United kingdom	180532	293901	643413
USA	1361944	2262163	4766556
Yugoslavia	na	na	101998
	0.49154823	0.44113005	0.37106414 1

Protection of the Niger River Basin

Country	GNP 1973	GNP 1980	Fresh water fish catch MT/1980
Benin	461	1349	34200
Burkina Faso	na	na	6500
Cameroon	1498	6577	20000
Chad	387	715	60000
Guinea	na	na	1100
Ivory Coast	1994	9832	15600
Mali	471	1647	88228
Niger	721	2457	8892
Nigeria	18651	86273	88544
	0.77124426	0.79258613	0.274075725

Regulation of Oil Pollution in the North Sea

Country	GNP 1973	GNP 1983	Offshore Oil Reserves, Million MT, 92	production MT 82
Belgium	39674	89921	0	0
Denmark	24117	58425	35.26	1693
France	219909	581082	0	0
Germany, FDR	372528	886830	na	na
Netherlands	55558	148204	18.1	0
Norway	16755	58395	2364.4	26606
Sweden	47642	105215	0	0
United kingdom	180532	524364	2597.6	102558
	0.38938242	0.36161188	0.517928922	0.78374103

Regulation of Substances that Deplete the Ozone

Country	GNP 1973	GNP 1985	CFC emissions MT 1991
Argentina	42557	95542	1.94
Australia	60738	185314	5.38
Austria	23408	68777	2.29
Bahrain	na	3543	na
Bangladesh	5792	15129	na
Belgium	39674	81722	2.92
Brazil	73161	222325	4.35
Brunei	na	3934	na
Bulgaria	na	18457	0.71
Burkina Faso	na	na	na
Byelorus	na	na	na
Canada	122660	315034	7.83
Cameroon	1498	8286	na
Chad	387	652	na
Denmark	24117	58288	1.5
Egypt	na		1.94
Equatorial Guinea	na	82	na
Finland	16388	54118	0.94
France	219909	541217	16.66
Gambia	71	186	na
Germany, DDR	na	na	na
Germany, FDR	372528	825794	na
Ghana	2433	4750	0.55
Greece	15328	36755	2.96
Guatemala	2450	9635	0.75
Hungary	na	na	2.05
Iceland	896	2841	0.03
Italy	155211	442842	16.88
Japan	349978	1381167	64.42
Jordan	na	6711	0.55
Kenya	2298	6160	0.09
Libya	5507	25782	na
Liechtenstein	na	na	na

Luxembourg		1762	5163 na	
Malaysia		6429	31040	1.77
Maldives		11.7	53 ma	
Malta		311	1173 na	
Mexico		54329	173866	3.42
Netherlands		55558	139915	4.4
New Zealand		10718	22534	0.57
Nigeria		18651	91095	0.21
Norway		16755	60467	0.59
Panama		1461	4556	0.12
Poland	na		78126	3.73
Peru		10042	16057	0.31
Portugal		10803	19609	2.88
Singapore		3854	20157	0.45
South Africa		23448	67527	5.32
Spain		62363	168131	11.41
Ski Lanka	na	na		0.12
Sweden		47642	100367	1.91
Switzerland		34482	105719	1.68
Syria		3197	18109	0.39
Thailand		9774	41461	1.8
Trinidad and Tobago		1104	7168	0.135
Tunisia		2320	8567	0.31
Turkey		17935	54372	1.03
Uganda	na		2555 na	
Ukraine	na	na	na	
U.S.S.R.	na	na		44.13
United Arab Emirates	na		30163	0.69
United kingdom		180532	482951	16.83
Uruguay		2567	4662	0.12
Venezuela		18155	67111	1.48
Yugoslavia	na	na		2.68
Zambia		1960	2539 na	
		0		
	0.17463729		0.22133179	0.26485764

Prevention of Land Based Marine Pollution

Country	GNP 1973	Maritime Area—Shelf to 200m	Fertilizers 1975, 1000 MT
Belgium	39674	2.74	639
Denmark	24114	68.59	na
France	219909	147.82	4686
Germany, FDR	372528	40.8	3107
Iceland	896	133.7663	28
Ireland	6156	125.87	432
Netherlands	55558	84.71	635
Norway	16755	102.89	230
Portugal	10803	39.1	245
Spain	62363	170.46	1402
Sweden	47642	155.3	525
United Kingdom	180532	492.19	1820
	0.35926051	0.314651949	0.34082479

Prevention of Pollution from Ships at Sea

Country	GNP 1973	Goods Loaded/Petroleum 1000 MT 1988	Energy exports/Tera joules
Antigua and Baruda	na	na	703
Belgium	39674	na	504559
Benin	na	92	1084
Brunei	1482	8000	583953
Bulgaria	na	na	996
Colombia	9809	8000	55508
Germany, FDR	372528	na	785414
Hungary	14017	na	44166
Italy	155211	200	591339
Jordan	na	na	351
Kenya	2298	na	37630
Norway	16755	30000	44157
Peru	10042	1250	22215
Republic of Korea	13521	na	30274
Tunisia	2320	4030	200317
United Kingdom	180532	63880	667803
Uruguay	2567	na	na
Yemen	na	320	na
Yugoslavia	na	na	14917
	0.45388398	0.55177418	0.186256933

Protection of Nordic Ecosystems

Country	GNP 1973	Common Pollutants—hydrocarbons 1000 MT 1980
Denmark	24117	197
Finland	16388	163
Norway	16755	169
Sweden	47642	410
	0.45415721	0.436634718

Protection of North Atlantic Fisheries

Country	GNP 1973	GNP 1982	Fish Catch-marine/ MT
Canada	122660	292966	1080356
Denmark	24117	62075	1731675
Finland	16388	54775	70610
Iceland	896	301362	1420474
Norway	16755	59157	2483840
Sweden	47642	118172	246768
USA	1361944	3177559	2110723
	0.85635204	0.7814824	0.271622797

Protection of the Rhine

Country	GNP 1973	River Flows from other countries/ Cubic KM
France	219909	15
Germany, FDR	372528	75
Luxembourg	1762	na
Netherlands	55558	80
Switzerland	34482	7.5
	0.54444134	0.450704225

Protection of the Vicuna

Country	GNP 1973	GNP 1979	IUCN Category IV-V Area in 1000 HA	Mammal Species Threatened
Bolivia	1349	2501	5476	21
Chile	10824	18328	5350	9
Ecuador	2452	8528	8030	21
Peru	10042	14167	165	29
	0.43880488	0.421101	0.422164976	0.3625

Protection of the Marine Environment of the Red Sea

Country	GNP 1973	GNP 1982	Maritime Shelf	Area-	Marine Fish catch MTs
Egypt	9779	25827	37.85		24170
Jordan	na	na	na		19
Palestine	na	na	na		na
Saudi Arabia	7500	150975	77.85		26640
Somalia	463	866	60.7		8294
Sudan	2261	8156	22.24		1050
Yemen	na	na	24.69	na	
	0.48887667	0.81246233	0.348587292		0.44272348

Drought Control Policies for the Sahel

Country	GNP 73	Deforestation thousand HA	Deforestation % 1990
Burkina Faso	na	31.9	0.673
Chad	387	88.5	0.719
Mali	471	106.3	0.805
Mauritania	261	0	0
Niger	721	0	0
Senegal	1088	51.8	0.643
	0.3715847	0.381687612	0.2834507

Sea Bed Protection from Oil Pollution

Country	GNP 1973	Proven offshore oil reserves. Million MT	Offshore production 1982
Germany, FDR	372528	10.8	0
Ireland	6156	0	0
Netherlands	55558	18	0
Norway	16755	2364	26606
Sweden	47642	0	0
United Kingdom	180532	2597	102588
	0.54850399	0.520461742	0.79406164

Protecting the South Pacific Marine Environment

Country	GNP 1973	GNP 1986	Maritime Area—EEZ
Australia	60738	181530	4496.3
Cook islands	na	na	na
Micronesia	na	na	na
Fiji	365	1230	1135.3
France	219909	600805	3493
Marshall islands	na	24209	na
New Zealand	10718	na	4833.2
Papua New Guinea	962	2654	2366
Solomon Islands	na	na	1340
Western Samoa	na	na	na
	0.75133246	0.74134285	0.273621757

Protecting the South-East Pacific Marine Environment

Country	GNP 1973	GNP 1981	Maritime Area—EEZ
Chile	10824	29331	27.43
Colombia	9809	26727	67.9
Ecuador	2452	26727	46.98
Panama	1461	3215	57.28
Peru	10042	14167	82.66
	0.3129409	0.29282099	0.292860939

Preventing trade in Endangered Species

Country	GNP 1973	# of Threatened species
Afghanistan	na	25
Algeria	7528	27
Argentina	42557	81
Australia	60738	89
Austria	23408	15
Bahamas	586	9
Bangladesh	5792	56
Belgium	39674	15
Belize	71	15
Benin	461	na
Bolivia	1349	59
Botswana	167	16
Brazil	73161	174
Brunei	na	na
Burkina Faso	474	13
Burundi	288	10
Cameroon	1498	47
Canada	122660	11
Central African Republic	236	16
Chad	387	24
Chile	10824	27
China	133732	131
Colombia	9809	104
Congo	465	17
Costa Rica	1401	26
Cuba	na	30
Cyprus	na	na
Denmark	24117	17
Dominican Republic	2350	10
Ecuador	2452	93
Egypt	9779	27

El Salvador		1285	9
Ethiopia		2293	40
Finland		16388	15
France		219909	30
Gabon		487	23
Gambia		71	10
Germany, DDR	na	na	
Germany, FDR		372528	19
Ghana		2433	23
Guatemala		2450	24
Guinea	na		25
Guinea Bissau	na	na	
Guyana		304	24
Honduras		893	21
Hungary	na		18
India		77222	131
Indonesia		14236	197
Iran	na		39
Israel		8676	25
Italy		155211	31
Japan		349978	37
Jordan	na		16
Kenya		2298	37
Liberia		484	30
Liechtenstein	na	na	
Luxembourg		1762	na
Madagascar		1372	88
Malawi		443	18
Malaysia		6492	70
Malta		311	13
Mauritius		371	19
Monaco	na	na	
Morocco		5613	23
Mozambique	na		22
Nepal		988	51
Netherlands		55558	15
New Zealand		10718	31

Nicaragua		956	17
Niger		721	17
Nigeria		18561	37
Norway		16755	11
Pakistan		9235	46
Panama		1461	29
Papua New Ginea		962	31
Paraguay		888	52
Peru		10042	111
Philippines		9391	57
Poland	na		20
Portugal		10803	25
Rwanda		287	20
Saint Lucia	na	na	
Saint Vincent		27	na
Senegal		1088	18
Seychelles		33	na
Singapore		3854	10
Somalia		463	25
South Africa		23448	42
Spain		62363	37
Sri Lanka	na		18
Sudan		2261	26
Surinam		285	18
Sweden		47642	15
Switzerland		34482	18
Thailand		9774	69
Togo		371	12
Trinidad and Tobago		1104	4
Tunisia		2320	21
U.S.S.R	na		61
United Kingdom		180532	25
Tanzania		1796	59
USA		1361944	117
Uruguay		2567	18
Vanuatu	na		5

Venezuela	18155	56
Zaire	7038	60
Zambia	1960	22
Zimbabwe	na	16
	0.3651024	0.054676658

Regulating Tropical Timber Practices

Country	GNP 1973	GNP 1983	Roundwood Imports	Rain Forest/extent
Australia	60738	186322	2	0
Austria	23408	70112	3481	0
Belgium	39674	89921	na	0
Bolivia	1349	2954	na	0
Brazil	73161	236330	31	291597
Cameroon	1498	8286	na	8021
Canada	122660	315034	2659	0
China	133732	332656	8957	0
Colombia	9809	39337	0	47455
Congo	465	2250	na	7667
Cote d'Ivoire	1994	6994	0	0
Denmark	24117	58425	144	0
Ecuador	2452	11650	na	7150
Egypt	9779	27394	228	0
Finland	16388	52800	5389	0
France	219909	581082	2256	0
Gabon	487	3418	na	1155
Germany, FDR	372528	886830	3415	0
Ghana	2433	4172	na	0
Greece	15328	38891	147	0
Honduras	893	2901	na	1286
India	77222	205773	27	8246
Indonesia	14236	98009	0	93827
Ireland	6156	17986	28	893
Italy	155211	429459	4985	0
Japan	349978	1234472	42238	0
Liberia	484	1032	0	893
Luxembourg	1762	5354	na	0
Malaysia	6429	28241	386	16339
Netherlands	55558	148204	742	0
Nepal	988	2590	na	609
Norway	16755	58395	1350	0
Panama	1461	4136	15	1802

Papua New Guinea	962	2513	na	29323
Peru	10042	20429	1	40358
Philippines	9391	37360	6	3728
Portugal	10803	22279	451	0
Korea	13251	83845	5671	0
Spain	62323	181058	860	0
Switzerland	34482	105387	812	0
Thailand	9774	40121	181	3082
Trinidad and Tobago	1104	7575	2	155
Togo	371	798	0	0
U.S.S.R.	na	na	233	0
United kingdom	180532	524364	378	0
USA	1361944	3417138	2641	0
	0.38757423	0.35468546	0.481531306	0.51739575

Protecting the West/Central African Marine Environment

Country	GNP 1973	GNP 1981	Maritime Area—EEZ
Cameroon	1498	8100	15.4
Congo	465	1905	24.7
Cote d'Ivoire	1994	10135	104.6
Gabon	487	3713	213.6
Gambia	71.7	244	19.5
Ghana	2433	4538	218.1
Guinea	na	na	71
Nigeria	18651	91530	210.9
Senegal	1088	2791	205.7
Togo	371	1049	2.1
	0.68927923	0.7381154	0.200902727

Protecting the Zambezi River System

Country	GNP 1973	GNP 1987	Fish Catch/Freshwater MT/1986
Botswana	167	1259	1700
Mozambique	na	2068	767
Tanzania	1976	4454	131942
Zambia	1960	1767	52992
Zimbabwe	na	na	2750
	0.48159883	0.46648513	0.693880127

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