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The Causal Mechanisms of Interaction between International Institutions[1]

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This article develops a conceptual framework for the systematic analysis of the interaction between international institutions as a first step towards building a theory of international interaction. It examines how international institutions may exert causal influence on each other's development and effectiveness and suggests that four general causal mechanisms can elucidate the distinct routes through which influence travels from one institution to another. Institutional interaction can thus rely on transfer of knowledge, commitments established under an institution, behavioural effects of an institution, and functional linkage of the ultimate governance targets of the institutions involved. The article also puts forward hypotheses about the likely effects of specific types of institutional interaction for governance within the international system. The causal mechanisms and types of interaction are mutually exclusive models that help analyse real-world interaction situations. They may also serve as a basis for the systematic analysis of more complex interaction situations.

KEY WORDS ◆ effectiveness of international institutions ◆ environmental governance ◆ global governance ◆ institutional complexes ◆ institutional interplay ◆ international governance ◆ regime collision ◆ regime conflict

Introduction

The ability of international institutions to influence each other's development and effectiveness ('institutional interaction') is increasingly recognized. Whereas international institutions have traditionally been analysed in isolation from each other (Haas et al., 1993; Victor et al., 1998, Miles et al., 2002), scholars have drawn attention to the growing 'regime density' (Young,

1996) and identified the risk of 'treaty congestion' (Brown Weiss, 1993: 679). Contributions on institutional interaction have mostly examined specific situations such as the problematic relationship between the World Trade Organization (WTO) and several multilateral environmental agreements with trade restrictions (Tarasofsky, 1997; Brack, 2002), overlapping jurisdictions of human rights institutions and related courts (Tistounet, 2000), or the interaction between the International Labour Organization (ILO) and the WTO (Compa and Diamond, 1996; Moorman, 2001).

Conceptual knowledge about the causal mechanisms through which influence travels from one institution to another has, however, remained sharply limited (see the overview in Stokke, 2001a: 1–8; Gehring and Oberthür 2009). Existing approaches focus on an interaction situation or a 'regime complex' (Raustiala and Victor, 2004) without systematically analysing the causal relationship between the institutions involved, or they mainly attempt to systematize and categorize phenomena of institutional interaction (e.g. Young, 2002; Stokke, 2000, 2001b; Rosendal, 2001; Young et al., 2008). Other contributions address particular aspects of interaction, such as the nesting of institutions within each other (Aggarwal, 1998).

This article develops a conceptual framework for the systematic analysis of the interaction of international institutions as a first step towards building a theory of institutional interaction. It examines *how* international institutions may exert causal influence on each other's development and effectiveness. To this end, it introduces a conceptual framework that focuses on the exploration of causal mechanisms of institutional interaction. This framework is based upon established approaches assessing regime effectiveness and the causal analysis of regime consequences (Bernauer, 1995; Underdal and Young, 2004). We develop four causal mechanisms that elucidate the distinct routes through which influence can travel from one institution to another and reveal the role of various actors in this process. These causal mechanisms rely on transfer of knowledge, commitments established under an institution, behavioural effects of an institution, and functional interdependence of the ultimate targets of governance of the institutions involved. In accordance with the bulk of literature on the effectiveness of international governance institutions, we focus exclusively on negotiated institutions that may be defined as 'persistent and connected sets of rules and practices that prescribe behavioural roles, constrain activity, and shape expectations' (Keohane, 1989: 3). Relevant institutions include both international regimes and international organizations.

The identified causal mechanisms of interaction help analyse real-world cases of institutional interaction and provide the foundation for the development of a theory of institutional interaction. Each of them reflects a distinct rationale of institutional interaction. Similar to the familiar

game-theoretic models that help understand cooperation problems (Snidal, 1985; Martin, 1993), they abstract from the complexity of real-world cases of institutional interaction and draw attention to the underlying rationales of interaction. More specific ideal types of institutional interaction, which we develop on the basis of the causal mechanisms, help assess systematically the conditions that must be fulfilled for institutional interaction to occur and the likely effects of interaction for governance within the international system. However, we do not make any claims as to which institutions are particularly prone to institutional interaction.

Although we illustrate our argument primarily with cases from international environmental governance, the causal mechanisms and ideal types are applicable to international institutions at large. The models have been developed against the backdrop of the largest comparative assessment so far of more than 150 cases of institutional interaction from the realm of international and EU environmental institutions (Oberthür and Gehring, 2006a). However, their distinct rationales are independent from any specific policy area. They can be applied to interaction situations located within other policy fields and cutting across policy fields.

Cause–Effect Relationship and Causal Mechanisms of Institutional Interaction

Establishing a Cause–Effect Relationship between Two Institutions

Institutional interaction will exist if one institution (the source institution) affects the development or performance of another institution (the target institution). Otherwise, we would merely observe the parallel, but causally unrelated, development of two or more institutions. Causation implies that an effect observed within the target institution or its issue-area is attributable to another institution so that we would not expect the effect to occur in the absence of the source institution (King et al., 1994: 75–85). To establish an incident of institutional interaction, we must identify (1) the source institution (or its particular component or decision) from which influence originates as the independent variable; (2) the target institution (or the particular component) that is subject to influence originating from the source institution as the dependent variable; and (3) a cause–effect relationship between the source institution and the target institution that accounts for the identified effect. There is no institutional interaction without an effect within the target institution or the issue-area governed by it, be it observable or anticipated (Gehring and Oberthür, 2004).

If an interaction situation includes several cases of interaction with distinct cause–effect relationships, the cases must be separately analysed.

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Decomposition of complex interaction situations will be especially relevant in three types of situations. First, two institutions may be involved in numerous cases of interaction with different properties at the same time. For example, the Montreal Protocol on Substances that Deplete the Ozone Layer indirectly promotes the use of certain greenhouse gases (hydrofluorocarbons, HFCs) regulated under the Kyoto Protocol to the UN Framework Convention on Climate Change. Furthermore, its non-compliance procedure provided a precedent for the elaboration of a similar component within the climate change regime (Oberthür, 2001). Second, several regimes may interact with each other in various forms. For example, the 'regime complex' of plant genetic resources involves the International Convention for the Protection of New Varieties of Plants, two agreements under the Food and Agriculture Organization of the United Nations (FAO), the WTO Agreement on Trade-Related Aspects of Intellectual Property (TRIPS) and the Convention on Biological Diversity (CBD) (Raustiala and Victor, 2004; Jungcurt, 2008). Third, two or more institutions may 'co-evolve' over time so that neither would exist in its current state in the absence of the other. If influence runs back and forth between the institutions, analytical decomposition of the co-evolution process into sequential cases helps examine clear cause–effect relationships (Archer, 1985; Carlsnaes, 1992). For example, the global Basel Convention on the Transboundary Movement of Hazardous Wastes triggered the establishment of several regional regimes with tighter regulatory approaches. Subsequently, the latter influenced the development of the Basel Convention (Clapp, 1994).

The consequences of a case of institutional interaction may be beneficial, adverse, or neutral for the target institution. The main effects of institutional interaction occur in the target institution and can be assessed against this institution's prime objective.[2] If the effects of institutional interaction support the objectives of the target institution, they will create synergy between the two institutions involved. If they contradict the target institution's objective, they will result in disruption. The effects of an interaction will be indeterminate or neutral if they do not clearly hamper or reinforce the pursuit of the target institution's objective.

The Search for Causal Mechanisms of Institutional Interaction

To examine how causal influence *can* be transferred from one institution to another, we theoretically develop four causal mechanisms of institutional interaction. From these, we derive more specific ideal types of institutional interaction that reflect distinct characteristics of cases driven by the same causal mechanism.

A causal mechanism opens the black box of the cause–effect relationship between the institutions involved (Elster, 1989: 3–10; King et al., 1994:

85–7) and provides an explanation for the causal effect observed. It may be conceived of as a set of statements that are logically connected and provide a plausible account of how a given cause creates an observed effect (Schelling, 1998). In the absence of both firmly established theories of institutional interaction and large-n studies allowing for statistical analysis, causal mechanisms help distinguish between genuine causality and 'spurious correlation'. They make explicit the underlying causal pathway that links the source institution to the target institution (Hedström and Swedberg, 1998: 7–12).

Causal mechanisms provide a micro-foundation for the analysis of institutional interaction and reveal how actors matter in the process (George and Bennett, 2005: 135–45). In cases of institutional interaction, both the independent and the dependent variables, i.e. the source institution and the target institution, are located at the macro-level. However, an international institution will rarely influence another institution directly without intermediate adaptation of preferences or behaviour by relevant actors. Hence, a concept of institutional interaction requires, like any other theory in the social sciences, a reliable micro–macro link (Buzan et al., 1993: 104; Alexander and Giesen, 1987).[3] A causal mechanism links the micro-level of actors with the macro-level of institutions. It elucidates how actors are involved in transferring influence from one institution to the other. Depending on the precise causal mechanism at work, several types of actors, including states, non-governmental organizations, industry, or the secretariats of international institutions, may play an important role in institutional interaction (see also Selin and VanDeveer, 2003).

A typical causal mechanism explaining how one institution exerts influence on another institution involves three distinct steps, as illustrated in Figure 1. Instead of analysing relationships between phenomena exclusively on the macro-level, it seeks to establish how macro-level events or conditions affect the individual (step 1), how the individual assimilates the impact of these macro-level events (step 2), and how several individuals, through their actions and interactions, generate macro-level outcomes (step 3) (Hedström and Swedberg, 1998: 21–2; Coleman, 1990: 1–23). Accordingly, a situational mechanism reveals how the source institution affects the preferences or behaviour of relevant actors within its own domain. An action-formation mechanism elucidates how this effect leads to a change of preferences or of individual behaviour of actors relevant to the target institution. In this step, influence is transferred from the domain of the source institution to the domain of the target institution. Finally, a transformational mechanism explains how the adaptation of the individual preferences or behaviour of relevant actors leads to a change of the target institution (for example in the form of adapted rules) or of its effectiveness within its issue-area (for example through an increased rate of non-compliance). A causal relationship between the source institution and the

Figure 1
Components of a Typical Causal Mechanism of Institutional Interaction
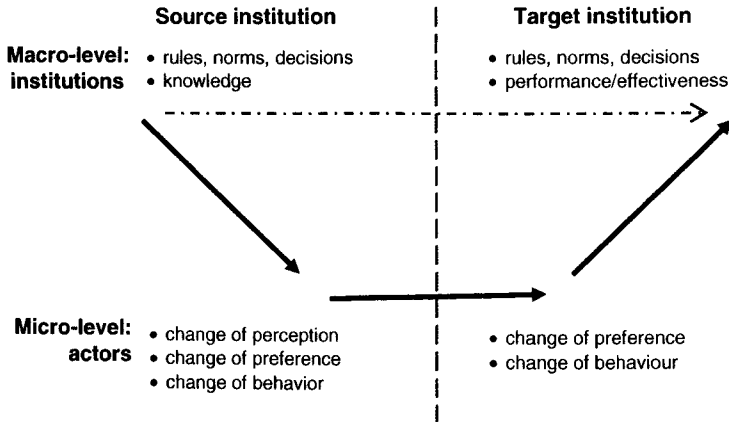
Source: Adapted from Hedström and Swedberg (1998: 22).

target institution presupposes that all three component mechanisms are activated.

The empirical causal relationship between a given source institution and a possible target institution has to be carefully analysed according to the well-established methods of causal inference in the social sciences (George and Bennett, 2005). These methods include counterfactual scenarios and the exclusion of rival explanations. The construction of counterfactual scenarios addresses the hypothetical question of how the target institution and the issue-area governed by it would have developed in the absence of the source institution (Fearon, 1991). The exclusion of alternative explanations (Bernauer, 1995) explores whether factors other than the source institution might convincingly explain the effects observed within the target institution or its issue-area. These methods are widely employed in the literature on the effectiveness of international regimes (Underdal, 2004).
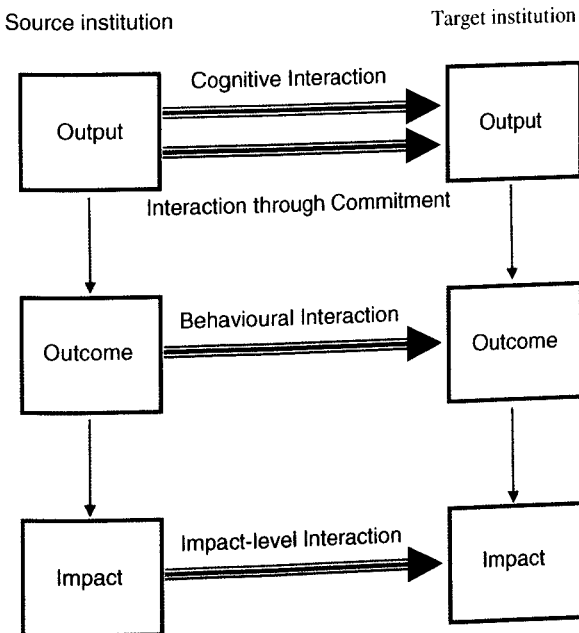
Theoretically derived causal mechanisms of institutional interaction help identify the targets of a causal influence, the precise causal pathways and their intermediate stages as well as the involved actors. Much like the well-known game theoretic models of socially problematic situations, such as the Prisoner's Dilemma and the Battle of the Sexes, they constitute models that cannot be empirically right or wrong (Snidal, 1985). However, they can elucidate the core aspects of the underlying cause–effect relationship, if they fit a given case of institutional interaction.

To avoid overdetermination of causal relationships, which is a typical problem of causal mechanisms analysis (Hedström and Swedberg, 1998: 10), the

theoretically derived causal mechanisms developed in this article are mutually exclusive. In this way, we ensure that the same pathway is not part of different models. If a full set of general causal mechanisms capable of driving institutional interaction is available, the empirical analysis of a particular case may focus on choosing the model which best reflects the properties of the case, and on establishing whether all of its component sub-mechanisms are actually at work.

Institutional interaction can occur on all three levels of effectiveness of governance institutions. To be effective, a governance institution must produce an appropriate *output* in the form of collective knowledge or norms prescribing, proscribing or permitting behaviour. The output may generate behavioural change of relevant actors, the *outcome*. Finally, changes of behaviour might have an *impact* on the ultimate governance target. This effectiveness cascade is well established in the literature on international regimes (Underdal, 2004: 34). It is illustrated in Figure 2 on the left side for the source institution and on the right side for the target institution (thin vertical arrows). In cases of institutional interaction, the output of the source

Figure 2
Causal Mechanisms and Levels of Effectiveness

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institution eventually exerts influence on the ultimate target of governance (impact) of the target institution.

As illustrated in Figure 2, we identify four distinct theoretical causal mechanisms, which involve different targets of influence, actors and/or component sub-mechanisms. If causal influence can travel through different pathways from one institution to another, we need a set of different theoretically derived causal mechanisms. The causal mechanisms differ as to how far the effectiveness cascade of the source institution is passed down before influence is transferred to the target side (bold arrows). Two causal mechanisms exert influence on the normative development of the target institution and are located at the output level. Two other causal mechanisms affect the performance of the target institution within its own issue-area directly without prior adjustment of its norms and rules. They are located at the outcome level and at the impact level.

The causal mechanisms, as well as more specific ideal types of institutional interaction that reflect distinct characteristics of cases driven by the same causal mechanism, allow us to make the first steps towards developing a theory of institutional interaction. To this end, we examine three particularly important aspects of institutional interaction reflected in the causal models. First, the models elucidate the different causal pathways through which one international institution can influence another international institution. Second, we explore the necessary conditions that must be fulfilled for interaction of a particular type to occur. Third, we derive hypotheses as to the likely quality of interaction effects for the target institution. However, at the present state of knowledge about institutional interaction, we cannot put forward meaningful hypotheses as to the sufficient conditions under which institutional interaction is expected to occur.

The Causal Mechanism of Cognitive Interaction

Introducing the causal mechanism of Cognitive Interaction, we first discuss the rationale of this causal mechanism. Subsequently, we present two ideal types of Cognitive Interaction, namely learning from a policy model and a request for assistance.

Rationale

Cognitive Interaction is based on the power of knowledge and ideas. It may be conceived of as a particular form of inter-institutional learning (similarly Stokke, 2001a: 10). Information, knowledge or ideas (Haas, 1992; Yee, 1996) produced within one institution may modify the perception of decision-makers operating within another institution and thus significantly affect the

decision-making process of this institution. For example, the members of an institution may discover, and decide to adopt, an institutional innovation introduced within another institution, such as a non-compliance procedure or a particular arrangement for providing assistance to developing countries.

Cognitive Interaction evolves in the following steps. First, the source institution needs to generate some new information such as a report revealing new scientific or technological insights or an institutional arrangement solving a particular regulatory problem. Second, some actor (e.g. a member state or a non-governmental organization) has to feed the information into the decision-making process of the target institution. Third, this information must change the order of preferences of actors relevant to the target institution. Fourth, this modification of actors' preferences has to influence the collective negotiation process and the output of the target institution. Cognitive Interaction is the least intrusive of all causal mechanisms because learning cannot be imposed. Consequently, the source institution does not exert any pressure on the decision-makers of the target institution. If relevant actors adapt their preferences, the effects will be felt even by those members of the target institution that have not been convinced.

Cognitive Interaction can only be expected to occur if the interests pursued by relevant actors of the target institution are, unlike the frequent assumption of rational choice co-operation theory, not fully determined (see Martin, 1993; Hasenclever et al., 1997). Rational actors can be expected to learn voluntarily only if their rationality is 'bounded', because their information processing capacity is limited (Keohane, 1984: 100–15; Haas, 2001), or if relevant information is not entirely available. Under these circumstances, actors will be prepared to adapt their preferences to new information (Checkel, 1998; Risse, 2000) that may originate from other institutions.

Cognitive Interaction occurs in two forms, depending on whether the learning process within the target institution is triggered unintentionally or intentionally by the source institution. The two types differ significantly in respect of both the preconditions for their occurrence and the expected quality of interaction effects.

Unintentionally Triggered Cognitive Interaction: Policy Model

If Cognitive Interaction is unintentionally triggered, members of the target institution voluntarily use some aspect of the source institution as a policy model. For example, the compliance system under the Montreal Protocol for the protection of the ozone layer influenced the negotiations on the compliance system under the Kyoto Protocol on climate change because it provided a model of how to supervise implementation and deal with cases of possible non-compliance (Oberthür and Ott, 1999: 215–22). The members of the

Montreal Protocol did not establish the model in order to influence the Kyoto Protocol. They also did not have the ability to impose their model on the target. Instead, the Montreal Protocol presented an institutional arrangement which the members of the Kyoto Protocol conceived of as a useful source of inspiration. Frequently, a model will be adapted so as to fit the particular needs of the target institution ('complex learning'; see Haas, 1990). Thus, the negotiators of the Kyoto Protocol adapted and strengthened the model of the compliance system of the Montreal Protocol according to their particular needs (Werksman, 2005).

The policy-model type of Cognitive Interaction can occur between any two institutions, whether or not their memberships or issue-areas overlap. Any institutional arrangement, decision, or scientific or technological information from any other institution might serve as a policy model. Institutions share a number of functional challenges such as monitoring, verification, enforcement and decision-making as well as the development of governance instruments. Therefore, it is difficult to foresee which kind of information or decision originating from which institution might prompt interaction of this kind. Also, numerous types of actors may pick up the information or idea and feed it into the decision-making process of another institution, including a member state, a non-governmental organization, the secretariat of the target institution, or relevant individuals. These actors do not even have to participate in the source institution, because they can obtain information and ideas by surveying the field, reading reports, or examining institutional arrangements.

Learning from a policy model can generally be expected to strengthen the effectiveness of the target institution, while the source institution will largely remain unaffected. It requires that the members of the target institution collectively consider the policy model to be useful. Normally, actors will refrain from adopting precedents or solutions that promise to undermine their commonly desired policies. In rare cases, however, actors may also learn how to deliberately hamper effectiveness. Thus, negotiators of the Kyoto Protocol failed to agree on an institutional arrangement for feeding scientific and technical knowledge into policy-making that had proven to be effective under the Montreal Protocol, because parties opposing advances in international climate policy had learnt their lesson (Oberthür, 2001: 360–1). Furthermore, it cannot be excluded that actors learn 'wrong' lessons that are dysfunctional for the target institution, for example because the two institutions or their underlying problems are more distinct than expected.

Intentionally Triggered Cognitive Interaction: Request for Assistance

Cognitive Interaction may also take the form of an intentional request by one institution for the assistance of another institution. The source institution

can draw the attention of actors within the target institution to a particular aspect of which they had so far not taken due account — at least seen from the perspective of the source institution. Accordingly, actors of the target institution learn that an adaptation of their institution could strengthen the effectiveness of the source institution. For example, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) requested assistance for the implementation and enforcement of its trade restrictions from the World Customs Organization (WCO) which adapted its customs codes accordingly (Lanchbery, 2006). In cases of a request for assistance, the source institution largely frames the learning process. Its secretariat will usually formally transfer a request to the secretariat of the target institution that will officially feed it into the decision-making process of the latter.

The prerequisites for a successful request for assistance are much more demanding than those for learning from a policy model. On the one hand, a successful request presupposes that the issue-areas governed by the institutions involved overlap significantly. It would not be useful for CITES to request assistance from the WCO, if WCO policies did not matter for the implementation of CITES. On the other hand, the requested adaptation of policies must be beneficial, or at least neutral, for the target institution, because the members of the target institution will usually not be inclined voluntarily to harm their institution. However, they may find it difficult to reject another institution's request for assistance with indifferent effects. Thus, the WCO responded favourably to the request of CITES to adapt its customs codes although it did not directly benefit from doing so.

Whereas an inter-institutional request for assistance can be expected to produce synergistic or at least neutral effects for the target institution, it is intended to create a positive feedback effect on the source institution. CITES requested the World Customs Organization to adapt, because it expected this change to facilitate the enforcement of its own policy. Hence, requests for assistance enable an institution to draw on other institutions in order to enhance its own effectiveness, even if it cannot force the target institution to adapt its rules.[4]

The Causal Mechanism of Interaction through Commitment

In this section, we first develop the general rationale of the causal mechanism of Interaction through Commitment. Subsequently, we present three ideal types of this causal mechanism, namely institutional interaction that creates a demand for jurisdictional delimitation, interaction between nested institutions, and institutional interaction activating an additional means of governance.

Rationale

Interaction through Commitment is based on the power of international norms. Commitments entered into under one institution may induce actors to modify their preferences and negotiating behaviour regarding issues related to another institution. These modifications may in turn affect the decision-making process of that institution. For example, the WTO commitment not to discriminate against imported goods according to the methods by which they have been produced renders it difficult for WTO members to adopt trade sanctions within international environmental regimes or within the International Labour Organization (ILO) to reinforce the effectiveness of these institutions (Brack, 2002).

In line with theories of international institutions, the causal mechanism presupposes that international obligations create at least some binding force. Actors behaving according to the constructivist 'logic of appropriateness' (March and Olsen, 1998) will generally follow valid norms, because such behaviour is legitimate and reduces the costs of instrumental decision-making. Actors behaving according to the rationalist 'logic of consequences' will also frequently adhere to valid norms. Often institutional obligations cannot be violated without jeopardizing underlying cooperation projects. Actors might also endeavour to preserve a reputation of keeping their promises because possible future cooperators would otherwise be less inclined to enter into agreements with them (Keohane, 1984: 105–6). If commitments entered into within one institution are costly, actors will gain an additional interest in subjecting the members of other institutions to similar obligations.

Interaction through Commitment evolves in the following steps. First, members of the source institution agree upon an obligation that might be relevant for the target institution. Second, this obligation actually commits one or more states that are members of both institutions. Third, the commitment induces some of these states to modify their preferences and negotiating behaviour related to the target institution. Fourth, these modifications influence the collective decision-making process of the target institution and its output.

Interaction through Commitment requires some overlap of both the memberships and the issue-areas of the interacting institutions. Without overlapping memberships, the target institution would remain unaffected because none of its members would be subject to relevant commitments under the source institution. Without overlapping issue-areas, commitments could not modify the preferences of states regarding issues related to the target institution.

Interaction through Commitment occurs in three distinct types, which differ profoundly regarding their inherent rationales as well as regarding

their specific preconditions and expected effects. Whereas some overlap of memberships and issues of interacting institutions is necessary to generate Interaction through Commitment, we would not expect institutions to exert significant influence on each other's normative development if they were identical in all important respects. Accordingly, interacting institutions must differ in some important dimension to create momentum for interaction. Meaningful interaction effects can be expected if otherwise overlapping institutions differ in respect of their memberships, or of their objectives, or of their governance instruments, because these three properties determine the who, why and how of international governance projects. The three types of Interaction through Commitment developed in the following vary with respect to exactly *one* of these three dimensions.

Interaction through Commitment Based upon Different Objectives:
Jurisdictional Delimitation

Demand for the delimitation of jurisdictions will arise if two institutions with similar memberships, but different objectives, address the same set of issues. Under these circumstances, actors may adapt the policies, norms and obligations of one of these institutions in light of the existence of the other. For example, the obligations of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity conferring rights of control to states importing genetically modified organisms (GMOs) were significantly adapted to the broader commitments under the WTO Agreement on Sanitary and Phytosanitary Measures (SPS) (Oberthür and Gehring, 2006b).

Institutions with different objectives may diverge in their appraisal of particular policies. Every international institution disposes of its own criteria to assess policy measures and the related behaviour of states and non-state actors (Gehring, 1994: 433–49). As a result, different institutions may appraise a policy measure differently. Environmentally motivated trade restrictions will be considered as undesired interference with international trade from the perspective of the WTO, which aims at liberalizing international trade and seeks to abolish trade obstacles. The same measures are appreciated as effective means for enforcing international environmental standards from the perspective of international environmental regimes, which are frequently established to protect common pool resources or collective goods.

In jurisdictional delimitation cases, the members of the institutions involved are in a 'mixed motive' situation that resembles the game-theoretic constellation of the Battle of the Sexes (Stein, 1982; Keohane, 1984). On the one hand, both sides possess a general interest in some sort of separation of jurisdictions in order to avoid fruitless regulatory competition and a

reduced effectiveness of their respective institutions. Neither side will be served if the institutions involved interfere with each other. On the other hand, the constituencies of the institutions will have conflicting preferences regarding the appropriate solution. In the conflict between trade and environment, actors prioritizing liberal international trade will advocate regulation by the WTO, while countries struggling for environmental protection may prefer the jurisdiction of the environmental regimes involved.

Commitments of the earlier institution will almost automatically limit the room for manoeuvre within the later institution, because they strengthen actors advocating the objectives of the earlier institution. Like the game-theoretic Battle of the Sexes situation, the ideal type of Jurisdictional Delimitation does not possess a single equilibrium. However, an equilibrium found in a Battle of the Sexes situation will be fairly stable, because neither side can expect to gain from resumption of conflict. This implies that the earlier institution will possess a 'first-mover advantage' (Héritier, 1996; Mattli, 2003). In the trade and environment debate, the older GATT/WTO has been viewed as 'chilling' the negotiations on environmental regimes because negotiators have frequently shied away from even discussing measures that might be in conflict with GATT/WTO rules (Palmer et al., 2006: 186; Eckersley, 2004). In this case, the first-mover advantage of the WTO has limited the range of options available to negotiators within environmental regimes.

The challenge of an established distribution of jurisdictions may lead to open conflict among the institutions involved. The jurisdiction of an institution can be challenged by agreeing on incompatible commitments within another institution. Creation of such 'strategic inconsistency' (Raustiala and Victor, 2004: 301) will be particularly relevant if new regulatory objectives such as environmental protection are to be promoted in a field already governed by an existing institution with differing objectives. Thus, international environmental regimes established since the 1970s have almost automatically encroached upon the jurisdiction of the established international trade regime whenever they have restricted trade for environmental purposes. Hence, environmental regimes have gradually pushed back the jurisdiction of the WTO and partially reversed the latter's 'chill effect' (Oberthür and Gehring, 2006b).

Jurisdictional delimitation cases will virtually always create disruptive effects on the target institution. Because of their diverging objectives, the institutions involved pull in different directions. The source institution encroaches upon the jurisdiction of the target institution. As a result, the effectiveness of the target institution will almost inevitably be undermined. An amicable delimitation of issue-areas may only be expected if one institution clearly dominates. Accordingly, the ideal type of jurisdictional

delimitation poses the governance challenge to arrive at a delimitation of jurisdictions that honours the basic objectives of both institutions and is least detrimental for their operation.

Interaction through Commitment Based upon Different Memberships: Nested Institutions

Interaction between nested institutions constitutes a mechanism for policy diffusion that gains its momentum from the tension between institutions with a smaller (regional) and a larger (global) membership. It is driven by the different memberships of two international institutions that ideally pursue identical objectives and employ the same governance instruments. If the membership of one institution forms part of the membership of another institution, two formally independent institutions with similar objectives and regulatory means are 'nested' into each other (Aggarwal, 1998; Young, 1996). For example, the Schengen regime on the abolition of controls at internal borders among the member states and on compensating measures heavily influenced the development of corollary policies within the European Union (Gehring, 1998).

The ideal type of interaction between nested institutions rests on the following factors. First, negotiation analysis demonstrates that institutions with divergent memberships may arrive at differing obligations, even if addressing identical problems (Sebenius, 1983). It is typically easier to reach agreement within a smaller (e.g. regional) than in a larger (e.g. global) institution because a higher number of participants usually implies a greater heterogeneity of interests (Snidal, 1994). Hence, the originally few Schengen states could agree on the abolition of border controls and compensating measures, while similar agreement proved initially impossible within the broader EU membership.[5] Second, commitments agreed upon within the source institution streamline the preferences of its members. As a result, the members develop a common interest in expanding obligations to other countries — be it to commit competitors to costly obligations, to preclude free-riding, or to reinforce the effectiveness of their agreement.[6] Third, based upon their common commitment, members of the smaller institution form a natural coalition during negotiations within the larger institution. Hence, the probability increases that the coordinated position of the coalition constitutes some 'focal point' (Schelling, 1960: 100) around which expectations converge.

Interaction between nested institutions presupposes that two (or more) institutions with similar objectives but different memberships govern significantly overlapping issue-areas, and that the political dynamics of agreeing on new obligations differs significantly. Evidently, the presence of these factors

does not ensure that interaction occurs, because adverse constellations of interests prevailing within the larger institution may effectively preclude adoption of a policy measure agreed upon in the smaller setting. They constitute merely necessary rather than sufficient conditions for the emergence of this type of interaction.

The rationale of interaction between nested institutions suggests that its effects will largely support the effectiveness of the target institution. Similar or identical objectives of the institutions generate compatible priorities and render disruptive effects highly improbable, if not impossible. Accordingly, this type of interaction provides a mechanism for policy diffusion within the same policy field and offers opportunities for forum shopping. Actors striving for regulation of a particular issue may choose whether to promote their proposals predominantly in the smaller or in the larger institution — with a view to using the smaller institution strategically to promote policy diffusion.

Interaction through Commitment based upon Availability of Different Governance Instruments: Additional Means

The transfer of a commitment from one institution to another one pursuing the same objective with identical membership may be significant for international governance if it activates an additional governance instrument (means) available to the target institution. The interaction between the regime for the protection of the North-East Atlantic (OSPAR) and the International North Sea Conferences established in the 1980s may serve as an illustration. While relying on declarations that were formally non-binding, the Conferences took place at a high political level and generated political pressure. Having politically agreed on the phase-out of certain substances and activities, it became difficult for the member states to resist the adoption of substantively identical obligations within the framework of another institution, namely the OSPAR-Conventions. Since OSPAR relies on hard international law, the originally soft obligations were transferred into legally binding hard law (Skjærseth, 2006).

The emergence of interaction activating an additional means rests on two main conditions. Actors committed to an obligation within one institution need to transfer the commitment to another institution. This will be comparatively easy because of their previous agreement on the same obligation within the source institution. However, such simple diffusion of an obligation alone does not change the situation significantly for actors that are members of both institutions. Therefore, incorporation of the transferred obligation also has to mobilize an additional governance instrument that provides a new incentive to implement the obligation. Frequently, international institutions control different governance instruments. While some institutions rely almost exclusively

on 'soft' law, others resort to legally binding ('hard') international law (Abbott and Snidal, 2000). The European Union even controls supranational law that is subject to a particularly stringent supervisory apparatus (Alter, 2000). Some institutions dispose of financial assistance mechanisms (Keohane and Levy, 1996), non-compliance procedures (Victor et al., 1998), particular enforcement measures, etc. while others do not.

Interaction of the additional means type will regularly raise the effectiveness of both institutions involved. If the diffusion of an obligation activates an additional governance instrument, it will support the effectiveness of the target institution. At the same time, activating an additional means automatically contributes to a more effective implementation of the source institution. In the aforementioned example, the more effective implementation of hard-law OSPAR obligations to protect the Northeast Atlantic automatically helped achieve the goals of the North Sea Conferences.[7] Because of its synergistic effects on both the source and the target institution, interaction activating additional means allows actors operating within the source institution to enhance the effectiveness of international governance and provides opportunities for choosing in which of the institutions available to launch a particular regulatory initiative (forum shopping).

The Causal Mechanism of Behavioural Interaction

Behavioural Interaction is based on the interdependence of behaviour across the domains of institutions. The source institution triggers behavioural changes that affect implementation in the target institution. This causal mechanism is located at the outcome level and influences the performance of the target institution within its own domain. All international governance institutions are designed to influence the behaviour of relevant actors in order to achieve their objectives (Levy et al., 1995; Young, 1992). In some cases, behavioural changes occurring within the domain of one institution exert influence on the domain of another institution. If states and private actors plant fast-growing trees in response to the Kyoto Protocol's incentive for carbon sequestration in forests, they might automatically encroach upon biodiversity, which is protected under the Convention on Biological Diversity (CBD) (Jacquemont and Caparrós, 2002), and thereby undermine the effectiveness of the CBD.

Behavioural Interaction evolves in the following steps. First, the source institution must produce an output, for example a set of prescriptions or proscriptions. Second, relevant states or non-state actors have to adapt their behaviour in response to the output. Third, the behavioural changes triggered by the source institution must be relevant for the target institution. Behavioural changes may be relevant for both issue-areas, or they may

prompt further behavioural changes within the domain of the target institution. Fourth, this behavioural effect has to be relevant for the effectiveness of the target institution.

Behavioural Interaction has two important prerequisites. First, it requires that the source institution actually exerts influence on the behaviour of relevant states (e.g. implementing legal obligations) and/or on the behaviour of non-state actors (e.g. adjusting to domestic implementation legislation). Second, the issue-areas governed by the institutions involved must be close enough to matter for each other. Behavioural Interaction cannot be expected to occur if the issue-areas do not significantly overlap or are functionally unrelated to each other. Under these circumstances, behaviour triggered by one institution would hardly become relevant for another institution. In contrast, Behavioural Interaction does not depend on a collective decision within the target institution, because it occurs exclusively within the two issue-areas involved. Unlike Cognitive Interaction and Interaction through Commitment, Behavioural Interaction might even come about unnoticed by the actors operating within the target institution.

Whereas the general causal mechanism of Behavioural Interaction does not indicate whether its effects are beneficial (synergistic) or adverse (disruptive) for the target institution, the rationales of three specific ideal types reveal clear-cut hypotheses on the quality of effects. The types vary as to whether the institutions involved differ in respect of their objectives, or their memberships, or their governance instruments.

If Behavioural Interaction is driven by different objectives of the involved institutions, it will result in disruption of the target institution. In this case, the same group of actors ideally addresses the same issue within two institutions that pursue different objectives. As a result, behavioural changes of states and non-state actors triggered by the source institution may easily be at odds with the objectives of the target institution and may thus undermine the latter's performance. It is difficult to think of a situation in which they could systematically reinforce the effectiveness of the target institution. Behavioural Interaction driven by different objectives is closely related to jurisdictional delimitation cases located at the output level. Indeed, cases of both types appear frequently in concert. For example, the conflict between the WTO and international environmental institutions with trade restrictions is not limited to the rules made at the output level. It extends to the implementation of these rules at the outcome level. Whenever a member state implements a trade restriction enacted under an environmental regime, it will implicitly undermine the effectiveness of the WTO rules on free trade.

If Behavioural Interaction relies upon different memberships of the institutions involved, it will always create synergy. In this case, different groups of actors, ideally, address the same issue, employing identical means of

governance within two institutions that pursue like objectives. Due to the matching objectives, behavioural changes triggered by one institution will automatically be in conformity with the policy direction of the other. This type of Behavioural Interaction constitutes the corollary of interaction between nested institutions at the output level. Compared with the latter, however, the direction of influence is reversed: only the larger (global) institution can trigger behavioural effects beyond those already triggered by the smaller (regional) institution. Again, cases located at the output level may be linked to cases located at the outcome level. While the regional Bamako Convention on the transboundary movement of hazardous wastes contributed to a rule change of the global Basel Convention, the latter helped implement the Bamako Convention, because it restricted the exports of such wastes from industrialized countries to non-OECD countries (Clapp, 1994).

If Behavioural Interaction is driven by different means of governance available to the institutions involved, it will also virtually always create synergy. In this case, the same group of actors ideally addresses the same issue within two institutions that pursue the same objectives, but dispose of different means of governance. Due to matching objectives, behavioural changes triggered by one institution will once again almost automatically serve the ends of the other institution. Thus, this type of Behavioural Interaction constitutes the corollary to the additional means type located at the output level and may follow from a case of that type. Requests for assistance frequently trigger a similar causal chain. As mentioned above, the action taken by the World Customs Organization (WCO) in response to the request for assistance from CITES in turn supported the implementation of CITES.

The Causal Mechanism of Impact-Level Interaction

Impact-level Interaction rests on the interdependence of the ultimate governance targets of the institutions involved. In this case, the ultimate governance target of one institution, such as international trade or the ozone layer, is directly influenced by side-effects originating from the ultimate governance target of another institution. In this way, Impact-level Interaction exerts influence on the effectiveness of the target institution. A stylized example that we owe to Arild Underdal illustrates this causal mechanism. Consider that protection of the stocks of cod and herring are the ultimate targets of two separate international institutions. As cod eats herring, successful protection of cod, resulting in a growing population of this species, will automatically decrease the population of herring. Further examples of Impact-level Interaction include the interdependence between increased global welfare (the ultimate governance target of the WTO) and the stabilization of the world climate (the ultimate governance target of the global climate regime),

or between the world climate and the preservation of biodiversity (the ultimate target of the Convention on Biological Diversity). Even a fully effective International Agreement on the Conservation of Polar Bears and their Habitat might not succeed in protecting the polar bears if the climate change regime does not succeed in stabilizing the global climate, because the bears' habitats are immediately dependent on the state of the global climate.

This causal mechanism does not depend on any action within the target institution or its domain, but rests on the 'functional linkage' (Young, 2002: 23; 83–109) of the ultimate governance targets of the institutions involved. In contrast to Behavioural Interaction, inter-institutional influence does not rely on changed behaviour of relevant actors within the domain of the target institution (see Figure 2). Instead, it relies upon the functional link between the ultimate governance targets of the two institutions involved. In the above-mentioned example, it is increased population of cod, not human behaviour, that leads directly to a decreasing population of herring.

Impact-level Interaction evolves in the following steps. First, the source institution produces an output. Second, states and non-state actors operating within the issue-area governed by this institution adapt their behaviour in response. Third, these behavioural changes affect the ultimate governance target of the source institution. Fourth, this impact exerts influence on the ultimate governance target, and thus on the effectiveness of the target institution.

The functional linkage of the ultimate governance targets of international institutions can be stable, but it may also change in the longer term. In many cases, Impact-level Interaction relies on stable interdependencies of the biophysical environment, such as the interconnectedness of the populations of cod and herring. In other cases, however, functional interdependencies are themselves subject to possible long-term change. For example, increased international trade and economic growth promoted by the WTO currently lead to increased emissions of greenhouse gases, and thus undermine the effectiveness of the global climate regime. However, this functional interdependence might one day be overcome by technical progress or changes in production methods.

The rationale of this causal mechanism does not support any hypothesis as to the systematic quality of effects. The effects of Impact-level Interaction on the target institution may be synergistic, or disruptive, or indeterminate. Moreover, we cannot yet suggest any meaningful ideal types of cases driven by this causal mechanism that would systematically create specific effects.

Mutual Exclusiveness and Generalizability of Causal Mechanisms and Types

A limited number of completely different causal mechanisms and more specific ideal types drive interaction among international institutions. They all

have their inherent rationales, conditions for their occurrence, and expected effects, as reflected in Table 1. However, considering the multitude of international institutions and the many incidents of interaction among them, the number of distinct rationales by which inter-institutional influence can be driven is comparatively limited.

The general causal mechanisms presented in the preceding sections constitute deductively derived and mutually exclusive models. Such models are not intended to provide precise descriptions of all properties of relevant interaction cases. They highlight the relevant components of the different causal pathways of interaction. Hence, they may, or may not, fit a given case. Mixed cases are unlikely because the mechanisms are located at three different levels of effectiveness, and they involve different actors. A case of interaction cannot be driven by Behavioural Interaction and Interaction through Commitment or Impact-level Interaction at the same time.[8] In rare cases, it might be difficult to distinguish empirically whether members of the target institution learn from the source institution (Cognitive Interaction) or adapt their preferences according to the commitments entered into under the source institution (Interaction through Commitment).

The four causal mechanisms are likely to cover the full range of causal mechanisms relevant for interaction among international institutions. The decision-making process of an institution may hardly be systematically influenced other than by knowledge (Cognitive Interaction) and obligations generated by another institution (Interaction through Commitment). Likewise, interaction directly influencing the behavioural performance of the target institution will always originate from the behavioural effects of the source institution. It seems to be rather unlikely, for example, that the international ozone regime would pass international trade rules that are unrelated to the protection of the ozone layer and directly influence behaviour related to world trade. Nothing of that kind has been reported in the literature so far. It is also difficult to see how effects at the impact level within one institution (e.g. increased global welfare) might directly affect the behaviour of actors governed by another institution (e.g. CO_2 emissions by industry) or that institution's decision-making process (international climate policies) without first affecting the ultimate target of governance of the target institution (world climate).

The *ideal types* of institutional interaction also rely on their own, mutually exclusive rationales. They are theoretically constructed and elucidate a particular set of important characteristics of cases that are related to their underlying rationales. Like the general causal mechanisms, they have explanatory power (Weber, 1904: 190–212; Hedström and Swedberg, 1998: 13–15). Since the ideal types of interaction presented above have been developed against the backdrop of a limited sample of somewhat more than 150 cases

Table 1
Overview of Causal Mechanisms and Ideal Types

Causal Mechanism	Key Trigger	Ideal Type	Basic Rationale	Key Characteristics/ Conditions	Probable Effect
COGNITIVE INTERACTION	Provision of information or ideas	Policy Model	Target institution adapts to a policy model	• Unintentionally triggered • Similarity of problems addressed	Synergistic
		Request for Assistance	Target institution adapts upon request for assistance	• Intentionally triggered • Overlap of governance areas	Neutral or synergistic
		Jurisdictional Delimitation	Competition for regulatory authority	• Difference of objectives • Overlap of governance areas and memberships	Disruptive
INTERACTION THROUGH COMMITMENT	Commitment of member states	Nested Institutions	Vertical policy diffusion from smaller to larger institution	• Difference of memberships • Overlap of governance areas and memberships	Synergistic
		Additional Means	Horizontal policy diffusion activating additional governance instrument	• Difference of governance instruments • Overlap of governance areas and memberships	Synergistic

Output

Table 1 (Continued)

	Causal Mechanism	Key Trigger	Ideal Type	Basic Rationale	Key Characteristics/ Conditions	Probable Effect
Outcome	BEHAVIOURAL INTERACTION	Adjustment of behaviour by states and non-stateactors	Corollary to Jurisdictional Delimitation	Conflicting or competing obligations	• Difference of objectives • Overlap of governance areas	Disruptive
			Corollary to Nested Institutions	Vertical implementation assistance from larger institution to smaller institution	• Difference of memberships • Overlap of governance areas	Synergistic
			Corollary to Additional Means	Reinforcement of implementtion through additional governance instrument	• Difference of governance instruments • Overlap of governance areas	Synergistic
Impact	IMPACT-LEVEL INTERACTION	Influence on ultimate governance target	–	Ultimate governance target of one institution influences ultimate governance target of another institution	• Functional interdependence of ultimate governance targets	Synergistic or neutral or disruptive

(Gehring and Oberthür, 2006), we cannot exclude that more ideal types with yet other rationales exist. Moreover, in the real world, mixed cases driven by two ideal types related to the same causal mechanism may occur. Two interacting institutions may, for example, differ simultaneously in regard to their memberships and their means of governance. However, the occurrence of mixed cases does not conceptually devaluate the usefulness and mutual exclusiveness of the ideal types that have not been developed to exhaust the possible variance of real-world cases, but to reduce complexity and point to particularly relevant aspects of cases.

Both the causal mechanisms and the ideal types presented in this article are generally applicable to the study of institutional interaction in international governance. While they have been developed against the backdrop of a sample of cases from environmental governance, and most of our illustrative examples are from that governance area, they reflect general rationales derived from theories of international cooperation and international relations. They can be employed to analyse cases of institutional interaction from other samples and policy fields, such as the interaction between: NATO and the European Union's Security and Defence Policy (Whitman, 2004); different human rights regimes (Helfer, 2000; Tistounet, 2000); the WTO, the European Single Market policy and the Lomé Treaty culminating in the 'banana dispute' (Alter and Meunier, 2006); the WTO and the ILO (Compa and Diamond, 1996; Moorman, 2001); and many others.

Towards the Analysis of More Complex Interaction Situations

The approach developed in this article can be employed systematically to explore more complex interaction settings and their emergent properties. Eventually, we want to examine complexes composed of several cases of interaction. These cases may influence each other in unexpected ways, so that new properties of the overall situation emerge which are not inherent in its individual components. The analysis of individual interaction cases does not reveal these properties, much like an examination of individual trees and plants cannot grasp the emergent properties of a forest. However, the properties of the forest emerge from the particular forms of coexistence of the trees and plants, including their mutual influence on each other's existence and development. Hence, the systematic recombination of cases allows for the exploration of the typical patterns and emergent effects of more complex interaction situations, while retaining the analytical advantages of the decomposing approach. Causal chains and clusters are two principal patterns of more complex interaction situations.

Interaction cases may be related sequentially so that they form *causal chains*. In such constellations, one case of interaction gives rise to a subsequent

case that feeds back on the original source institution or influences a third institution. Such follow-on cases are inherent in the rationale of several ideal types of interaction. A request for assistance is issued in order to reinforce the effectiveness of the original source institution through a behavioural feedback effect (Behavioural Interaction). The synergistic feedback effects that an additional-means case regularly has on the source institution occur at the outcome level (Behavioural Interaction). The target institution of a case of the jurisdictional-delimitation type may respond with its own jurisdictional activity, thus triggering a reverse case of jurisdictional delimitation. For example, the WTO, especially through its Agreement on Sanitary and Phytosanitary Measures (SPS Agreement), constrained the use of trade measures related to genetically modified organisms under the Cartagena Protocol on Biosafety. Negotiations on the Cartagena Protocol, in turn, precluded the development of further rules on the appropriate risk assessment for genetically modified organisms within the WTO (Oberthür and Gehring, 2006b).

Cases of interaction may also 'cluster' around certain issues and institutions. While causal chains address causation between sequential cases of interaction, clusters address settings of parallel cases of interaction without requiring causation between cases. In this case, several institutions concurrently address a particular issue in complementary or competitive ways. Accordingly, we may expect to find competitive interaction clusters (e.g. interaction between the WTO and several environmental regimes). We may also find cooperative clusters, in which particular forms of inter-institutional division of labour and coordination develop. For example, CITES has gradually become the centre of a cluster of institutions in the area of wildlife protection, indicating the emergence of a more centralized arrangement for inter-institutional management (Lanchbery, 2006). The International North Sea Conferences have even been established not least to provide for a co-ordinating mechanism, and to set priorities, for future activities in various institutions relevant for the protection of the North Sea (Skjærseth, 2006).

Causal chains and clusters are two typical patterns of interlocking structures of international governance institutions emerging from institutional interaction. While these interlocking structures (Underdal and Young, 2004: 374–5) reflect the normative expectations of international society, they also define the division of labour among the institutions involved in a given problem area of international relations. Interlocking governance structures evolve in ways that are distinct from the evolution of the sector-specific institutions of which they are composed (Raustiala and Victor, 2004: 279). So far, they have hardly been 'rationally designed' (Koremenos et al., 2001) — not least because of the lack of an overarching institution capable of managing institutional interaction within the international system. Shedding light on how efforts to enhance international governance may affect each other across

different issue-areas, the conceptual framework presented in this article helps understand the origins of emergent interlocking governance structures and provides a basis for their further systematic study.

Conclusion

The conceptual framework of institutional interaction developed in this article elucidates how an international institution can influence the normative development and the performance of another international institution. In contrast to other approaches that seek to describe and classify complex interaction situations as a whole (Young, 1996, 2002), it focuses on the causal relationship between the institutions involved. While actor-centred approaches attribute interaction to forum shopping activities of relevant actors (Raustiala and Victor, 2004), it points to the institutionally created opportunities for and restrictions on forum shopping and demonstrates how actors transmit influence from one institution to another. It also captures numerous instances of institutional interaction that are *not* intentionally triggered and thus reaches well beyond intentional forum shopping.

The conceptual framework helps structure the multifaceted realm of interaction between international institutions, and provides systematic insights into the conditions of governance within the international system. It demonstrates that the broad area of institutional interaction comprises different phenomena that must be carefully distinguished and analysed to grasp their precise consequences for effective international governance. The four causal mechanisms elucidate how influence can generally travel from one institution to another, and they draw attention to the varying roles of actors, their preferences and behaviour in this process. The more specific ideal types of interaction reflect particular characteristics of different subsets of cases following a causal mechanism. They also provide a basis for exploring the necessary conditions for their emergence as well as for deriving substantive hypotheses about their effects and governance implications.

The general causal mechanisms and more specific ideal types offer an analytical apparatus for the systematic analysis of interaction between international institutions. Based upon their specific rationales, they constitute abstract models stripped of the empirical complexity of real-world situations. Their analytical power originates from their ability to draw attention to the underlying rationales of cases of interaction. They provide the analyst with a set of models highlighting possible causal relationships between international institutions that facilitate the exploration of real-world situations of institutional interaction. These models support the analysis of interaction situations, much like the well-known game theoretical models help analyse the formation, operation and design of international institutions.

The causal mechanisms and ideal types also provide the basis for a more encompassing theory of institutional interaction. The distinct rationales of the theoretically derived models of institutional interaction not only explicate the causal pathways of institutional interaction, they also help identify the necessary conditions that need to be fulfilled for interaction to occur. In addition, they support the systematic development of hypotheses concerning the quality of interaction effects. They demonstrate that different types of interaction lead systematically either to synergistic or to disruptive effects. Nevertheless, theory development is just starting and we do not claim to have submitted a full-fledged theory of institutional interaction.

Finally, the causal mechanisms and ideal types help explore more complex interaction situations and the interlocking structures of international governance institutions. In order to assess the causal relationships between the institutions involved, complex interaction situations must be analytically decomposed into individual cases with unidirectional causal pathways, following a particular causal mechanism and ideal type. These cases may subsequently be recombined to causal chains and clusters in order to grasp complex interaction situations and start exploring their emergent properties. On this basis, we may gain a conceptually founded idea of the interlocking structures of international governance institutions that emerge from complex interaction situations and shape the normative expectations of international society.

Notes

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2 While established research on the effectiveness of international institutions has also used an institution's prime objective as the major yardstick for assessing its consequences (e.g. Young, 1999; Haas et al., 1993), the causes and the effects of institutional interaction are located in the domains of different institutions. Therefore, we take the prime objective of the target institution as the relevant yardstick.

3 The agent–structure problem discussed in International Relations (Wendt, 1987; Carlsnaes, 1992) refers to this issue.

4 The feedback effect constitutes a reverse case of interaction in which influence is transmitted through a different causal mechanism, namely Behavioural Interaction.

5 In some cases, greater homogeneity of interests may also follow from factors other than the size of the institution, such as more homogeneous economic development. The rationale of this type of interaction does not exclude the possibility that

the memberships of the interacting institutions are equally large, if they overlap only partially.

6 Thus, meaningful influence can only originate from the smaller institution and affect the larger institution. A transfer of an obligation from the larger to the smaller institution would not be relevant for the effectiveness of governance, because it would not affect the situation of any single actor when making decisions as to behaviour.

7 The adoption of the obligation in the target institution can thus be expected to trigger a positive feedback effect on the source institution that follows a different causal mechanism, namely Behavioural Interaction.

8 However, separate cases of Behavioural Interaction, Interaction through Commitment and Impact-level Interaction may well occur concurrently or in parallel between the same institutions.

References

Abbott, Kenneth W. and Duncan Snidal (2000) 'Hard and Soft Law in International Governance', *International Organization* 54(3): 421–56.

Aggarwal, Vinod K. (1998) 'Reconciling Multiple Institutions: Bargaining, Linkages and Nesting', in Vinod K. Aggarwal (ed.) *Institutional Designs for a Complex World. Bargaining, Linkages, and Nesting*, pp. 1–31. Ithaca, NY: Cornell University Press.

Alexander, Jeffrey and Bernhard Giesen (1987) 'From Reduction to Linkage. The Long View of the Micro–Macro Link', in Jeffrey Alexander, Bernhard Giesen, Richard Münch and Neil J. Smelser (eds) *The Micro–Macro Link*, pp. 1–42. Berkeley, CA: University of California Press.

Alter, Karen J. (2000) 'The European Union's Legal System and Domestic Policy: Spillover or Backlash?', *International Organization* 54(3): 489–518.

Alter, Karen, and Sophie Meunier (2006) 'Nested and Competing Regimes in the Transatlantic Banana Trade Dispute', *Journal of European Public Policy* 13(3): 362–82.

Archer, Margaret S. (1985) 'Structuration versus Morphogenesis', in S.N. Eisenstadt and Horst Jürgen Helle (eds) *Macro-Sociological Theory: Perspectives on Sociological Theory*, Vol. 1, pp. 58–88. London: Sage.

Bernauer, Thomas (1995) 'The Effect of International Environmental Institutions: How We Might Learn More', *International Organization* 49(2): 351–77.

Brack, Duncan (2002) 'Environmental Treaties and Trade: Multilateral Environmental Agreements and the Multilateral Trading System', in Gary P. Sampson and W. Bradney Chambers (eds) *Trade, Environment, and the Millennium*, pp. 321–52. Tokyo: UN University Press.

Brown Weiss, Edith (1993) 'International Environmental Issues and the Emergence of a New World Order', *Georgetown Law Journal* 81(3): 675–710.

Buzan, Barry, Charles Jones and Richard Little (1993) *The Logic of Anarchy: From Neorealism to Structural Realism*. New York: Columbia University Press.

Carlsnaes, Walter (1992) 'The Agent–Structure Problem in Foreign Policy Analysis', *International Studies Quarterly* 36(3): 245–70.

Checkel, Jeffrey T. (1998) 'The Constructivist Turn in International Relations Theory', *World Politics* 50(3): 324–48.

Clapp, Jennifer (1994) 'Africa, NGOs, and the International Toxic Waste Trade', *Journal of Environment and Development* 2(1): 17–46.

Coleman, James (1990) *Foundations of Social Theory*. Cambridge, MA: Belknap Press.

Compa, Lance A. and Stephen F. Diamond (eds) (1996) *Human Rights, Labor Rights, and International Trade*. Philadelphia, PA: University of Pennsylvania Press.

Eckersley, Robyn (2004) 'The Big Chill. The WTO and Multilateral Environmental Agreements', *Global Environmental Politics* 4(2): 24–50.

Elster, Jon (1989) *Nuts and Bolts for the Social Sciences*. Cambridge: Cambridge University Press.

Fearon, James D. (1991) 'Counterfactuals and Hypotheses Testing in Political Science', *World Politics* 43(2): 169–95.

Gehring, Thomas (1994) *Dynamic International Regimes: Institutions for International Environmental Governance*. Frankfurt/Main: Peter Lang.

Gehring, Thomas (1998) 'Die Politik des koordinierten Alleingangs. Schengen und die Abschaffung der Personenkontrollen an den Binnengrenzen der Europäischen Union', *Zeitschrift für Internationale Beziehungen* 5(1): 43–78.

Gehring, Thomas and Sebastian Oberthür (2004) 'Exploring Regime Interaction: A Framework of Analysis', in Arild Underdal and Oran R. Young (eds) *Regime Consequences: Methodological Challenges and Research Strategies*, pp. 247–69. Dordrecht: Kluwer.

Gehring, Thomas and Sebastian Oberthür (2006) 'Comparative Empirical Analysis and Ideal Types of Institutional Interaction', in Sebastian Oberthür and Thomas Gehring (eds) *Institutional Interaction in Global Environmental Governance. Synergy and Conflict among International and EU Policies*, pp. 307–71. Cambridge, MA: MIT Press.

Gehring, Thomas and Sebastian Oberthür (2009) 'Interplay: Exploring Institutional Interaction', in Oran R. Young, Leslie A. King and Heike Schroeder (eds) *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers*, pp. 187–223. Cambridge MA: MIT Press.

George, Alexander and Andrew Bennett (2005) *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: MIT Press.

Haas, Ernst (1990) *When Knowledge is Power: Three Models of Change in International Organizations*. Berkeley, CA: University of California Press.

Haas, Peter M. (1992) 'Introduction: Epistemic Communities and International Policy Coordination', *International Organization* 46(1): 1–35.

Haas, Peter M. (2001) 'Policy Knowledge: Epistemic Communities', in Neil J. Smelser and Paul B. Baltes (eds) *International Encyclopedia of the Social and Behavioral Sciences*, pp. 11578–86. Amsterdam: Elsevier.

Haas, Peter M., Robert O. Keohane and Marc A. Levy (eds) (1993) *Institutions for the Earth: Sources of Effective International Environmental Protection*. Cambridge, MA: MIT Press.

Hasenclever, Andreas, Peter Mayer and Volker Rittberger (1997) *Theories of International Regimes*. Cambridge: Cambridge University Press.

Hedström, Peter and Richard Swedberg (1998) 'Social Mechanisms: An Introductory Essay', in Peter Hedström and Richard Swedberg (eds) *Social Mechanisms: An Analytical Approach to Social Theory*, pp. 1–31. Cambridge: Cambridge University Press.

Helfer, Laurence F.R. (2000) 'Forum Shopping for Human Rights', *University of Pennsylvania Law Review* 148(2): 285–400.

Héritier, Adrienne (1996) 'The Accommodation of Diversity in the European Policy-making Process and its Outcomes: Regulatory Policy as a Patchwork', *Journal of European Public Policy* 3(2): 149–67.

Jacquemont, Frédéric and Alejandro Caparrós (2002) 'The Convention on Biological Diversity and the Climate Change Convention 10 Years after Rio: Towards a Synergy of the Two Regimes?', *Review of European Community and International Environmental Law* 11(2): 139–80.

Jungcurt, Stefan (2008) *Institutional Interplay in International Environmental Governance: Policy Interdependence and Strategic Interaction in the Regime Complex on Plant Genetic Resources for Food and Agriculture.* Aachen: Shaker.

Keohane, Robert O. (1984) *After Hegemony: Cooperation and Discord in the World Political Economy.* Princeton, NJ: Princeton University Press.

Keohane, Robert O. (1989) 'Neoliberal Institutionalism: A Perspective on World Politics', in Robert O. Keohane (ed.) *International Institutions and State Power: Essays in International Relations Theory*, pp. 1–20. Boulder, CO: Westview.

Keohane, Robert. O. and Mark A. Levy (eds) (1996) *Institutions for Environmental Aid: Pitfalls and Promises.* Cambridge, MA: MIT Press.

King, Gary, Robert O. Keohane and Sidney Verba (1994) *Designing Social Inquiry: Scientific Inference in Qualitative Research.* Princeton, NJ: Princeton University Press.

Koremenos, Barbara, Charles Lipson and Duncan Snidal (2001) 'The Rational Design of International Institutions', *International Organization* 55(4): 761–99.

Lanchbery, John (2006) 'The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Responding to Calls for Action from Other Nature Conservation Regimes', in Sebastian Oberthür and Thomas Gehring (eds) *Institutional Interaction in Global Environmental Governance. Synergy and Conflict among International and EU Policies*, pp. 157–79. Cambridge, MA: MIT Press.

Levy, Marc A., Oran R. Young and Michael Zürn (1995) 'The Study of International Regimes', *European Journal of International Relations* 1(3): 267–330.

March, James G. and Johan P. Olsen (1998) 'The Institutional Dynamics of International Political Orders', *International Organization* 52(4): 943–69.

Martin, Lisa L. (1993) 'The Rational State Choice of Multilateralism', in John G. Ruggie (ed.) *Multilateralism Matters: The Theory and Praxis of an Institutional Form*, pp. 91–121. New York: Columbia University Press.

Mattli, Walter (2003) 'Setting International Standards: Technological Rationality or Primacy of Power', *World Politics* 56(1): 1–42.

Miles, Edward L., Arild Underdal, Steinar Andresen, Jørgen Wettestad, Jon Birger Skjærseth and Elaine M. Carlin (2002) *Environmental Regime Effectiveness: Confronting Theory with Evidence.* Cambridge, MA: MIT Press.

Moorman, Yasmin (2001) 'Integration of ILO Core Rights Labor Standards into the WTO', *Columbia Journal of Transnational Law* 39(2): 555–83.

Oberthür, Sebastian (2001) 'Linkages between the Montreal and Kyoto Protocols: Enhancing Synergies between Protecting the Ozone Layer and the Global Climate', *International Environmental Agreements: Politics, Law and Economics* 1(3): 357–77.

Oberthür, Sebastian and Hermann E. Ott (1999) *The Kyoto Protocol: International Climate Policy for the 21st Century*. Berlin: Springer.

Oberthür, Sebastian and Thomas Gehring (eds) (2006a) *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*. Cambridge, MA: MIT Press.

Oberthür, Sebastian and Thomas Gehring (2006b) 'Institutional Interaction in Global Environmental Governance: The Case of the Cartagena Protocol and the World Trade Organization', *Global Environmental Politics* 6(2): 1–31.

Palmer, Alice, Beatrice Chaytor and Jacob Werksman (2006) 'Interaction between the World Trade Organization and International Environmental Regimes', in Sebastian Oberthür and Thomas Gehring (eds) *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*, pp. 181–204. Cambridge, MA: MIT Press.

Raustiala, Kal and David G. Victor (2004) 'The Regime Complex for Plant Genetic Resources', *International Organization* 58(2): 277–309.

Risse, Thomas (2000) '"Let's Argue!" Communicative Action in World Politics', *International Organization* 54(1): 1–39.

Rosendal, Kristin (2001) 'Impacts of Overlapping International Regimes. The Case of Biodiversity', *Global Governance* 7(1): 95–117.

Schelling, Thomas C. (1960) *The Strategy of Conflict*, 15th edn, 1995. Cambridge, MA: Harvard University Press.

Schelling, Thomas (1998) 'Social Mechanisms and Social Dynamics', in Peter Hedström and Richard Swedberg (eds) *Social Mechanisms: An Analytical Approach to Social Theory*, pp. 32–44. Cambridge: Cambridge University Press.

Sebenius, James K. (1983) 'Negotiation Arithmetics: Adding and Subtracting Issues and Parties', *International Organization* 37(2): 281–316.

Selin, Henrik and Stacy D. VanDeveer (2003) 'Mapping Institutional Linkages in European Air Pollution Politics', *Global Environmental Politics* 3(3): 14–46.

Skjærseth, Jon Birger (2006) 'Protecting the Northeast Atlantic: One Problem, Three Institutions', in Sebastian Oberthür and Thomas Gehring (eds) *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*, pp. 102–25. Cambridge, MA: MIT Press.

Snidal, Duncan (1985) 'The Game Theory of International Politics', *World Politics* 38(1): 25–57.

Snidal, Duncan (1994) 'The Politics of Scope: Endogeneous Actors, Heterogeneity and Institutions', *Journal of Theoretical Politics* 6(4): 449–72.

Stein, Arthur (1982) 'Coordination and Collaboration: Regimes in an Anarchic World', *International Organization* 36(2): 299–324.

Stokke, Olav Schram (2000) 'Managing Straddling Stocks: The Interplay of Global and Regional Regimes', *Ocean and Coastal Management* 43(2/3): 205–34.

Stokke, Olav Schram (2001a) *The Interplay of International Regimes: Putting Effectiveness Theory to Work*. FNI Report 14/2001. Lysaker: Fridtjof Nansen Institute.

Stokke, Olav Schram (2001b) 'Conclusions', in Olav Schramm Stokke (ed.) *Governing High Seas Fisheries: The Interplay of Global and Regional Regimes*, pp. 329–60. Oxford: Oxford University Press.

Tarasofsky, Richard G. (1997) 'Ensuring Compatibility between Multilateral Environmental Agreements and GATT/WTO', *Yearbook of International Environmental Law* 7: 52–74.

Tistounet, Eric (2000) 'The Problem of Overlapping among Different Treaty Bodies', in Philip Alston and James Crawford (eds) *The Future of UN Human Rights Treaty Monitoring*, pp. 383–401. Cambridge: Cambridge University Press.

Underdal, Arild (2004) 'Methodological Challenges in the Study of Regime Effectiveness', in Arild Underdal and Oran R. Young (eds) *Regime Consequences: Methodological Challenges and Research Strategies*, pp. 27–48. Dordrecht: Kluwer.

Underdal, Arild, and Oran R. Young (2004) 'Research Strategies for the Future', in Arild Underdal and Oran R. Young (eds) *Regime Consequences: Methodological Challenges and Research Strategies*, pp. 361–80. Dordrecht: Kluwer.

Victor, David G., Kal Raustiala and Eugene B. Skolnikoff (eds) (1998) *The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice*. Cambridge, MA: MIT Press.

Weber, Max (1904) 'Die "Objektivität" sozialwissenschaftlicher und sozialpolitischer Erkenntnis', in Johannes Winkelmann (ed.) *Max Weber: Gesammelte Aufsätze zur Wissenschaftslehre*, pp. 146–214. Tübingen: Mohr.

Wendt, Alexander (1987) 'The Agent–Structure Problem in International Relations Theory', *International Organization* 41(3): 335–70.

Werksman, Jacob (2005) 'The Negotiation of a Kyoto Compliance System', in Jon Hovi, Geir Ulfstein and Olav Schram Stokke (eds) *Compliance with Climate Commitments: Conditions and Mechanisms*, pp. 17–38. London: Earthscan.

Whitman, Richard G. (2004) 'NATO, the EU and ESDP: An Emerging Division of Labour', *Contemporary Security Policy* 25(3): 430–52.

Yee, Albert S. (1996) 'The Causal Effects of Ideas on Politics', *International Organization* 50(1): 69–108.

Young, Oran R. (1992) 'The Effectiveness of International Institutions: Hard Cases and Critical Variables', in James N. Rosenau and Ernst-Otto Czempiel (eds) *Governance without Government: Order and Change in World Politics*, pp. 160–94. Cambridge: Cambridge University Press.

Young, Oran R. (1996) 'Institutional Linkages in International Society: Polar Perspectives', *Global Governance* 2(1): 1–24.

Young, Oran R. (ed.) (1999) *The Effectiveness of International Environmental Regimes: Causal Connections and Behavioral Mechanisms*. Cambridge, MA: MIT Press.

Young, Oran R. (2002) *The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale*. Cambridge, MA: MIT Press.

Young, Oran R., W. Bradnee Chambers, Joy A. Kim and Claudia ten Have (eds) (2008) *Institutional Interplay: Biosafety and Trade*. Tokyo: UN University Press.