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THE POLITICS OF INCOHERENCE

A Framework for the Analysis of Functional
Overlap in International Governance as
Two-Level Game

STEFAN JUNG CURT

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The Politics of Incoherence

A Framework for the Analysis of Functional Overlap in International Governance as Two-Level Game

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Abstract

Functional overlap in the jurisdiction and competencies of international agreements can lead to incomplete and contradicting regulation, which erodes benefits from international cooperation. The framework developed in this paper seeks to further the theoretical analysis of the domestic and international determinants for the origin and the persistence of such incoherence. Using international regulation on the conservation of plant genetic resources as an illustrative example I address two theoretical challenges – the problem of cross-level inference in theories of international cooperation and the differentiation of processes of substantial bargaining from those of negotiated institutional change. Substantial bargains can be formally analyzed as two-level or nested games with variable payoffs, whereas rigorous analysis of institutional change is limited by too many variations in game structure. I use the framework to derive a typology of games for guiding the systematic analysis of the international, domestic and cross-level interactions that may offer explanations for the phenomenon of incoherence due to functional overlap.

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1 Introduction

A prominent phenomenon in the system of international governance is that of substantial overlap in the jurisdiction and competencies of international agreements that have different but interrelated objectives. The effect of such overlaps in the *functional scope* of international agreements¹ (Young 1996) is that the development and implementation of domestic policies is regulated by provisions of two or more international agreements. The most commonly known functional interdependencies are those that occur between multilateral environmental agreements (MEAs) and international trade law, but similar problems occur in other fields of international governance such as trade and human rights, health or sanitation standards, as well as among individual MEAs.

In most cases of overlap, the relationship between the relevant agreements is not clarified or it is formulated in an ambiguous way, leaving significant uncertainty and leeway for implementation. The resulting incompleteness or contradiction in international law has detrimental effects to the achievement of the objectives of the different agreements because it leads to increased transaction costs and reduces the scope of the benefits that can be achieved through international cooperation. Therefore the reconciliation of such incoherence is a central aspect of the effectiveness of international governance.

In this paper, I argue that existing descriptive analysis and empirical evidence for the occurrence, and particularly the persistence, of incoherence due to functional overlap is not compatible with theories of international relations that view states as rational actors taking decisions in their own interest. The puzzle is that states with assumed uniform and stable preferences invest considerable amounts of resources in the negotiation and implementation of international agreements and should have a reasonable interest in reconciling overlaps once they become aware of the costs of incoherence. Even if overlaps are initially unintended consequences and may not be immediately become apparent to, nor be dealt with by the parties (Young 1996), states should be motivated to seek solutions as incoherence is revealed in the course of institutional interactions.

¹ I use the term international *agreements* to refer to the formal rules of international interactions and provisions for domestic implementation, laid out in conventions, protocols, treaties and other constitutive documents. An international *institution* comprises the social practices that are based on the rules of the game including common discourses in terms of which to address the issues at stake, informal understandings regarding appropriate behavior on the part of participants, and routine activities that grow up in conjunction with efforts to implement the rules (Scott 1995). International agreements are the outcome of negotiation processes among states that are themselves subject to the formal and informal rules of international negotiations.

This paper develops a conceptual framework as first step towards an approach to solve the puzzle and to evaluate possible explanations for the lack of reconciliation of incoherence due to functional overlaps. I start from the premise that two types of interactions – those among different negotiation arenas that produce international agreements, and the impact of domestic policy making, particularly policy coordination, on the positions of the negotiators – need to be taken into consideration in order to explain the origin and persistence of incoherence in international governance. An expanded two-level games framework is developed in section 4 to account for the possible nesting of games at the domestic or international levels. Based on this framework, some considerations about the nature of the games and the adequate level of theoretical rigor for their analysis can be derived. Beforehand, section 2 gives a more detailed overview over the problem of incoherence due to functional overlap and section 3 discusses briefly the theoretical challenges faced in the study of such problems. Section 5 summarizes and gives an outlook on future research.

2 Effects of Incoherence in International Law

In this section I use the case of international regulation of the conservation and use of plant genetic resources to illustrate some of the effects of incompleteness and contradictions in international law that arise out of functional overlap. The framework developed in this paper is intended to be applied to this case, however, the phenomenon occurs widely in international governance and is bound to increase in importance as the density of international agreements increases (Young 2002).

In the recent past there have been a number of bi- or multilateral conflicts over the regulation of access to, and the use of, genetic resources as well as over the protection of intellectual property related to their commercial exploitation. In most of these conflicts a user party is accused by a supplying actor of having acquired legal property protection over Plant Genetic Resources (PGRs) or related traditional knowledge for commercial use without providing an adequate share of the benefits to the providers. In such cases of ‘biopiracy’ like the Neem patents (Shiva 1997; Utkarsh et al. 1999; Gadgil and Utkarsh 1999) or the basmati rice case (Prakash 2000) the supplying actors claim their rights to be compensated for their contribution to the commercial value of the resources and associated knowledge, on which the innovation has been based. Such rights have been granted to them through the Convention on Biological Diversity (CBD), while the basis for conceding legal protection of property rights over biotechnological innovations is laid out in the Agreement on Trade Related Aspects of Intel-

lectual Property Rights (TRIPs) of the World Trade Organization (WTO 1994). The CBD grants national sovereignty over genetic resources and requires owner countries to establish access legislation that respects the rights of the communities in possession of genetic resources to fairly and equitably share the benefits that arise out of the use of these resources (CBD Arts. 15 and 19). The implementation of such legislation, however, requires compatible legislation on the side of the user countries such as a requirement to provide a certificate of origin and a proof of benefit-sharing provisions accepted when genetic resources are imported, or as a condition for the granting of patents over biotechnological innovations. So far user countries have not shown much effort to adjust their legislation in that sense (Rosendal 1999). Similarly, TRIPs requires all countries to implement minimum standards for the protection of intellectual property rights, including some form of protection of newly developed plant varieties (TRIPs Art. 27). Traditional communities perceive this form of individual property rights to be incompatible with the collective ownership prevailing in their communities.

The parallel emergence of these agreements and their different approaches to regulate the protection of property rights – over genetic resources with a view to create incentives for their conservation in the CBD, and over new knowledge related to biotechnological innovations in the context of TRIPs (Dutfield 1999) – have hampered their implementation on both sides. The provisions in the overlap of the two agreements are incomplete, because they lack a clear notion of the scope of intellectual property protection and its limitation through the rights that are awarded to the traditional owners of plant genetic resources and traditional knowledge. They lead to conflicts in implementation because there is no mechanism or rule on how the diverging objectives of biodiversity conservation and new knowledge protection should be reconciled. So far there has not been much of a systematic analysis of the impacts of incoherence, nevertheless, four broad types of costs and efficiency losses arising out of the present situation can be identified:

- *Trade offs*: The implementation of overlapping agreements often confronts countries with economic trade-offs, as compliance with one agreement may limit the extent to which they can benefit from the implementation of another. A typical example is the recent discussion about Brazil's law on access to genetic resources and its negative impacts on research and development (SciDevNet 2003)².

² *Brazil's biopiracy laws are stifling research* (www.SciDev.net, July 21st, 2003). Brazilian scientists are urging the government to modify laws that have been introduced to reduce biopiracy, in order to give them more freedom to collect

- *Complexity in legislation:* Overlapping agreements may require very complex legislative systems and institutions that specify how the provisions affect the rights and responsibilities of a multitude of domestic actors. From the perspective of poor countries with low capacities in development and enforcement of new legislation, TRIPs represents an additional burden that complicates the implementation of the CBD. Obviously, rich and poor countries alike have a bias towards implementing agreements that they perceive to be most beneficial for them. This may lead to a strategic delay in the implementation of functionally linked agreements and prevent the achievement of a sufficient rate of participation.
- *Conflicts and enforcement costs:* Conflicts like the cases of biopiracy described above arise easily when legislation is incomplete or ambiguous. Arbitrage in these conflicts is costly and may bind administrative resources that are detracted for other aspects of implementation.
- *Legitimized non-compliance:* Contradicting or ambiguous provisions can be exploited strategically by countries to circumvent the implementation of provisions that are costly to them, and thereby free-ride on the effort of other countries. For instance many industrialized countries have so far refused to include a requirement to disclose the origin of genetic resources in patent applications to facilitate benefit sharing according to CBD provisions, arguing that such a requirement is incompatible with the TRIPs agreement (Carvalho 2000). These countries nevertheless seek to benefit from improved access to genetic resources in supplier countries that have already implemented access laws.

These effects erode the benefits of cooperation that are the very objective of the negotiation of international agreements. No matter whether the objective is to create welfare gains through the harmonization of international commercial standards, or to enhance cooperation in the protection of the environment and the provision of a global public good, incoherence due to functional overlap leads to restrictions in the extent of cooperative benefits that can be realized.

It is striking that participants at the relevant forums are well aware of the compatibility problems among different agreements. Several submissions have been made to the TRIPs council regarding the disclosure requirement and related issues are heavily debated at every

and analyze biological material for research purposes. [...] The motion calls for the government to grant 'permanent licenses' to scientists and research students to allow them to investigate biodiversity. Its aim is to end the way in which current regulations, many scientists argue, hinder their ability to work with animals, plants, micro-organisms and ecosystems. [...]

conference of the parties of the CBD³. Despite the technical difficulties that the implementation of such a requirement would entail, there is substantial room to craft a solution to the problem once the general necessity to integrate this measure is accepted (Carvalho 2000).

2.1 Strategic Exploitation, Different Norms or Distributive Effects?

This discussion provokes the question if countries that benefit from such incoherence are able to strategically exploit the functional overlap among agreements. If so, this would imply that the beneficiaries have an incentive to prevent the reconciliation of functional overlaps and – taking the argument one step further – to seek to increase the scope of overlap in order to broaden their opportunities to benefit. This strategic behavior is indeed one of the most appealing explanations offered in the literature to date. Oran Young (2002) in his analysis of the “politics of institutional interplay” has provided a detailed description of strategic decisions in the negotiation process that influence the extent of institutional interplay. He argues that the scope of overlap is in most cases the result of conscious decisions on the fundamental aspects of the design of international agreements, such as the framing of the issue, the choice of the arena under whose auspices to negotiate and administer an agreement, or operational links in the institutional set-up (e.g. common administrative services or dispute settling). This supports Schelling’s notion that actors in international negotiations find themselves in a mixed-motive situation that complicates the pursuit of the common good (Schelling 1960). Therefore the politics of institutional linkages normally feature a “complex mix of efforts to enhance social welfare and promote the interest of individual participants” (Young 2002: 138).

Another explanation for the persistence of incoherence due to functional overlap emphasizes the role of different normative principles and rules that dominate in different agreements (Rosendal 1999; 2001). The CBD seeks to regulate property rights in order to improve equity and create incentives for conservation, while TRIPs aims at the protection of private benefits in order to promote innovation. These diverging normative orientations lead to a number of contentious questions regarding the patentable subject matter (patents over biological information), the beneficiaries of patents (social and equity aspects), impacts on food security and health (moral aspects), and environmental impacts. The lack of a common understanding of these concerns may act as an insurmountable barrier in the search for integrated measures.

³ See WTO documents IP/C/W/368, 370 and 420. Submission 420 refers to “more than 25 communications that have been submitted on the subject to date”. (WTO 2002a, 2002b, 2004)

Finally, a third explanation asserts that the diffusion of basic managerial principles across different agreements and their integration is hampered by their allocative effects (Stokke 2000). Decisions that have allocative implications are the most contentious issues in negotiations and are usually based on fragile systems of interlinked rights and obligations. In many cases, altering this balance in order to reconcile functional overlap may lead to a loss of support for the agreement or require a general re-negotiation.

These explanations, though intuitively appealing, are not readily compatible with commonly applied theories of international relations that understand negotiations as processes of strategic interactions among states. This is mainly due to their conception of the state as unitary actor with broadly uniform and stable preferences (i.e., uniform and stable normative orientations and distributive interests). Consequently, they cannot account for domestic factors, such as variances in the institutions of domestic decision making or the existence of different domestic policy fields that influence international decision making according to their interests and preferences. Explanations based on strategy, differing norms or distributive effects, however, will be much more consistent, if they are rooted in the perceptions, preferences and interests of actor groups that are defined in less generally aggregated categories than the state.

The next section discusses this problem in further detail and derives some basic requisites of an approach that seeks to systematically incorporate domestic determinants of international politics.

2.2 International, Domestic and Cross-Level International Interactions

The discussion so far motivates an analysis of the phenomenon of incoherence due to functional overlap as outcome of at least two types of interactions – the interplay and mutual influence among negotiation processes at the international level of political decision making and the relationship between domestic constituent groups and the negotiators' positions and strategies on the international level. What is the impact of these interactions on the outcomes of international negotiations?

Generally outcomes are legal texts that become binding to those states that ratify a negotiated agreement. Next to the provisions that countries have to implement (substantive aspects), international agreements usually include rules for changing or further developing the substantive aspects of the agreement (procedural aspects), and notions on the future goals and visions that the agreement pursues (symbolic aspects) (Congleton 2001; see also Barrett 1998). Taken together, the negotiation process, and the procedural and symbolic aspects of the agreements

it produces, provide a system of formal and informal rules that constitutes the institutions of international decision making in a given issue area. Apart from the basic principles of negotiation, such as voting rules and conference procedures, the formal rules of the negotiation process are to a large extent changeable to the process itself⁴. This fact is most relevant with regard to agenda setting and decisions about the formation of new agreements as this may have a fundamental impact of the future interplay and overlap among agreements (Young 2002). The initial mandate for negotiations on a new agreement is typically determined by a higher level arena, such as the Food and Agriculture Organization (FAO), the United Nations Environment Programme (UNEP) or the United Nations Commission on Sustainable Development UNCSD that decides to establish a new process. It also determines the status of the new agreement (convention, self standing treaty, protocol) and thereby its autonomy and the control its members have over rule changes.

The substantive aspects are the actual output of negotiations and the problem of functional overlap appears here⁵. The process of negotiations has a significant impact on this output (Barrett 1998), not only because it determines who can participate in the negotiations and what are the time frames for reaching agreement, but also because it affects the possibilities of a negotiating body to react to the outcomes from other arenas. The sequencing of negotiations may exclude linkages between different issues that could lead to a lower degree of incoherence (Rosendal 2003). The interaction among negotiation processes is thus of essential importance for the incidence as well as the reconciliation of functional overlaps.

After an agreement was adopted it has to be ratified by the countries wishing to accede. Once the agreement enters into force, negotiating bodies continue to develop mechanisms and programmes for implementation. The outcome of these subsequent negotiations may – in the case of protocols or additional treaties – or may not be subject to additional ratification procedures. The procedures and requirements for ratification are very different across countries such as majority or qualified majority decisions by one or several bodies of domestic decision making. These requirements determine the amount of domestic support a negotiator needs in order to achieve the ratification of an international agreement at the domestic level. They

⁴ The general principles for the negotiation of international agreements, such as principles of treaty adoption, choice of voting rules, access to negotiations, etc., are laid out in the Vienna Convention on the Law of Treaties (1969). This means that some rules of international negotiations are exogenously fixed, while others are changeable to the process itself, subject to fixed procedures.

therefore have an influence on which constituencies and actor groups can influence the strategy and position of the international level negotiator. These dynamic relationship between international and domestic decision making is the second type of interaction that needs to be included in the framework.

The domestic ratification constraint, and its influence on international negotiations has been first described by Putnam (1988) in the 'Logic of Two-Level Games'. His framework provides a conceptual link between domestic and international decision-making processes and offers a systematic approach to the identification of domestic determinants of international politics. So far applications of the framework have assumed a single international arena in which decisions are taken unaffected by other international processes. The main objective in this paper is to expand the framework to multiple and interacting negotiation processes and to explore the implications for a systematic analysis of the domestic and international determinants of functional overlaps and the politics of incoherence.

3 Explaining International Cooperation

This section briefly reviews the most commonly applied theories that seek to explain the evolution of international environmental cooperation, using rational choice and economic theoretical concepts to derive their conclusions. The theories are similar in their view that the decision making actor takes well informed decisions according to some known preference ranking or utility function. They differ in their assumptions about the nature of the actor and the source of utility that is referred to in order to characterize the motivation of the actor and to find plausible explanations for decisions in different situations. They also vary in their degree of formalization of rational choice arguments. Some use game-theoretic reasoning as heuristic tool for the elaboration of verbal theories – as guide to description, while others use formal models to make logically consistent inferences from a set of explicit assumptions – as guide to the deductive formulation of testable hypotheses (Snidal 2004). The aim of this review is to provide insights into the theoretical challenges that have been encountered in the study of international cooperation and how they have been addressed.

Among the different research fields of international relations, security studies has been the first to use formal rational choice models. Consequently, the work of Richardson on interna-

⁵ Note that agreements frequently provide for interactions of negotiation processes in the form of requests on joint work programmes or the organization of joint conferences. These interactions would fall under Young's definition of operational interplay (Young 2002), which is not taken into account at this point of the discussion.

tional arms races (Richardson 1960), Schelling on the Strategy of Conflict (Schelling 1960) and others are often referred to when formal models for other issues in international relations are to be developed. Schelling was also first to postulate the influence of domestic policies on international decision making, the so called “Schelling conjecture” that domestic constraints improve the bargaining position in international negotiations (Tarat 2001). The economic analysis of international institutions and cooperation was brought forward among others by Keohane who showed that states have an interest in the creation of international institutions that lower the transaction costs of international cooperation (Keohane 1984), Axelrod and his analysis of the effect of different strategies in repeated games on the development of international cooperation (Axelrod 1984), and Oye who showed how international regimes can alter the structure and payoffs of games that are played under the conditions of anarchy (Oye 1986).

The use of game theoretical models to explain international negotiations has also been prominent in research on international environmental cooperation. Three different approaches have developed in this field: Regime Theory, economic theories of international environmental cooperation, and two-level games approaches.

3.1 Regime Theory and the Problem of Cross-Level Inference

In the study of international relations in political sciences systemic concepts that seek to derive explanations from the analysis of the international structure have dominated in the study of the determinants of international stability and cooperation. For the analysis of MEAs the concept of Regime Theory has become one of the most successful approaches currently applied. Regimes are systems of implicit or explicit principles, norms, rules and decision-making procedures, around which actors’ expectations converge in a given issue-area (Krasner 1991). They consist of formal and informal international arrangements, and are a forum for bargaining and information exchange for the development of scientifically grounded and consensually accepted rules and norms to resolve global environmental problems and to ensure the provision of global environmental goods. The central actors of regimes are states that take rational decisions in order to maximize power or wealth. The factors determining the behavior of the individual state origin in the regime structure, which is determined by issue specific international factors, including power relations, relative orientations for action and reputation (Neumayer 2001).

As in many other fields of political sciences researchers on international relations differentiate between levels of analysis from which to seek explanations for international outcomes.

'Level' of analysis can be understood in two different ways: (1) as different possible loci of explanatory factors such as the individual, domestic and international levels; or (2) as different social entities or aggregates of actors (Ray 2001)⁶. There has been an extensive debate about the specific insights that can be expected from the analysis of factors from different systemic loci (domestic or international level) and in what ways the different levels influence each other. In international relations the debate has centered around two alternative viewpoints. One being that the structure of the international system alone determines state behavior in foreign politics (international explanations), while the other claims that state behavior does not respond to the international system, but constitutes it (domestic explanations) (Moravcsik 1993).

The separation of international from domestic explanations is motivated by problems that arise when data from different levels of analysis is aggregated for analysis. Relationships found on one level do not necessarily hold on other levels of analysis even if data on the same variables was gathered and analyzed in the same way. This problem of aggregation bias can, for example, lead to a distorted representation of the preferences of a coalition of countries if a few countries strongly oppose a proposal that receives support from most of the group members. The negotiating position of the group will reflect mainly opposition and not reveal the differentiated preferences of the supporting majority of its members (Sprinz 2000).

Such problems of fallacy in cross-level inference have led analysts to concentrate on one single level of analysis. In the past, approaches based on international explanations have dominated in the area of international relations. For the purpose of systemic analysis the domestic level factors are treated as constants. It is assumed that (1) states are unitary actors that respond to external incentives; (2) states have stable and broadly similar domestic preferences; (3) states have stable and broadly similar decision-making procedures; and (4) states have stable and broadly similar abilities to extract resources from society. In many cases the restrictiveness of these assumptions, however, "leads to a degeneration of pure international theories under the collective weight of empirical anomalies and theoretical limitations into explanations that include domestic factors." (Moravcsik 1993: 14) Domestic variables are introduced by relaxing any of the fundamental constraints in order to account for 'residual variance' in the explanations of international systemic theory. Such a practice however, "tends to encourage ad hoc interpretations rather than explicit theories about the interaction

⁶ The different definitions have implications on the integration of levels of analysis. The discussion here focuses on the problem of integrating explanatory factors from different loci.

between domestic and international politics. [...] the analyst is left without guidance about which domestic influences to emphasize”(Moravcsik 1993: 14).

The problems of cross-level inference have therefore hampered the development of analytical approaches that systematically combine explanatory factors from different levels of analysis. Yet, such a systematic approach is needed in order to account for variations in domestic constraints between negotiators of different countries as well as in different policy fields.

These variations may be related to differing preferences of domestic-level constituent groups, and depend on a groups' affectedness by the problem. Furthermore it is important to account for the influence of domestic institutions of political decision-making. These may or may not adequately represent the interests of the majority of the constituency. Relaxing the fundamental assumptions, will reduce the deductive power of systemic reasoning and lead to conclusions that can hardly be generalized and tested for a broad number of cases (Snidal 2004).

An alternative solution that has been proposed is to make simplifying assumptions about the leaders of states or their representatives rather than the state as an aggregate unit of analysis. Assuming that the highest priority for leaders of states is to stay in power (De Mesquita 2002), facilitates the integration of causal factors pertaining to different 'levels of analysis', at least for those who see such levels as referring by definition primarily to the locus of explanatory factors. It provides a basis to combine explanatory factors in a logically consistent and theoretically coherent fashion (Ray 2001).

Turning towards the state leader or his or her representatives, however raises another problem related to the issues of levels of analysis – that of the adequate level of theoretic rigor. This is especially relevant when it comes to the application of formal models as means of theoretic inference. Game theoretic modeling is applied by both, international relations theory and economic theories of international cooperation.

3.2 Economic Theories of International Cooperation – The Frontiers of Formal Game-theoretic Reasoning

In economics the analysis of international environmental cooperation has focused primarily on the study of the conditions and determinants of self-enforcing and re-negotiation-proof agreements (Barrett 1999; Helm 2000; Neumayer 2001). These conditions are derived from the characterization of international cooperation as “cooperation under anarchy” (Oye 1986) referring to the lack of an enforcing supra-national agency. States are assumed to be unitary,

utility maximizing actors that decide rationally, taking into account all available information. Through the negotiation of mutually beneficial agreements, they seek to achieve gains from cooperation, which is the driving force for international cooperation (Neumayer 2001). In order to develop game-theoretical models of state behavior that can be put to empirical testing, it is further assumed that all aspects of costs and benefits can be represented in a utility function, such that the actors are faced with a well-specified payoff matrix. In this way economists have been able to derive many fruitful conclusions about problems of free-riding, strategic incentives, side payments, and leakage effects in international environmental cooperation (Barrett 1994; Helm 1998). Economic models have also been used to investigate conditions such as fair burden sharing, scientific uncertainty and dynamic and iterated interactions (Helm 2000).

If the focus of analysis is to be shifted from the behavior of the state to that of the state leader or representative to account for variations in domestic constraints, economic theories encounter a similar problem as systemic theories of international relations. Changing the fundamental assumptions of the theory in order to incorporate domestic level factors has much more far reaching implications for the use of formal than for verbal theory. In Regime Theory game theoretic models are frequently used to illustrate the structure of a problem and as a heuristic tool to guide the search for new explanations. This ‘metaphorical’ use of game theory that seeks to establish correspondences between the international political system and, for example, firms in an oligopolistic market is fundamentally different from the development of a formal deductive structure plus an interpretation of the fundamental assumptions and theoretical constructs that provide for a greater richness of explanation (Snidal 1986). Snidal argues that the metaphorical use of game theory restricts its explanatory power to descriptive rather than analytical uses.

Too many “applications” of game theory have merely been in the spirit of sorting out whether the Cuban missile crisis was really a Chicken or a Prisoners’ Dilemma. Such usage may be helpful for reconstructing and interpreting particular events, but it misinterprets the primary value of game theory as that of re-describing the world, and is therefore limited as a test of game theory. (Snidal 1986: 26).

As a formal deductive structure, economic theories of international environmental cooperation make assumptions about the key elements of game theoretical explanations (actors, rules, payoffs, timeliness). These define and restrict the range from which explanatory variables can be chosen. While this limits the usefulness of game models as heuristic guideline to stimulate exploration and discovery their deductive power allows to move beyond descriptions to infer-

ences from the assumptions. Formal models help to test the logical consistency of an argument, locate its errors or specify the conditions under which it holds (De Mesquita and Morrow 1999; Snidal 2004). Changing the basic conception of states as unitary and self-interested actors that take rational decisions according to their preferences does not make formal analysis impossible. Yet the development of a consistent and robust deductive structure that accommodates the wealth of existing descriptive arguments and empirical observations requires careful step by step analysis and testing. Consequently the application of game theory is not necessarily restricted to metaphorical uses, but taking the complexity of the interactions into account, it has to be carefully evaluated what level of theoretical rigor can be expected from an approach that alters the fundamental assumptions of the theoretical framework.

In summary, a systematic framework that aims at the analysis of incoherence due to functional overlap among international agreements has to take interactions among different negotiation processes on the international level into account, as well as variances in domestic constraints of the negotiating actors. This requires the combination of explanatory factors from two levels of analysis, the international system and domestic level decision making. The integration of these levels can be done consistently only by changing the focus of the analysis towards the behavior of the negotiating statesman and making assumptions about his or her priorities, rather than the characteristics of states. These changes alter the deductive structure of economic theories in international relations implying challenges for rigorous game-theoretic reasoning and the general validity of insights that can be expected from it.

4 International Negotiations as Nested Games on Two-Levels of Decision Making

4.1 The Metaphor of Two-Level Games

The first step to develop a conceptual framework for the analysis of the behavior of individual statesmen or negotiators to explain the outcome of international negotiations was made by Putnam in the 'Logic of Two-Level Games' (Putnam 1988). Putnam views the negotiating statesman as an individual who seeks to maximize his payoffs in two simultaneous and interdependent games on the domestic and international levels:

At the national level, domestic groups pursue their interests by pressuring the government to adopt favorable policies and politicians seek power by constructing coalitions among those groups. At the interna-

tional level, national governments seek to maximize their own ability to satisfy domestic pressures, while minimizing the adverse consequences of foreign developments” (Putnam 1988: 436).

The payoffs of the statesman are determined by the effects of a given decision on the politicians’ domestic power, the effect on the realization of the states’ interests on the international level and by the realization of the private preferences of the statesman. The set of feasible decisions that the statesman can negotiate (win-set) is constrained on the domestic level to the options the constituency will ratify. In the international arena the statesman must bargain with his opponents for solutions that lie in the overlap of his own and his opponents’ win-sets. Within this set of negotiable and ratifiable solutions the statesman possesses partial autonomy to negotiate. (Figure 1)

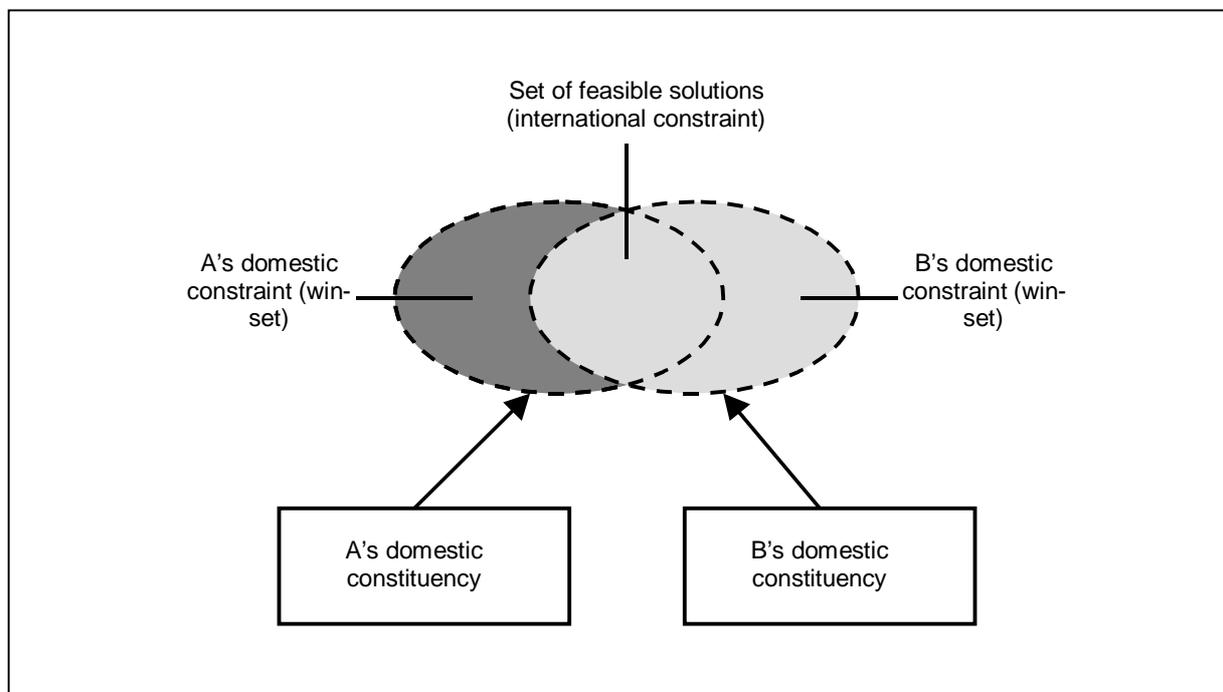


Figure 1: The concept of win-sets in two-level games

Source: Compiled by the author

The win-set is the conceptual link between the domestic and international determinants of the negotiators’ behavior. Putnam mentions three sets of factors that determine the size of the win-set (Putnam 1988: 443):

- The distribution of power, preferences and possible coalitions among Level II (domestic level) constituents: The size of the win-set depends on the cost of no-agreement (the benefit foregone of maintaining the status quo) of those groups and coalitions that support the statesman (political parties, labor unions, environmental associations, etc.). The lower this

cost, the more skeptical will they be about international solutions and thus, the smaller will be the win-set of the negotiator.

- The size of the domestic win-set depends on the Level II political institutions: These are the domestic ratification procedures and institutional factors that increase or decrease the likeliness of ratification. The win-set is larger if the majority necessary for ratification is weaker (a simple majority requires less support than a two-thirds majority). Other factors such as coalition or single party governments, political discipline within the governing party, or the general autonomy of the government from domestic pressures affect the win-set as well.
- The size of the win-set depends on the strategies of the Level I negotiator. If a negotiator has a large win-set it will be easy to conclude an agreement, but the bargaining position is stronger if the win-set is small. Therefore, the negotiator has an interest in applying strategies to influence the own or the opponents' win-set, such as increasing the popularity of the opponent at home, international side-payments or the choice of the chief negotiator.

The two-level games approach allows to focus on the interactions between national and international politics and accounts for the influence of the political economy of domestic level decision making on international outcomes. It also differs from Regime Theory and economic theories of international cooperation in its focus on the statesman as central strategic actor (Moravcsik 1993). It thereby allows to integrate different levels of a analysis as loci of explanatory factors to systematically explore the relationship between domestic and international constraints to decision making.

4.2 Nested Games

In order to integrate interactions between different international processes the two-level games framework has to be expanded. This can be done by embedding it into the broader conception of 'Nested Games' (Tsebelis 1990).

The intention of the nested games framework is to provide an empirically accurate and theoretically coherent account of apparently sub-optimal choices – cases where an actor, confronted with a series of choices, does not pick the alternative that appears to be best. Such behavior can be puzzling because it seems to violate the assumption that actors are rational and seek to make choices that maximize their benefits. Contrary to many scholars who explain the existence of sub-optimal choices through the introduction of limitations to the ac-

tors’ rationality (bounded rationality), Tsebelis argues that cases of apparently sub-optimal choice “are in fact cases of disagreement between the perspectives of the actor and the observer” (Tsebelis 1990: 7). This means that the observer is not able to see that the actor may have taken the impact of his or her actions on other decisions into account. The actor is involved in a whole network of games. “What appears sub-optimal from the perspective of only one game is in fact optimal when the whole network of games is considered” (Tsebelis 1990: 7).

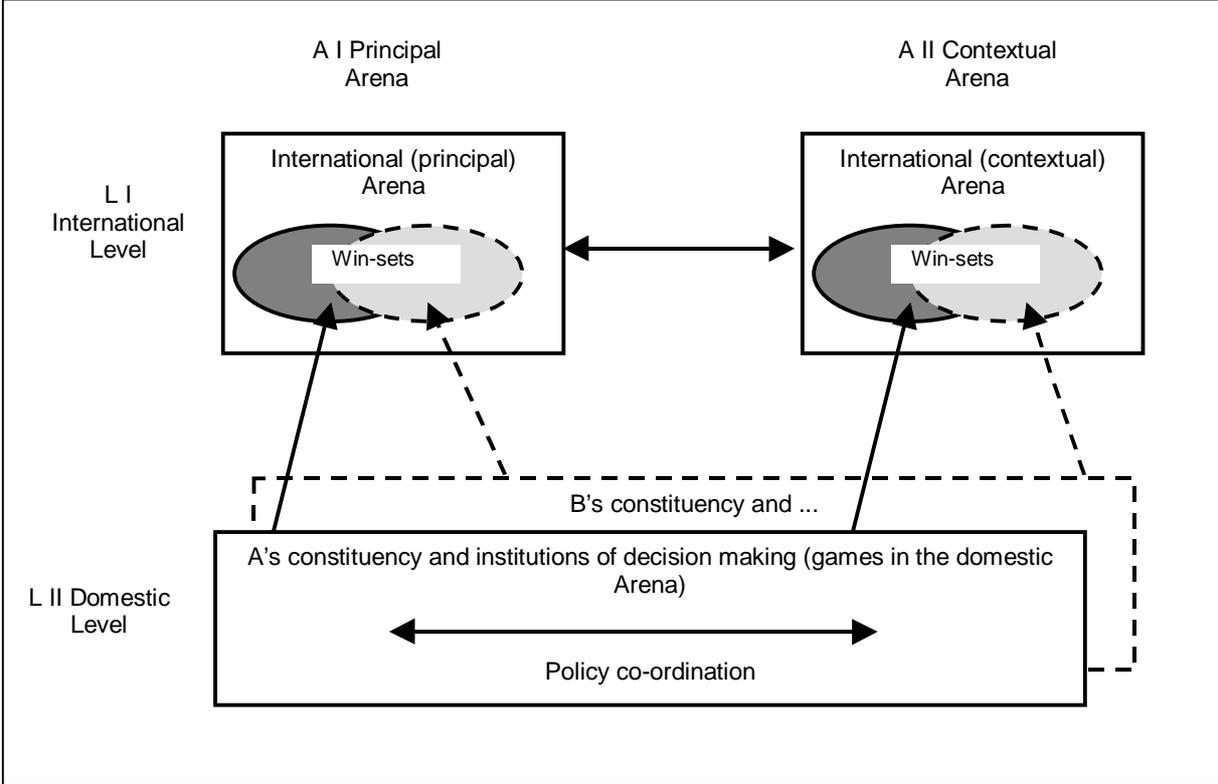


Figure 2: Graphic representation of nested games over two levels

Source: compiled by the author

This explanation implies that the range of analysis must be expanded to cover the whole network of games that an actor may be considering in order to broaden the perspective of the observer and allow for a better understanding of the actors’ choice. The games in this network are differentiated into games in the principal arena (the decisions that the observer wants to explain) and games in other arenas (related decisions that the actor may have taken into account).

4.3 International Interactions

Figure 2 depicts how the games of international politics can be nested over two levels of decision making. The vertical arrows represent the interactions between international and domestic processes of decision making. These are the two-level games in Putnam's sense. The interactions among different international negotiation processes are represented by the upper horizontal arrow. These interactions include all possible influences that one negotiation process may have on the outcome of another, including formal messages conveyed to another process through decisions or secretariat notes, informal communications among delegates, and – what may be of most importance – direct or indirect influences on the positions and negotiation strategies of negotiators in another arena. The latter point refers to the extent to which negotiators take the existing or anticipated outcomes in other arenas into account for their own negotiations. If these interactions lead to a change in the outcome, they can in most cases easily be identified in the final decision text.

This is the case for example in the way the CBD has addressed anticipated conflicts with the TRIPs agreement in the area of access and benefits sharing with regard to genetic resources. The inclusion of an article in the convention text specifying that IPR systems “should not run counter to the objectives of the CBD” (Article 16.5) can be seen as direct response to what was being negotiated in the Uruguay Round under the TRIPs agreement (Rosendal 2003). Similarly the CBD Conference of the Parties has repeatedly asked to examine the relationship between CBD and TRIPs⁷. In response to these decisions several investigations of the relationship and aspects of functional overlap and potential conflicts were carried out showing that negotiators of a significant group of countries are well aware of these aspects (WTO 2002a).

The detection of the influence is more difficult if no explicit references are made to other agreements or negotiating forums. In this case it is not clear whether the absence of official references is due to a lack of general awareness, or to the fact that no consensus could be reached. Independent of the content of references in the outcome, it is of interest to study the motivation of the parties that push for, or oppose to, explicit reference in order to trace the interests they are pursuing. Are these interests in support of the objectives of the agreement at stake? Can they be related to goals that are in the jurisdiction of other agreements or are they supporting the exclusive interests of a particular actor group that seeks to exploit international cooperation to its own ends?

4.4 Domestic Interactions

Two types of domestic interactions and their influence on international decision making are important in order to understand the motivations of the negotiators. On the one hand, the direct relationship between the negotiator and the constituents affected by one particular agreement requires attention. How do environmentalist groups influence policy strategies at the CBD, and how do opposing groups express their concerns? However, of equal importance is the relationship between the policy fields corresponding to overlapping agreements. Are these fields integrated or separated? Separated fields are likely if the responsibility and authority for agreements is born entirely with different ministries. If these ministries are controlled by different factions of a government (e.g., a division of responsibilities in a two-party coalition government) the separation may be even more pronounced⁸. The separation of policy fields is likely to be reduced through coordinating mechanisms, such as a guiding function of the foreign affairs department or an inter-ministerial committee.

Separated policy fields on the domestic level would offer an explanation for non-aligned positions of a country in different negotiation forums, if these differences arise out of differentiated norms and principles that prevail in the policy field across different levels of domestic decision making. Individuals within one policy field are interacting more closely with members of the same policy field in other countries than across policy fields at home. Similarly, a separation on the political level can lead to strong specialized links between affected constituent groups and 'their' negotiators. This would also make an explanation based on distributive structures more plausible.

If inconsistencies are due to strategic considerations, however, one would expect a higher degree of policy integration, strong control by the government over foreign policy development, or at least a sophisticated mechanism for policy coordination. Strategic exploitation of functional overlap requires advanced structures of information processing, coordinated policy development and a high degree of control by those actors who seek to benefit from such efforts. The extent of integration and coordination among policy fields is likely to be one of the key domestic determinants of international policy making. Nevertheless, it is difficult to establish a clear relationship because the motives of the decision makers may be ambiguous.

⁷ See Decisions IV/15, VI/20 and VII/26 of the Conference of the Parties to the CBD (CBD 1998, 2002, 2004)

⁸ For example, environmental issues may be dealt with by a green party while economic policy is under the authority of a social democrat or conservative party, a scenario resembling the current situation in Germany.

This very brief discussion of domestic interactions shows, that the identification of domestic games that serve as explanation for international incoherence will be a difficult undertaking. The mere analysis of domestic policy coordination and constituent group influence is unlikely to lead to explanations that are univocal. The task is therefore to enrich this framework with theoretical arguments that allow to derive empirically testable hypotheses on the influence of clearly definable characteristics of the institutions and processes of domestic level decision making on international politics.

4.5 Differentiating Games

One way to move forward on this challenge is to identify the situations in which rigorous game-theoretical analysis is useful and under which conditions its conclusions will be meaningful. This section seeks to develop some propositions for the differentiation of interactions according to a typology of games to which different theoretical methods can be applied.

As was mentioned above, the shift from states to individual negotiators as unit of theoretical analysis raises the question of the usefulness of formalized models of negotiator behavior. Tsebelis conceptualizes two types of nested games that may serve as a step in exploring the nature of the games we are likely to encounter along the arrows in the framework – games in multiple arenas and games in institutional design (Tsebelis 1990: 8):

- *Games in multiple arenas* are games, in which the *payoffs* in the principal arena are contingent on the actors' choice in one or more other arenas. In this case the observer may not be aware that the actor is maximizing benefits over several games. Variations of the payoffs in the principle arena are determined by events in the other arenas. Games in multiple arenas provide a tool to take the contextual factors of a decision into account.
- *Games in institutional design* are games in which the *rules* of the game are contingent on the actors' choice in another arena. Here the actor is involved in a higher order game where choices between different games (different sets of rules in the principal arena) can be made. The rules of the game are variable and the actor may be able to choose a previously unavailable option. Games in institutional design provide a tool to interpret institutional change as conscious planning by the actors involved.

The advantage of the nested games approach is, that it allows to differentiate between contextual factors of decisions and processes of institutional change. Games in institutional design expand the observers' perspective over longer time horizons, while games in multiple arenas

broaden the view over contextual games. Tsebelis develops a full theoretical treatment of games in multiple arenas that can be used to analyze the effects of different interdependencies among games, how these alter the payoffs in the principal arena and what their effect is on the outcome of the game. It allows to analyze scenarios of contingent strategies and iterated games under different assumptions with regard to available information, game sequence and structure, using the backward induction argument and the criterion of subgame perfectness (see for example Morrow 1994).

Such a complete theoretical treatment is not possible for games in institutional design, as “institutional change by definition involves political innovation, and it is difficult (if not impossible) to know its rules” (Tsebelis 1990: 10). But the approach does allow to explore processes of institutional design, and to develop a verbal analysis of the conditions under which they are likely to occur. If it is possible to distinguish the two types of games in the framework in Figure 2 each can be approached using the appropriate theoretical rigor. Applying the concepts of two-level games and nested games to the situation of international negotiations allows to derive several basic propositions to support this endeavor. If we adopt Tsebelis’ premise that games can only vary in payoffs, or in rules (with rules comprising the actors of the game, their available strategies and information, and the sequencing of moves) and its implication that games in multiple arenas and games in institutional design are mutually exclusive (Tsebelis 1990: 93) we can state the following:

The rules that guide and restrict the interactions among states during negotiations are either fixed or subject to change by the decision of the members of the negotiating body. Actors outside of the negotiation process cannot change the rules. Therefore, the interactions among different international arenas are exclusively games in multiple arenas. (Proposition 1)

Furthermore, recalling Putnam’s conception of the win-set as conceptual link between the domestic and the international negotiation game, we can propose that influences that can be explained as effects of changes in the size of the win-set can also be exclusively understood as games in multiple arenas. This is because of the two main implications that Putnam postulates (Putnam 1988: 441):

- The size of the Level II win-set determines the probability of reaching a Level I agreement, while the overlap between the win-sets of different negotiators determines the area of possible consensus (i.e., the total possible gains from cooperation). Together these two effects determine the expected payoffs of the game.

- The relative size of a negotiators' win-set determines the distribution of the joint gains from the international bargain. A small domestic win-set is a bargaining advantage because the negotiator can demand higher concessions in order to ensure domestic ratification. Therefore, the win-set influences the relative size of the payoffs of the domestic game.

These implications constitute that:

The interdependencies between games in domestic and international arenas that can be explained as effects of the size of the win-set are also exclusively games in multiple arenas for a given win-set. (Proposition 2)

Differentiating the strategies the negotiator can apply in order to influence the size of the win-set is a bit trickier. For example, the negotiator can try to enlarge the win-set by influencing the preferences and coalitions among the constituency or by changing the rules of the ratification process (e.g., by changing the necessary majority rule). Both activities will alter the size of the win-set and eventually lead to similar results but their character as nested game is different. Similarly the negotiator could try to move towards a procedural decision in the current agreement to alter the decision rules in a future round of negotiations. On both levels, changes in procedures and rules are likely to postpone the decision at hand, which points towards the long time horizons associated with games in institutional design. However, there may be many other reasons for the postponing of decisions that can lead to changes in payoffs as well. If the negotiator tries to win the support of domestic constituency groups on the other hand a frequent means would be side payments. These side payments could have the character of direct compensations or subsidies, in which case they are rather easy to detect. But they can also take other forms, entangled with concessions in other policy fields, that may be difficult to clearly relate to the effects on the negotiators win-set. Nevertheless, it could be precisely those deals across domestic policy fields that in some cases are responsible for inconsistent behavior of a countries' negotiators at different forums. As noted above, the framework needs to account for the possibility of complex linkages between domestic policy fields, including the occurrence of strategies that have mixed characteristics of games in multiple arenas and games in institutional change.

Referring to the premise above, that games in multiple arenas and games in institutional design are the only and mutually exclusive types of variations in game configuration we can structure the remaining interactions somewhat with this last proposition:

Games with strategies that alter the size of the win-set vary either in rules or in payoffs. Long time horizons are an indication, but not a proof, of changes in rules (games in institutional design) while the existence of side-payments indicates changes in payoffs

tutional design) while the existence of side-payments indicates changes in payoffs (games in multiple arenas. (Proposition 3)

While this last proposition is admittedly vague it may nevertheless be useful in guiding the search for explanations. Other indicators for different strategies may become available in the course of research. For instance, a detailed analysis of position statements during negotiations is likely to reveal when the negotiator focuses at changes in the substantive outcome (altering payoffs) or procedural aspects (altering rules).

Taken together the three propositions allow to differentiate interactions as games in multiple arenas (GMA) or games in institutional design (GID). Figure 3

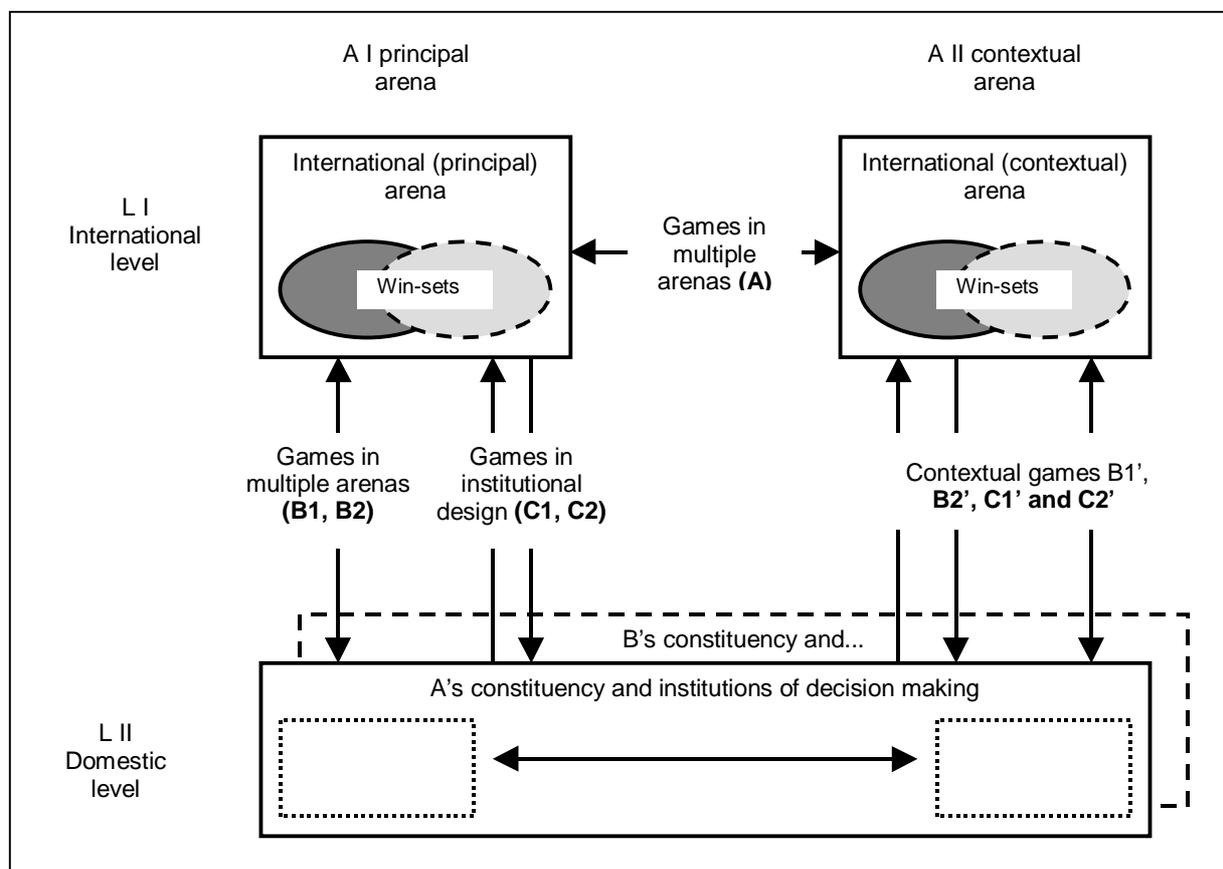


Figure 3: The framework with differentiated games.

Source: compiled by the author

As stated by proposition 1 there is only one type of international games, represented by arrow A. As interactions between the international and domestic levels we are likely to find up to four types of games that, next to their character, can be further differentiated according to the elements that can be assumed fixed or variable. According to proposition 2, a fixed win-set, and fixed rules in both arenas allow us to interpret an interaction as game in multiple arenas.

The negotiator maximizes payoffs over games in both arenas (B1). If the win-set is variable and we observe side payments or log-rolling on the domestic (international) level we can assert that the negotiator aims at improving domestic (international) support. In doing so the negotiator can not only ‘buy’ domestic support to improve the chances of concluding an agreement on the international level, but also exploit international pressure to facilitate domestic policy moves that were otherwise infeasible internally (Putnam 1988: 457). Through the application of such strategies the negotiator can broaden the range for autonomous decisions on international or domestic policies according to his or her private preferences⁹. Furthermore, there are two possible games in institutional design (C1 and C2) in which the win-sets are flexible and the payoffs in both arenas are assumed to be fixed in order to allow for the consideration of variations in the rules of the game¹⁰. The negotiator can try to alter domestic rules (e.g., ratification procedures – C1) or international rules (postponing of a decision or changing the agenda, etc. – C2).

Table 1: Possible Game Constellations

	Principal Arena	Contextual Arena	Win set	Rules	Payoffs	Indicators
International GMA (A)	international	international	fixed	fixed	variable	partial autonomy of the negotiator
Two-level GMA (B1)						
Two-level GMA (B2)					I: fixed D: variable	side payments
Domestic GID (C1)	international	domestic	variable	I: fixed D: variable	fixed	Long time horizons
International GID (C2)				I: variable D: fixed		procedure rather than substance

Explanation:

- Payoffs are payoffs to the negotiating statesman in the arenas under consideration
- GMA = Games in Multiple Arenas
- GID = Games in Institutional Design

Source: compiled by the author

⁹ This implies that the assumption that the highest priority of state leaders is to stay in power, needs to be treated with care, particularly if the negotiator is a delegate whose interests may differ substantially from those of the statesman. Negotiator Selection may lead to principal-agent problems between the state leader (the government in power) and the negotiator, if the negotiator’s well being does not depend on international-level outcomes.

¹⁰ Note that the assumption of fixed payoffs refers only to the considered time period. As noted earlier, games in institutional design seek to explain the inter-temporal maximization of payoffs. That means that in the long run payoffs are flexible in at least one of the arenas.

According to the propositions these are the exhaustive game constellations that occur in interactions on the international level and between domestic and international decision making. If domestic policy fields are separated there will be additional sub-games of policy coordination on the domestic level. These could be represented by a number of additional horizontal interactions between political actors and constituent groups of different policy fields. A strong separation of domestic policy-fields will make the two-level games of a country appear as separate and independent interactions (two boxes on the domestic level), while closely coordinated policy fields would be better represented by a single box.

What will be the impact of separated or integrated domestic policy fields on a countries' strategy on the international level? From this framework one can hypothesize that countries with separated policy fields will be less aware of inconsistencies in their international positions and less likely to see the need for reconciliation. This would support explanations for functional overlap and incoherence based on different normative principles and distributive effects of international agreements, as both effects are likely to be more pronounced if interactions among the relevant groups are limited. Regarding the negotiators' ability to strategically exploit functional overlaps on the international level it would be necessary to analyze the impact of separated policy fields on the payoff structure in the vertical two-level games. How are the negotiators' domestic payoffs affected by the horizontal interactions between domestic policy fields?

The following section discusses some formal models of two-level games that could serve as a basis to explore this question. Such analysis will nevertheless be of limited use if we are confronted with games in institutional design, which are most likely to occur in conjunction or close connection with any game in multiple arenas we can observe. This parallel occurrence of the two game types limits the explanatory power of models that capture only the aspects of games in multiple arenas.

4.6 Formal Models of Two-Level Games

Since the publication of Putnam's article some efforts have been made to develop formal models of two-level games. Most of this work focuses on the elaboration of a proof of the conjecture that a small win-set is a bargaining advantage for the negotiator on the international level. Iida (1993) finds that a domestic constraint on one side can be a advantageous if the constraint is very high and if the negotiator is patient; Mo (1994) analyses the influence of (veto-) power distribution among domestic constituents on the bargaining advantage; and Milner and Rosendorff (1997) show that elections can reduce the executives influence on

other negotiators if they lead to greater government division. In an extension of Iida's model, Tarar (2001) discusses the implications if both negotiators are constrained by their domestic constituents, finding that a high constraint can benefit the negotiator who moves second in making a proposal, but that the advantage is dependent on the availability of information on each others constraints.

Several articles use estimations of the relative size of win-sets to explain the ratification of particular treaties. Koenig and Hug (2000) for example analyze the win-sets of the twelve EU-members under their respective domestic decision rules in the ratification of the Maastricht Treaty, using spatial solution concepts. They show that there is a significant relationship between a governments' policy positions and its political institutions. If international agreements have important domestic implications the survival of governments can be threatened by the proposition of an international treaty, particularly if the approval requirement for ratification is higher than the majority needed for government formation (qualified majorities or referendums).

Finally, Milner (1997) develops a full theory of domestic influences on international negotiations that shows under which conditions domestic politics matter and which domestic actors influence the terms of the international agreement. She analyses different scenarios of domestic power sharing and asymmetric information between the executive and the legislative as well as the role of interest groups. These act as endorsers who can supply necessary information about a proposed agreement to the legislative. Her findings include: power sharing and divided government make international cooperation less likely, the impact of the legislative on an agreement depends on the preference structures of domestic actors and institutions of power sharing, asymmetric information can under some conditions improve the prospects for international cooperation, and interest groups play a crucial role as endorsers of agreements who can assist the legislative in reducing uncertainty about the agreement at hand. Milner also argues that domestic actors have an interest in changing the institutions that determine power sharing, particularly ratification procedures, in order to increase their influence over the terms of an agreement or their power to prevent its ratification otherwise. These strategies lead to issue specific ratification procedures, pushed for by different central actors. Her analysis suggests the differentiation between games in multiple arenas and games in institutional change made here. It provides a bases for determining under which conditions actors have an incentive to engage in either type of strategic behavior. Furthermore, the notion of issue specific ratification procedures points towards a potential cause of incoherence in international governance due to functional overlap. If negotiations in one issue area are dominated by execu-

tive and the other by legislative preferences, the outcome may be contradicting. This tendency is re-enforced by institutions for ratification that further strengthen the position of the dominating actor, as well as the political influence of the respective interest groups.

These models of two-level games in international negotiations provide a useful basis for the development of a theoretical approach to the explanation of incoherence due to functional overlap. While the development of a general theory is still at an early stage, many useful insights can be gained through the exploration of different scenarios building on the findings that have been derived so far.

5 Summary and Discussion

The phenomenon of incoherence in international governance due to functional overlaps among different international agreements represents a difficult challenge to theories of international relations. In this paper, I have argued that the determinants of such incoherence, particularly its long-term persistence, can only be understood by means of a systematic analysis of interactions among international negotiating arenas and corresponding domestic policy making fields, respectively. The first theoretical challenge, the aggregation of factors from different levels of analysis, can be overcome by a two-level games approach that shifts the focus of attention to the behavior of the negotiating actor rather than that of states. This shift, however, changes the fundamental assumptions of existing systemic and economic theories of international cooperation and requires the development of an adjusted deductive structure for the development of testable hypotheses. The development of formal tools to model the relevant international and domestic interactions is further complicated by the phenomenon of intended institutional change. Due to its complex and long term nature, the behavior of actors engaged in games in institutional design may not be fully explicable as rational decisions, even in the context of well specified networks of nested games.

The framework presented here attempts to provide a first step towards structuring the wealth of empirical observations and allowing systematic analysis of the phenomenon of incoherence. It allows to characterize and categorize the vast number of interactions by identifying their principal and contextual arenas and the variability of win-sets, rules and payoffs. This typology allows a broad classification of the relevant interactions according to their characteristics as games in multiple arenas (games with variable payoffs) and games in institutional design (games with variable rules). For interactions of mixed or ambiguous character, the discussion has shown that long time horizons and a concentration on procedural rather

than substantial matters can, but do not have to, indicate strategies that aim at changing the institutional structure. For games in multiple arenas some formal two-level game models are available for rigorous theoretical analysis of negotiator behavior in international arenas. The challenge is to expand these models to adequately account for the existence of different international arenas with functional overlaps. These considerations furthermore point towards the role of coordination among domestic policy fields as one possible factor that may be responsible for inconsistencies or lack of awareness in a countries international positions. With these elements the framework can be a useful guide in the development of a more systematic and complete approach to the analysis of institutional interaction in international policy making and governance, particularly for the investigation of inefficiencies due to incomplete and contradicting provisions in areas affected by functional overlap.

In this way it might lead the way to a more general theory that accommodates existing explanations from descriptive analysis, namely those that construe incoherence as a result of differentiating norms and principles, distributive structures or strategic exploitation of overlaps in the interest of particular political or constituent actor groups.

References

- Axelrod, Robert (1984). *The Evolution of Cooperation*. New York, Basic Books.
- Barrett, Scott A. (1994). Self-Enforcing International Environmental Agreements. *Oxford Economic Papers* 46 (Special Issue on Environmental Economics): 878-894.
- Barrett, Scott A. (1998). On the Theory and Diplomacy of Environmental Treaty-Making. *Environmental and Resource Economics* 11((3-4)): 317-333.
- Barrett, Scott A. (1999). A Theory of Full International Cooperation. *Journal of Theoretical Politics* 11(4): 519-541.
- Carvalho, Nuno P. de (2000). Requiring Disclosure of the Origin of Genetic Resources and Prior Informed Consent in Patent Applications Without Infringing The TRIPS Agreement: The Problem and The Solution. *Washington University Journal of Law and Policy* 2000(2): 371-403.
- Convention on Biological Diversity (CBD)*. United Nations Conference on Environment and Development, Rio de Janeiro, 2-14 June, 1992.
- Congleton, Roger D. (2001). Governing the Global Environmental Commons: The Political Economy of International Environmental Treaties and Institutions. In: G. Schulze and G. Ursprung (eds.), *Globalization and the Environment*. New York: Oxford University Press.
- De Mesquita, B. B. (2002). Domestic Politics and International Relations. *International Studies Quarterly* 46(1): 1-9.

- De Mesquita, B. B. and J. D. Morrow (1999). Sorting Through the Wealth of Notions. *International Security* 24(2): 56-73.
- Dutfield, Graham (1999). Sharing the Benefits of Biodiversity: Access Regimes and Intellectual Property Rights. Science, Technology and Development. Paper No. 6. Cambridge, MA, USA, Harvard University. Center for International Development and Belfer Center for Science and International Affairs.
- Gadgil, Madhav and Ghatge Utkarsh (1999). IPR and Agricultural Technology: Linking the Micro- and the Macro- Scales. *Indian Journal of Agricultural Economics* 54(3): 327-341.
- Gehring, Thomas (1994). *Dynamic International Regimes: Institutions for International Environmental Governance*. Frankfurt/M, Germany, Europäischer Verlag der Wissenschaften. Studies of the Environmental Law Network International.
- Gehring, Thomas and Sebastian Oberthür (1997). Internationale Regime als Steuerungsinstrumente der Umweltpolitik. In: T. Gehring and S. Oberthür (eds.), *Internationale Umweltschutz durch Verhandlungen und Verträge*. Opladen, Germany: Leske und Budrich. 9-26.
- Helm, Carsten (1998). International Cooperation Behind the Veil of Uncertainty: The Case of Transboundary Acidification. *Environmental and Resource Economics* 12: 185-201.
- Helm, Carsten (2000). *Economic Theories of International Environmental Cooperation*. Northampton, Massachusetts, Edward Elgar. New Horizons in Environmental Economics.
- Iida, K. (1993). When and How do Domestic Constraints Matter? Uncertainty in International Relations. *Journal of Conflict Resolution* 37(3): 403-426.
- Keohane, R. O. (1984). *After Hegemony: Cooperation and Discord in the World Political Economy*. Princeton, Princeton University Press.
- Koenig, T. and S. Hug (2000). Ratifying Maastricht - Parliamentary Votes on International Treaties and Theoretical Solution Concepts. *European Union Politics* 1(1): 93-124.
- Krasner, Stephen D. (1991). *International Regimes*. Ithaca, New York, Cornell University Press. Cornell Studies in Political Economy.
- Milner, Helen V. (1997). *Interests, Institutions and Information: Domestic Politics and International Relations*. Princeton, Princeton University Press.
- Milner, H. V. and B. P. Rosendorff (1997). Democratic Politics and International Trade Negotiations - Elections and Divided Government as Constraints on Trade Liberalization. *Journal of Conflict Resolution* 41(1): 117-146.
- Mo, J. R. (1994). The Logic of 2-Level Games With Endogenous Domestic Coalitions. *Journal of Conflict Resolution* 38(3): 402-422.
- Moravcsik, Andrew (1993). Integrating International and Domestic Theories of International Bargaining. In: P.B. Evans, H.K. Jacobson, and R.D. Putnam (eds.), *Double-edged Diplomacy: International Bargaining and Domestic Politics*. London, England: University of California Press, Ltd. 3-42.
- Morrow, J. D. (1994). *Game Theory for Political Scientists*. Princeton, Princeton University Press.

- Neumayer, Eric (2001). How Regime Theory and the Economic Theory of International Environmental Cooperation Can Learn from Each Other. *Global Environmental Politics* 1(1): 122-147.
- Oye, Kenneth A. (1986). Explaining Cooperation under Anarchy: Hypotheses and Strategies. In: K.A. Oye (ed.), *Cooperation under Anarchy*. Oxford: Princeton University Press. 1-24.
- Prakash, Siddharta (2000). WTO Rules: Do they Conserve or Threaten Biodiversity? *The Journal of World Intellectual Property* 3(1): 155-165.
- Putnam, Robert D. (1988). Diplomacy and Domestic Politics: the Logic of Two-Level Games. *International Organization* 42: 427-460.
- Ray, J. L. (2001). Integrating Levels of Analysis in World Politics. *Journal of Theoretical Politics* 13(4): 355-388.
- Richardson, Lewis F. (1960). *Arms and Insecurity*. Pittsburgh, Boxwood Press.
- Rosendal, Kirstin G. (1999). Biodiversity: Between Diverse International Arenas. In: H.O. Bergesen, G. Garmann, and R.B. Thommessen (eds.), *Yearbook of International Cooperation on Environment and Development 1999/2000*. London: Earthscan.
- Rosendal, Kirstin G. (2001). Impacts of Overlapping International Regimes: the Case of Biodiversity. *Global Governance* 7(1): 95-117.
- Rosendal, Kirstin G. 2003. Interacting International Institutions: The Convention on Biological Diversity and TRIPs – Regulating Access to Genetic Resources. *44th Annual Convention of the International Studies Association*. International Studies Association. Portland, Oregon.
- Schelling, Thomas C. (1960). *The Strategy of Conflict*. Cambridge, MA, Harvard University Press.
- SciDev.net (2003). *Brazil's biopiracy laws are stifling research*. URL: www.SciDev.net downloaded 21 July 2003.
- Scott, W. Richard (1995). *Institutions and Organizations*. Thousand Oaks, California, Sage Publications. Foundations for Organizational Science.
- Shiva, Vandana (1997). *Biopiracy: the Plunder of Nature and Knowledge*. Boston, Massachusetts, South End Press.
- Snidal, Duncan (1986). The Game Theory of International Politics. In: K.A. Oye (ed.), *Cooperation under Anarchy*. Oxford: Princeton University Press. 25-57.
- Snidal, Duncan (2004). Formal Models of International Politics. In: D.F. Sprinz and Y. Wolinsky-Nahmias (eds.), *Models, Numbers and Cases: Methods for Studying International Relations*. Ann Arbor: University of Michigan Press. 227-264.
- Sprinz, D. F. (2000). Cross-Level Inference in Political Science. *Climatic Change* 44(3): 393-408.
- Stokke, Olav Schram (2000). Managing Straddling Stocks: the Interplay of Global and Regional Regimes. *Ocean & Coastal Management* 43(2-3), 205-234.
- Tarar, A. (2001). International Bargaining With Two-Sided Domestic Constraints. *Journal of Conflict Resolution* 45(3): 320-340.

- Tsebelis, George (1990). *Nested Games: Rational Choice in Comparative Politics*. Berkley and Los Angeles, California, University of California Press Ltd. California Series on Social Choice and Political Economy.
- CBD (1998). *Report of the Fourth Meeting of the Conference of the Parties to the Convention on Biological Diversity*, UNEP/CBD/COP/4/27, Conference of the Parties to the Convention on Biological Diversity, Forth Meeting, Bratislava, 4-15 May 1998.
- CBD (2002). *Report of the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity*, UNEP/CBD/COP/6/20, Conference of the Parties to the Convention on Biological Diversity, Sixth Meeting, The Hague, 7-19 April 2002.
- CBD (2004). *Report of the Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity*, UNEP/CBD/COP/7/21, Conference of the Parties to the Convention on Biological Diversity, Seventh Meeting, Kuala Lumpur, 9-20 February 2004.
- Utkarsh, Ghate, Madhav Gadgil, and Rao P. R. Sheshagiri (1999). Intellectual Property Rights on Biological Resources: Benefiting from Biodiversity and People's Knowledge. *Current Science* 77(11): 1418-1425.
- Vienna Convention on the Law of Treaties (1969)*. United Nations Conference on the Law of Treaties, Vienna, 9-20 May 1969.
- WTO (1994). *Agreement on Trade Related Aspect of Intellectual Property Rights (TRIPs)*. Marrakesh, 15 April, 1994.
- WTO (2002a). *The Relationship Between the TRIPs Agreement and The Convention on Biological Diversity: Summary of Issues Raised and Points Made*, IP/C/W/368, Council for Trade Related Aspects of Intellectual Property Rights, Geneva.
- WTO (2002b). *The Protection of Traditional Knowledge and Folklore: Summary of Issues Raised and Points Made*, IP/C/W/370, Council for Trade Related Aspects of Intellectual Property Rights, Geneva.
- WTO (2004). *The Relationship Between the TRIPs Agreement and the Convention on Biological Diversity: Checklist of Issues*, IP/C/W/420, Council for Trade Related Aspects of Intellectual Property Rights, Geneva.
- Young, Oran R. (1996). Institutional Linkages in International Society: Polar Perspectives. *Global Governance* 2(1): 1-24.
- Young, Oran R. (2002). *The Institutional Dimensions of Global Environmental Change: Fit Interplay and Scale*. Cambridge, Massachusetts, MIT Press. Global Environmental Accord: Strategies for Sustainability and Institutional Innovation. Choucri, Nazli.