

**SCALING UP: APPLYING LOWER-LEVEL
THEORY TO INTERNATIONAL RELATIONS**

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Abstract

Scholars of international relations frequently borrow theoretical arguments from lower levels of human activity. I identify two modes by which such ‘scaling up’ is conducted: the use of analogies and metaphors to lower-level phenomena, and the borrowing of more complex models and theories. While this practice has been fruitful for international theorists, scaling up confronts three dangers that pose a threat to what I term ‘multi-scale validity’. First, an aggregation problem occurs when we treat states as the central actors. Second, theoretical concepts and mechanisms may not longer be appropriate in the social and institutional context of a new domain. And third, changes in the substantive nature of an issue may make the use of superficially similar theories misleading when transferred to the international level. I use examples from the rationalist literature on international cooperation and institutions to illustrate both the practice of ‘scaling up’ and the potential problems.

1. Introduction

Social scientists routinely engage in the practice of ‘scaling up’, defined as the transferring of theoretical propositions from one level of human activity to another. These propositions may be borrowed in the form of simple metaphors and analogies, or they may involve more complicated models and theories, typically transplanted with some modification. The potential problem of scale, as captured by Oran Young (1995: 28), ‘concerns the extent to which the underlying mechanisms at work at the various levels are similar enough to allow us to make use of ideas and insights developed at one level in our efforts to understand phenomena occurring at other levels.’ This article raises various analytical concerns and offers suggestions regarding the practice of scaling up in the study of international politics.

International Relations (IR) theorists frequently build on theoretical work designed to explain behavior at the domestic and individual—and even microbial¹—levels in order to build theories about international actors, especially states. The writings of social and political theorists, from Hobbes to Weber to Habermas, are routinely mined for insights. Rational choice scholars have infused the study of international interactions and institutions with the principals of game theory and microeconomics, designed to explain the behavior of individuals and firms. Social constructivist scholars have explained international-level phenomena using ideas from

¹ For example, Robert Axelrod’s (1984) evolutionary approach to international cooperation borrows insights from evolutionary biology.

sociology and psychology, among other fields—ideas originally intended to illuminate the activities of individuals or groups.

For a relatively young social science field such as IR, the scaling up of proposition from lower levels has been a natural and valuable practice, providing well developed theoretical ideas that often capture the broad contours of international political activities quite well. Cooperation and collective action problems among states clearly involve many of the same dynamics as those involving individuals. Institutions at both levels, from formal organizations to norms, matter in similar ways. States bargain, persuade, deter and contract with each other much like economic and political actors in the domestic realm.

Yet the practice of scaling up has also exhibited recurrent pathologies when conducted without sufficient reflection. When concepts and theories from the domestic and individual level are transplanted to IR they are sometimes stretched too thin to be illuminating. At worst, they can be misleading. We can think of the problem of scaling up as a special case of generalizability or external validity: it requires an argument to be robust across domains of human behavior, not just across cases within the realm for which it was created.² I refer to this as the issue of *multi-scale validity*. This question of validity is always relevant when we take assumptions and arguments out of their original setting—where, after all, they are already simplifications of reality—and apply them to a different level of social behavior. For obvious

² On the notion of ‘external validity’, see Cook and Campbell (1979: 39), who define it as the ‘validity with which conclusions are drawn about the generalizability of a causal relationship to and across populations of persons, settings, and times.’ These domains need not be at different levels, or scales, of social behavior for problems of validity to arise. The problem of scale is merely a special case—most relevant for students of international affairs—of the transference of theoretical propositions across empirical contexts.

reasons, students of international politics typically transfer ideas to a higher level—hence the focus of this article on scaling *up*.

In assessing the practice of scaling up, I refer mostly to the literature on international cooperation and institutions. And although constructivist scholars are equally fond of borrowing from theories of domestic society and individual behavior,³ I concentrate mostly on rationalist contributions to the literature as a way to limit the scope of the paper. The recent and self-conscious turn toward social scientific analysis—and especially rational choice theorizing and methods (based on assumptions about *individual* behavior)⁴—in international legal scholarship makes this essay as relevant to the field of International Law as to IR.

This article constitutes, on the hand, a theoretical exploration into issues of scale in social scientific analysis. On a more practical level, it serves as a guide to practitioners who seek to apply lower-level theories to international affairs while avoiding some of the potential pitfalls. I am certainly not arguing that students of international relations should not engage in scaling up. My purpose is to point to some of the possible problems of doing so and to suggest that

³ Examples from the constructivist literature include the application of Habermas' notion of the 'public sphere' to explain communication among and the behavior of states (Risse, 2000; Mitzen, 2005), and the use of Weber's theories on bureaucracy to understand the 'pathologies' of international organizations (Barnett and Finnemore, 2004). The English School's metaphor of an 'international society' has also influenced constructivist research (Bull 1977; Finnemore, 1996; Buzan, 1993; Hurrell, 1993)

⁴ This borrowing of rational choice theory and economic styles of analysis in international law is occurring along two overlapping fronts. First, international legal scholars are increasingly incorporating rationalist IR theory into their own field (e.g., Setear, 1996). Second, law-and-economics scholars have brought positive economic analysis, especially game theory and transaction cost economics, into international law (e.g., Bhandari and Sykes, 1997).

domestic- and individual-level theories are most helpful if used to guide research and to generate more specific hypotheses, not when they are adopted in a wholesale fashion.

The next section reflects on how IR scholars have engaged in scaling up and deepens the concept. I divide the practice into two principal forms and outline each: (1) the use of metaphors and analogies, which typically involves explicit or implicit substantive assumptions about actors or behavior; and (2) the borrowing of models and theories involving purportedly generalizable and usually causal arguments about behavior. The third section identifies three classes of potential problems that recur in works that employ scaling up. First, they often treat states as unitary actors, which may or may not reflect reality. Second, those who scale up often ignore differences in the social context at lower levels, including the existence and nature of political and legal institutions. Finally, the substantive issues at stake may vary in analytically important ways at different levels, such that concepts and explanations become inappropriate when transplanted. This typology of the problems with scaling up is not exhaustive but it includes an important set of issues that seem to recur in the literature. The final section offers guidance on how the framework might be applied in practice and concludes by indicating possible future sources of scaling up that have not been sufficiently explored by IR researchers.

2. Scaling Up In Practice

Scaling up in IR is performed in two general modes: (1) the importation of metaphors and analogies from lower levels, and (2) the importation of more complex models and theories. This section addresses each in turn, offering a conceptualization and examples from the literature for

each mode. Scaling up in these ways can be helpful by casting international-level behavior in a new light, but for each mode of scaling up there are limits to this ability to illuminate.

Metaphors and Analogies

The first category may seem innocuous enough and, indeed, metaphors and analogies can often be used as heuristics to convey ideas that span domains. Descriptions and explanations expressed in terms of metaphors or analogies involve no formal deductive apparatus; instead, they stimulate us to infer properties of one phenomenon from properties of another based on assumed resemblances.⁵ For example, Stanley Hoffman (1968) offers a powerful metaphor when he describes the Cold War United States as Gulliver, a giant tied down by an increasingly complex international system. Others analogize international treaties to domestic-level contracts (Lake, 1999, Koremenos et al., 2004, and Schwartz and Sykes, 2002). Some argue that the treatment of international law as ‘law’ is no more than an analogy. In fact, the entire apparatus of rational choice applications to social behavior can be seen as an elaborate set of metaphors borrowed from physics: individuals are particles that interact with one another under a set of constraints and according to universal principles (Murphy, 1996). More mundane examples abound, such as the equation of war with a game of football or crisis behavior with gambling.

Analogies and metaphors can be dangerous when they entail explicit or implicit substantive assumptions that do not travel across domains and when they are indeterminately vague, such that multiple, incompatible conclusions can be drawn from them. The frequent

⁵ For further conceptual discussion of metaphors and analogies, see Snidal (1985) and Beer (1986). According to Snidal, the main difference between a metaphor and an analogy is that the latter involves tighter specification of resemblances.

metaphor of describing the anarchy of international politics in terms of Hobbes' 'state of nature', invoked so often by Realist scholars (Carr, 1946: 112, 176; Waltz, 1959: 85), is an example of the latter danger. Does the apparent resemblance imply that countries will indefinitely and inextricably engage in competitive struggle, or does it imply that they will solve their problems by establishing a coercive global government? One reading of Hobbes produces the former prediction and is consistent with the logic of Realism. Another reading of Hobbes supports a more Liberal interpretation. Hobbes (1962: 129, 158) believed we could rationally design governance structures and laws to allow citizens to contract and enjoy liberties: 'The final cause, end, or design of men...in the introduction of that restraint upon themselves, in which we see them live in commonwealths, is the foresight of their own preservation, and of a more contented life thereby; that is to say, of getting themselves out from that miserable condition of war....The skill of making, and maintaining commonwealths, consistent in certain rules, as doth arithmetic and geometry.'⁶

The point is that most metaphors invoking lower-level phenomena must be qualified with additional assumptions and specifications to be usefully imported to the international level. Otherwise, they can be as confusing as they are revealing. Consider another common manifestation of scaling up in IR, the equation of the international system of states to a competitive market. This analogy is more theoretically rich and revealing than the state of nature metaphor; it says more about the constituent actors and the system in which they operate. States, like firms, are rational egoists that compete for scarce resources and seek to maximize their utility subject to the constraints of the system. While this captures important dynamics of world

⁶ For a theoretical discussion of Hobbesian anarchy applied to the international system, see Wendt (1999: chap. 6).

politics, it nevertheless raises as many questions as it answers and is limited in its usefulness.⁷ For example, it tells us little about how states define their utility. Do they maximize power (Mearsheimer, 2001) security (Waltz, 1979), economic welfare (Rosecrance, 1986), or social rewards (Johnston, 2001)? The same assumptions derived from the oligopolistic market analogy can be used to predict not only conflict and competition, but also cooperation and institution building (Keohane, 1984; Oye, 1986).

The key to effective use of metaphors and analogies is to be specific about which of the accompanying assumptions of the lower-level concepts are being transplanted and what additional assumptions and specifications must be added to make the comparison enlightening. In his critique of Kenneth Waltz's (1979) use of the market analogy, for example, Friedrich Kratochwil (1989: 47) points out that 'markets are probably the social institutions which are *most* dependent upon normative underpinnings.' Waltz is largely discarding this social aspect of domestic markets. The fact that these norms do not exist at the international level—at least not of the same nature and degree—calls into question other insights presumed to be revealed by the analogy. Other assumptions are potentially problematic not because they are discarded but because they are retained—treating states as unitary actors in the same way economists treat firms or consumers is a case in point.

Models and Theories

In this second category, scaling up occurs through the borrowing of more complex models and theories. Theories typically involve causal statements about behavior accompanied by an

⁷ On the limitations of applying the market analogy to international relations, see Russett (1968: 131-7) and Kratochwil (1989:47).

explanation for how the causation occurs.⁸ Models, whether verbal or formalized, are abstracted from broader theories and are generally causal statements concerning real-world phenomena.⁹ The same theory, therefore, may produce multiple models, and it is these more well-specified models that are subjected to empirical testing. Models and theories have two important characteristics in common: they are always simplifications of reality and they are intended to be generalizable to some extent.¹⁰ Unlike metaphors and analogies, models and theories have an internal deductive logic that is explicit rather than implied, and they can be subject to the test of internal validity to the extent that they make causal statements.¹¹

Models and theories have been scaled up to explain international relations with great effect. Rational choice models of cooperation and collective action among individuals—such as the prisoners’ dilemma (PD), the ‘tragedy of the commons’, and the free-rider problem—have been used to show that when states act rationally the outcome may be perverse or seemingly irrational.¹² This is a fundamental insight that elucidates a variety of issues in international

⁸ Rational choice theorizing need not rest on causal arguments, as the role of equilibrium models attests. Moreover, ‘constitutive’ rather than causal theorizing is increasingly popular in IR. Nevertheless, most philosophers of science and social science define theories as incorporating causal explanations.

⁹ For further conceptual discussion of models, see King, Keohane and Verba, 1994: 49-50; and Snidal, 1985: 32-4.

¹⁰ In fact, it is the simplification inherent in a model that makes it generalizable. Schelling (1978: 89) notes that, ‘If a model meets the criterion of simplicity it will often...describe physical and mechanical systems as well as social phenomena.’ He uses the example of ‘critical mass’.

¹¹ On this latter point, see Yin (1984: 38). The problem of internal validity arises when we conclude that some variable x (a proxy for a broader theoretical construct) causes another variable y when in fact an omitted third variable z causes y , or is caused by x and then causes y . See Cook and Campbell (1979: 38).

¹² At the domestic and local level, this logic is captured by, among others, Olson (1965), Schelling (1978), and Hardin (1968). At the international level, a somewhat analogous problem, whereby individually rational decisions

affairs, including the failure to avert war, the persistence of protectionist trade barriers, and the degradation of global commons. IR scholars have borrowed a variety of more specific models originating from the analysis of domestic behavior, especially from economics, and many principles travel quite well. In his study of competition among firms, Michael Nicholson (1972: 149-150) shows that oligopolists tend to compete in advertising rather than price because it is harder to respond quickly and effectively to the former. This explanation travels well to international relations, where it is easier for states to respond to violations of economic agreements than to arms control and other military-security agreements; this insight has been used to explain why we see more cooperation in the former (Wagner, 1983; Lipson, 1984). Scaling up in the area of international cooperation studies has been highly productive.

Theories and models, however, are meant to apply within a range of conditions. In Carl Hempel's (1966: 76) formulation, a theory 'shows that within a certain limited range defined by qualifying conditions, the generalizations hold true in fairly close approximation.' Any further generalization must involve either additional assumptions or appropriately qualified conclusions. Accordingly, most theories can be scaled up to international affairs only with substantial modification and altered assumptions. David Mitrany (1966) provides an excellent example in the context of European integration. He argues against the notion that we can simply transplant the theory and practice of federalism from domestic systems to the Europe-wide system and famously proposes an alternative, 'functional' theory that is more appropriate for this wider and more complex domain.

lead to collectively undesirable outcomes, is the 'security dilemma' between states (Jervis, 1978). Of course, the PD and collective action problems are referenced frequently to understand the underlying cooperation problem faced by states (Axelrod, 1984; Keohane, 1984).

Other instances of scaling up theories and models reveal both the benefits and the costs. IR and international law theorists have frequently employed contracting theory—and the principles of transaction cost economics more generally—to explain the creation and design of international agreements and institutions (Lake, 1999; Koremenos, Lipson and Snidal, 2004; Yarbrough and Yarbrough, 1992; Aceves, 1996). In general terms, the theory of contracting applies well to bargaining among states, which, like individuals and firms, must weigh the prospective benefits of an agreement with the costs of negotiating, implementing and enforcing it. The result, invariably, is an incomplete contract (or treaty). Scaling up contracting theory to international relations, however, can be dangerous. Oliver Williamson's transaction cost economics assumes an overarching constitutional and legal framework to be given and, despite an emphasis on the decentralized setting of the market, concedes that courts provide 'ultimate recourse' (1985: 203; see also Furubotn and Richter 1997: 280). In other words, contracting at the domestic level is conducted in the context of enforceable laws, whereas states must contract in a system much closer to anarchy.

Thus theorists of the international level who borrow from the economic theory of contracts must do so carefully—and many do. In order to explain the structure of international security institutions, for example, David Lake (1999) employs relational contracting theory, which was developed to explain 'transactions of a recurring and nonstandardized kind' (Williamson, 1985: 73). Relational contracts can be understood 'as contracts that do not try to take account of all future contingencies but are nevertheless long-term arrangements in which past, present, and expected future personal relations among contracting parties matter. Therefore, such contracts are, to a degree, *implicit, informal, and nonbinding*. Self-enforcement plays an important role here' (Furubotn and Richter 1997: 158; footnote omitted). Lake has

clearly chosen the most appropriate form of contracting to build his international theory since centralized enforcement is typically not a viable option for states. Robert Keohane (1984) also shows how domestic-level theories can be scaled up with appropriate sensitivity. He borrows Ronald Coase's (1960) model of efficient bargaining in the absence of central authority but 'inverts' it to fit the international setting. Because the preconditions for Coase's theorem—a legal framework, perfect information, and no transaction costs—are problematic at the international level, the model can be mined for insights but not simply transplanted to the new setting.

It is absolutely clear that none of these conditions is met in world politics. World government does not exist, making property rights and rules of legal liability fragile; information is extremely costly and often held unequally by different actors; transaction costs, including costs of organization and side-payments, are often very high. Thus an *inversion* of the Coase theorem would seem more appropriate to our subject (Keohane, 1984: 87).

In other words, to facilitate cooperation among states, we should focus on institutional structures—for Keohane, regimes—that establish Coase's preconditions, and only then should we expect states to behave like the individuals and firms in the world of Coasean bargaining. Lake and Keohane illustrate how models and theories can be properly scaled up with sensitivity to changes in the relevant actors and their contexts.

Combining Modes

The separation of analogies and metaphors, on the one hand, and models and theories, on the other, is analytically convenient but somewhat artificial. First, a given model or theory can be scaled up but might also be used simply as an analogy or metaphor. While bargaining models are often employed in IR, the notion of bargaining may also be used merely as a metaphor for interactions among states—this is largely how Schelling (1960: 5-6) uses the concept. Game theory models such as PD, coordination, stag hunt, and chicken can be applied formally to international affairs; on the other hand, they may be used merely as heuristic devices to capture the essence of an international cooperation problem such as standardization (coordination), tariff wars or compliance (PD), cooperating over multilateral sanctions (stag hunt), and crisis behavior (chicken). Given that PD has been criticized even in applications to individual behavior and local settings (Ostrom, 1990), it should not be surprising that many reject its treatment as a faithful representation of interstate behavior (Wagner, 1983; Gowa, 1986). And yet as a metaphor for the difficulty of achieving mutually desirable cooperation it has usefully guided the theoretical discussion of international relations. Similarly, a reference to social or public choice theory may be used as a metaphor for the difficulty of aggregating preferences, or one may select a particular model—the median voter theorem (Downs, 1957), the logic of collective action (Olson, 1965), the impossibility theorem (Arrow, 1951)—and apply it more directly to an international situation.

Second, analogies and metaphors cannot be separate from models and theories insofar as the former often constitute implicit or explicit assumptions when the latter are scaled up. In these cases, the multi-scale validity of the international theory is dependent, in turn, on the validity of the analogy (or analogies). For example, Andrew Guzman and Beth Simmons (2002) scale up

insights from settlement behavior in domestic litigation. This theoretical transplantation rests on a number of analogies between the international and domestic legal systems, namely that international law really is ‘law’ in a meaningful sense and that it casts an appreciable ‘shadow’ on parties to a dispute in the same sense that domestic law and courts do. In applying the law-and-economics analysis of property to the issue of prescriptive jurisdiction, Joel Trachtman (1997: 642) relies on an analogy between a state’s jurisdictional rights and an individual’s property rights. These analogies become the substantive assumptions of a theoretical framework, and such assumptions are key to deriving logically consistent and substantively meaningful hypotheses from a theory.

In other words, when we scale up theories we are often scaling up analogies in the process; if these analogies do not hold, the assumptions of the theory are invalid. There is a particular danger that, in the process of scaling up, assumptions are smuggled into the explanation without explicit recognition. This can lead to inappropriate applications of domestic-level theory to international relations.

3. Three Pitfalls of Scaling Up

I move now from a discussion of the different modes in which scaling up is practiced to a discussion of threats to the validity of an argument that is scaled up. I present three categories of potential problems: (1) the unitary actor assumption applied to states; (2) differences in social and institutional settings at the domestic and international levels; and (3) differences in the nature of substantive issues in the two domains. These problems affect the nature of the relevant actors,

how these actors define their interests, and what constraints they face as they pursue those interests.

For each of the three categories I offer examples from the IR literature to illustrate my points. Treating states as unitary actors is discussed in the context of rationalist regime theory and institutionalism, differences in social context are discussed in light of the literature on international commons management, and the importance of changes in substantive issue areas is illustrated with the literature on inter-state bargaining. These areas of research are enlightening because they were to some extent hindered by problems of theoretical scale—in particular, all three tended to over-predict the conditions that lead to successful international cooperation—but have become more sensitive to them over time.

States as Unitary Actors

Unitary actor models assume either that the state aggregates all domestic preferences—of individuals, interest groups, and various intra-governmental actors—and acts *as if* it were a single actor, or that state decisionmaking is *in fact* channeled through a single or small group of crucial individuals who make important decisions.¹³ In practice, the unitary actor assumption usually combines an element of methodological convenience with some belief that it is an empirically accurate portrayal of state behavior.

Though rational choice relies on methodological individualism, unitary actor models are not coterminous with rationalism in the study of international relations. The potential unitary

¹³ Examples of the latter include Bueno de Mesquita (1981), who argues that top decisionmakers in the government represent the states, and Krasner (1999), who focuses on ‘rulers’ as embodying the state. Some international legal scholars also rely on the fact that key public officials can drive the creation and implementation of law to explain outcomes in terms of individual self-interest. See Cass (1997: 39) for examples.

actor problem is not obviated if we move away from the assumption of rationality; explanations based on bounded rationality or cognitive psychology, for example, also confront it.¹⁴ Moreover, constructivist scholars often adopt a unitary actor approach and face an aggregation problem of their own. Alexander Wendt (1999), for example, treats states as unitary and even anthropomorphic, attributing beliefs and intentionality to them. Constructivists often scale up theories from sociology and social psychology to explain why states are concerned with norms like conformity and esteem and how states can be persuaded or socialized. Critical reflection on whether and how states as actors can be subject to such social forces is still in its early stages (Johnston, 2001; Checkel, 2001). Thus the potential pitfalls associated with treating the state as unitary bedevil various theoretical approaches.

So what are the potential problems of treating states as unitary? To begin with, the very notion of the post-Westphalian sovereign state has been called into question by recent analyses. Stephen Krasner (1999: 53) critiques state-centered theories of international relations in light of the historical frailty of national sovereignty, arguing that they ‘cannot offer much guidance in situations where...[their] basic ontological assumption that states are autonomous actors is violated.’ Sovereignty in thought and practice has been fluid and contingent on various historical and cultural factors (Biersteker and Weber, 1996.)

A more profound challenge to the unitary actor assumption in IR comes from within the rational choice tradition and concerns the difficulties of endowing any corporate actor with coherent preferences or agency. Groups like societies and nations—and even families—cannot

¹⁴ George Downs (1989: 236) makes a similar point with regard to the deterrence literature, where both rationalist and psychology models treat states as individuals. For a discussion of the aggregation problem in psychological theories of foreign policy decisionmaking, see Levy (1997: 102-4).

be unproblematically treated as the basis for rational choice theorizing, which relies on decisions by individuals (Riker and Ordeshook, 1973: 78-9; Elster, 1986: 3). Building on Arrow's (1951) impossibility theorem (showing that under majority rule voting no single, collectively preferred policy exists), Kenneth Shepsle (1992: 249) examines legislatures as corporate actors. He argues that individual legislators' intents, 'even if they are unambiguous, do not add up like vectors.' Legislation does not reflect a simple aggregation of the preferences of legislators, and therefore 'legislative intent is an internally inconsistent, self-contradictory expression' (Shepsle, 1992: 239.) The more general point is that collective actors do not behave according to rationalist principles in the same way unitary actors do—they do not have coherent beliefs, goals and preferences.

IR scholars have begun to appreciate this point in the form of three sets of amendments to the assumption of states as unitary actors. They have looked inside government bureaucracies to explain foreign policy decisionmaking (e.g., Allison and Zelikow, 1999), they have sought to understand the role of domestic interest groups in shaping state interests (Moravcsik, 1997) and they have looked at interactions between state leaders and domestic actors in the formation of international policy stances, as in the 'two-level games' literature (Putnam, 1988; Evans, Jacobson and Putnam, 1993). The third approach in particular has been popular among rationalist scholars, and for good reason: the strategic dynamics of bargaining between two levels of actors are highly amenable to game theoretic analysis (e.g., Milner, 1997).

Rationalist theorizing on international regimes and institutions reflects this trend. It began by treating states as unitary actors and showed little sensitivity to the potential problems of scaling up theoretical propositions from lower levels. Neoliberals treated states as individuals caught in a PD game and defined international institutions no differently than domestic

institutions. There is nothing distinctively ‘international’ about the standard definition of international regimes, as ‘sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors’ expectations converge’ (Krasner, 1983: 2).

International regimes are thus ‘like all social institutions’ in terms of their fundamental properties (Young, 1989). With states treated as individual actors, the concept of institutions could be borrowed from studies of institutions governing individual behavior at the domestic level, and IR scholars could simply adopt principles from the ‘new institutionalism’ in the social sciences.¹⁵

Ironically, although ‘[t]he widespread conception of the modern corporation as a ‘black box’ is the epitome of the *noninstitutional* (or pre-microanalytic) research tradition’ in economics (Williamson, 1985: 15; emphasis added), IR theorists scaling up from the new institutional economics treated states in precisely this manner, as black boxes. This move toward state-centric cooperation theory and institutionalism came despite considerable evidence that domestic politics play an important role in many foreign policy decisions. In trade policy, tariffs and other barriers are routinely set higher than their optimal national welfare levels for reasons rooted in the domestic realm, and international trade negotiations are clearly shaped by domestic politics (Cameron and Tomlin, 2000; Odell, 2000). Similarly, in a broad range of issue-areas—from the environment to the laws of war—compliance with agreements implicates domestic-level constituents, who may undermine international cooperation by not following rules imposed on them by states or by threatening not to do so during negotiations. (Dai, 2005; Morrow, 2002).

¹⁵ For definitions of institutions at the domestic level that are very similar to those offered in IR, see Ostrom (1990: 51) and Knight (1992: 2-3). For further comparison of institutions as treated at both levels, see Young (1995: 33-5).

Domestic political imperatives may also drive governments to seek approval from international organizations as they contemplate interventions (Thompson, 2006; Chapman and Reiter, 2004).

Recognizing the limitations of the unitary actor approach, students of international regime formation and cooperation in the rationalist tradition now explicitly incorporate domestic politics (Milner, 1997; Drezner, 2003; Zurn, 1993; Lake and Powell, 1999). State-centrism was a reasonable simplifying assumption for launching a new institutionalist research program in IR, and it was often adopted with the understanding that such accounts would have to be embellished to apply to real-world situations. It is interesting to note that some alternatives to rational choice do not withstand the unitary actor critique when applied to the international realm either. Should we expect states as actors to engage in unselfish behavior for ethical or cultural reasons, as Amartya Sen (1977: 317) and others suggests individuals do? Is it reasonable to think of states as ‘people’, with emotions and personalities (Wendt, 1999)? These critiques of economic rationality are equally dependent on the assumption that states have coherent beliefs and preferences.

The implication for studies of international affairs is simply to be sensitive to the potential pitfalls of scaling up models that assume states are unitary actors. As Jon Elster (2000: 692) notes, ‘To be taken seriously, ... any account that imputes goal-oriented behavior to aggregate entities has to explain why we should expect consistency in their behavior.’ The unitary actor assumption is sometimes justified on empirical grounds and sometimes justified for the sake of parsimony; on the other hand, it may confound explanations and predictions when actors and institutions within the state play prominent roles.

Social and Institutional Context

Another potential threat to multi-scale validity is differences in the social context as we move between levels of human behavior.¹⁶ This context may include formal political and legal institutions and less formal social norms and rules. It constitutes the background conditions or ‘rules of the game’ for actor behavior and is captured in rational choice theory by the notion of constraints or, more deeply, by shaping beliefs and even preferences. Social context may also establish ‘common conjecture’ among actors, ensuring that they see themselves as playing the same strategic game (Morrow, 2002). The context or structure of a situation—including both social and material factors—can shape actor behavior in important ways and can even ‘induce’ a certain equilibrium outcome (Shepsle and Weingast, 1981.)¹⁷ Even rationalists concede that social forces can influence behavior, as Mancur Olson’s (1965) discussion of ‘social incentives’ in small groups attests. The PD may also be solved by the social environment of the players. Robert Keohane (1984: 73) asks us to consider what would happen if the prisoners were ‘members of a society of criminals such as the Mafia.’ Presumably they would be less likely to rat on each other (that is, to defect). Similarly, Ostrom (1990) shows that more intimate social settings, where actors know and interact with each other frequently, enhance the propensity to solve collective problems.

As with individuals, state behavior is shaped by its social context and other aspects of its environment (Goertz, 1994; Waltz, 1979; Bull, 1977), and this setting is substantially different than that which exists at the domestic level. Politically and legally, the international setting is

¹⁶ Oran Young (1995) also discusses the issue of different social settings, though with different emphases.

¹⁷ Formal institutional structures need not play a role. A classic example is a coordination game in which there are two equally attractive equilibria. Social conventions and ideational factors can determine which outcome actors choose in these situations (Schelling, 1960: chap. 2; Goldstein and Keohane, 1993).

relatively anarchic; there is no centralized government and little enforceable law. Even acknowledging that the international community can rightly be described as a ‘society’ in the sense that states share an international social consciousness and feel bound by common rules,¹⁸ there are clearly qualitative differences between the international and domestic social systems. Even constructivists agree that ‘the international system is not very thick or dense’ and that, in any case, states ‘are much more autonomous from the social system in which they are embedded’ (Wendt, 1999: 2). If there is an international society in any meaningful sense, it has less social glue, less ‘cement’ (Elster, 1989a) to bind its members together.

The literature on solving international and global commons problems demonstrates some of the potential pitfalls that arise as social settings change. IR scholars have borrowed from domestic- and local-level studies of common-pool resource (CPR) management in an attempt to scale up various propositions, especially regarding effective institutional design for collective action. This move is premised on the observation that the technical properties of the cooperation dilemma are similar at both levels and that the relevant actors—individuals removed from governmental control at the local level and states at the international level—interact in a similarly anarchic setting.¹⁹ It should be noted that scaling up in CPR research has been done with some sensitivity to problems of scale; nevertheless, reviewing the literature can be instructive and some threats to multi-scale validity have not been sufficiently addressed.

¹⁸ There is a long tradition of using the ‘society’ metaphor. Examples from IR originate in the English School and persist in modified form among social constructivists (Bull, 1997; Wight, 1977; Hurrell, 1993; Buzan, 1993; Finnemore, 1996). International law scholars also use this metaphor (Mosler, 1980; Brierly, 1963).

¹⁹ Examples of CPR research in IR include Buck (1998); Keohane and Ostrom (1995); Barkin and Shambaugh (1999); and McGinnis and Ostrom (1996). Key works in the local-level CPR literature are Ostrom (1990); and Ostrom, Gardner and Walker (1994).

Aside from centralized government control, there are two broad solutions to a commons problem: privatization (i.e., the extension of property rights over the resource) and the decentralized establishment of a common-property regime (Singleton and Taylor, 1992; Baden and Noonan, 1998). When scaled up to the international level, the first alternative confronts changes in legal and political institutions and the second confronts changes in the social environment.

In theory, ownership solves many resource exploitation problems by neutralizing the perverse individual incentives that lead to the tragedy of the commons.

If enforceable property rights exist, the possessor of those rights has an incentive either to use the resource in such a manner that it provides the highest benefits and is not destroyed, or to sell the rights for beneficial nondestructive use to another who values them more. Thus an individual pursuing his own interests can be expected to utilize efficiently resources that carry firm property rights. This tendency, however, cannot be expected in individuals pursuing their own interests on unowned resources (Bish, 1998: 67).

This is also the conventional wisdom for international commons (Sweeney et al., 1974), and, indeed, ocean resources have been managed largely by the extension of territorial waters and exclusive economic zones, thereby granting increased 'property rights' to states. In her study of the global commons, Susan Buck (1998: 27) makes this analogy explicit: 'Just as an individual holds a complex bundle of property rights in his or her own society, so does a nation-state

exercise a complex bundle of rights in the international arena....Sovereignty may be thought of as a special case of property rights.’

The property rights paradigm, however, does not travel well to the international level for two reasons. First, following the discussion above, the notion of ownership at the domestic level does not translate well into the notion and practice of sovereignty among states, which is notoriously fragile. In any case, *jurisdiction* is not the same as *ownership* (Young, 1995: 31). There is also a two-level games dimension to property rights-based solutions to international commons problems, where the actual appropriators of the resource (individuals or organizations within society) are not the rights holders (the state). This complicates the negotiation of agreements and creates a separate principal-agent problem at the enforcement stage. In addition, institutional arrangements for CPR management at the local level may be more successful because the actors involved depend on solutions for their livelihood (McGinnis and Ostrom, 1996: 472.) This is rarely the case for state officials dealing with international commons problems.

Second, the background legal setting is drastically different at the international level than in the domestic realm, making solutions based on property rights—even if they could be reasonably well established—problematic. Most property rights analysis at the domestic level begins with the assumption that all activity takes place within the institutional framework of the state (Furubotn and Richter, 1997: 71.) For solutions to be based on rights, these rights have to be administered and enforceable. Indeed, one critique of a national tradable permits (i.e., ownership- and market-based) solution to global warming is that its administration would require a centralized body to grant quotas, gather information, facilitate exchange, and punish violators, a substantial obstacle at the supranational level (Victor, 1991). Property rights solutions

therefore confront very different political and legal settings when scaled up to international affairs.

The primary alternative to private rights is the creation of a self-organized regime, or set of rules, governing a resource's use. Here scaling up faces serious changes in the nature of the social setting. Self-regulation by individuals is possible partly because they are subject to various social incentives and pressures. However, such influence mechanisms may depend on face-to-face interaction and, unlike local fishermen, states do not drink together in a bar after a long day of plying the waters.²⁰ The ability of local CPR problems to be solved without third-party intervention has been partly attributed to a sense of 'community' among the relevant actors (Singleton and Taylor, 1992). Given that international life is much less socially 'thick' and that different individuals may represent the same state, as discussed above, we should not be confident that this aspect of the social setting remains intact as we scale up. Oran Young (1995: 33) expresses skepticism along these lines: '[W]e should be wary about causal assertions regarding the existence of an international community and, as a result, about the transferability of arguments pertaining to the role of community in solving collective-action problems from the level of small-scale societies to the level of international society.'

Differences in social setting interact with differences in legal institutions to compound the problems of scaling up the CPR literature. In fact, although studies on the decentralized management of local and regional CPRs are premised on the absence of government control, empirical work in this area reveals that courts and regulatory agencies do sometimes intervene to provide information (Ostrom, 1990: 212), to grant permits governing the extraction of resources (Oye and Maxwell, 1995: 202-3), and even to settle law suits (Ostrom, Gardner and Walker,

²⁰ On the importance of individual interaction, see Olson (1965: 62); and many examples in Ostrom (1990).

1994: 278.) Even if government involvement is not direct, the background condition of enforceable law can shape cooperative behavior in the domestic setting. Gary Libecap (1995) describes how appropriators of an oil field must overcome a collective action problem to agree on a unitization contract (which allows for more efficient extraction over time). This process is decentralized except that once established the contract is legally enforceable. In other words, in local settings even self-regulation without government intervention takes place in the shadow of the law and the state. It is difficult to escape the ‘ubiquity of law in our social lives’ (Knight 1992: 62) at the domestic level, and this simply is not true in the international setting where binding law and the shadow of courts are fragile at best. All of these factors—different social, political and legal contexts—make lessons from local commons institutions difficult to scale up.

Nature of the Issues at Stake

The final pitfall of scaling up involves changes in the substantive issue being studied as we focus on new domains. When theory A is developed to explain empirical subject X, the subsequent application of A to subject Y may not be appropriate if the analytical nature of X and Y vary in important ways. In fact, this is a more general issue than the problem of scale since it also applies to the ‘horizontal’ borrowing of theories and constructs (both within and across fields) to elucidate behavior in different issue-areas. When we scale up, these shifts in substantive focus often compound and even engender the two other pitfalls outlined above, invalid unitary actor assumptions and changes in the social and institutional context.

First, consider two metaphors or analogies that are often employed by IR and international law and economics scholars: the concepts of ‘efficiency’ and of ‘public goods’. Economists have various tools for defining efficiency that capture important aspects of market

exchange and aggregate welfare. However, the notion of efficiency becomes problematic when applied to political issues, especially at the international level. Taken as a measure of global welfare, for example, efficiency concerns cannot explain why institutional outcomes like the GATT/WTO are replete with provisions that do not maximize the gains from trade. And yet we might argue that international institutions represent *politically* efficient equilibria insofar as they provide political benefits to states or national leaders that leave all of them better off (i.e., that are Pareto improving).²¹ But even this may be a misapplication of the efficiency concept. It understates the role of power in international relations—often participation in international agreements is only quasi-voluntary—and it ignores the individualist foundations of Pareto's principles. 'A requirement for governmental consent, however, is not the same as a guaranty of Pareto efficiency, as formal action by a government hardly can be taken as evidence of the preferences of *all* of the nation's residents' (Cass, 1997: 23). As we transfer the notion of efficiency from economics to international relations, we must think hard about who the relevant actors are and how they define their interests. Similarly, the concept and related theories of public goods may only serve as a very loose analogy when applied to the analysis of political questions, where, for example, nonexclusion may be a function of political organization as much as the technical properties of the good. In politics, authority is amassed and exchanged as well as goods themselves (Snidal, 1979).

Second, consider the application of broader models and theories to international political issue areas. For example, can we properly apply bargaining theory to capture the dynamics of a military crisis between states when it was originally developed to describe economic transactions

²¹ See for example Downs and Rocke (1995); and Koremenos, Lipson and Snidal (2004). For a discussion of political efficiency versus economic efficiency, see Epstein and O'Halloran (1999: 9, 44).

between individuals? Generally speaking, the *metaphor* of bargaining applies very well to the interaction of states. Many of the specific assumptions and implications of bargaining models, however, travel less well to the complexity of issues in international affairs. For example, fundamental to bargaining theory is the finding that an actor's opportunity costs of a breakdown will determine its bargaining power; the party with a greater need for agreement should be the weaker bargainer.²² For a state threatening a disruption in trade in order to extract political concessions from another, this means that increased market power should translate into better terms; trade dependence equals weakness (Hirschman, 1945). However, this simple conclusion overlooks many of the political complexities of actual international negotiations. State power and influence may come from a variety of sources in addition to market power. Moreover, if the granting of political concessions violates important domestic political interests, the trade dependence variable may under-predict obstinacy (Wagner, 1988).

Bargaining theory also rests on certain assumptions that may not hold when some issues are bargained over. Coase and other bargaining theorists rely partly on the cardinal, additive nature of utility to drive negotiation and side payments. As Russell Hardin (1982: 121) points out, Coasean bargaining may not work as well if the commodity at stake does not have a market value, and this is true of many political issues. The most fundamental problem is one of divisibility. Bargaining models work best when the object of bargaining is continuously divisible, and this is often not the case in world politics where issues are rendered *effectively* indivisible by sensitivity to salient domestic political issues. For example, while territory is in theory infinitely divisible, in practice it may be difficult for leaders to cede symbolic territory in

²² In John Maynard Smith's (1982: 153) words, 'A player who has less to lose from a breakdown is more likely to risk one.'

order to forge a bargain short of war (Goddard, 2006). Divisibility is hampered if the issue at stake reflects important principles or values that are difficult to trade off or compromise. At the domestic level, problems of indivisibility are routinely solved through cash payments on the side; even bargaining over the custody of children is facilitated this way (Elster, 1989b: 137). In political issue areas, however, there are barriers to generating such indivisibility.

Table 1 summarizes the framework for thinking about the problem of scale and includes examples from the literature referred to above. Each mode of scaling up—through metaphors and analogies, and through models and theories—may confront each of the three potential pitfalls—the unitary actor assumption, differences in social context and institutional setting, and changes the relevant substantive issues. These pitfalls constitute threats to multi-scale validity. In the literatures cited, for example, insufficient attention to problems of scale arguably led theorists to be too sanguine about the possibilities for international cooperation and institution building. Scaling up is often multifaceted and subtle in practice. As noted above, embedded in scaled up models and theories are often metaphors and analogies that are not explicitly identified but that constitute important substantive assumptions necessary to the logic of the argument.

Table 1. Modes of Scaling Up and Threats to Multi-scale Validity

	Unitary Actor	Social Context	Nature of Issue
Metaphors & Analogies	Example: states = individuals	Example: national jurisdiction = property rights	Example: state preferences = money
Models & Theories	new economics of organization	governing the commons	bargaining theory

4. Application and Conclusions

This article alerts scholars to some methodological issues involved in scaling up theories from lower levels to the international domain and serves as a more general guide to understanding particular contributions to IR in the context of scaling up. We should ask ourselves several questions in order to apply this framework to our own work and in assessing the work of others.

- Do I (they) use metaphors and analogies from lower levels? If so, do they have multiple, contradictory implications that could make them misleading? Do I (they) justify and qualify their use?
- Do I (they) borrow specific models and theories from lower levels? Do these models and theories rest on implicit analogies to the domestic level that constitute substantive assumptions? Do I (they) justify and qualify their use?
- Do the metaphors, analogies, models or theories that I (they) scaled up make unitary actor assumptions, confront the problem of different social and institutional contexts, or originate in another substantive issue area? If so, have I (they) been sufficiently sensitive to the potential complications associated with transferring them to a different domain?

Attention to these questions will typically lead authors to either modify theoretical propositions that are being scaled up or to qualify their conclusions appropriately. In either event, it will help protect multi-scale validity and avoid unwarranted generalizations.

Despite the dangers, scaling up has been highly productive in IR and holds additional promise. There are several sources of domestic-level theorizing that have begun to be tapped but might warrant additional attention in the study of international relations. These include theories of bureaucracies in the sociological tradition (Barnett and Finnemore, 2004), models of delegation to political institutions from the study of U.S. politics (Hawkins, et al., 2006), theories of institutional and contract design from economics (Koremenos, 2005), work on strategic framing from political psychology and the social movements literature (Keck and Sikkink, 1998); theories of judicial bargaining and settlement in the shadow of law (Guzman and Simmons, 2002); and social psychology insights into persuasion and socialization among individuals (Checkel, 2001; Johnston, 2001).

With specific reference to rational choice theorizing, the primary substantive focus of this paper, its proponents argue that its elegance and explanatory power make its application to different realms of human behavior almost unlimited (Riker, 1990; Bates, et al., 1998). This has led even sympathizers to argue that rational choice theorists have become excessively ambitious (Elster, 2000). When it comes to scaling up, rational choice theory has both advantages and disadvantages. On the negative side, its generalizability and explanatory potential have led some to confuse the power of rational choice theory with the power of a particular argument or model, which may or may not travel well to other domains. On the other hand, as long as the assumptions of a rational choice argument are explicit (often, though by no means exclusively, facilitated through formalization), this will help expose flaws in logic and to militate against

‘smuggling in’ unrealistic assumptions. This should help scholars recognize some of the potential pitfalls of scaling up in their own work and the work of others.

The borrowing of lower-level theories from various social sciences, especially economics and political science, will fuel the theoretical study of IR but will also lead scholars down some unproductive paths. The words of one prominent legal scholar, commenting on the tradeoffs associated with bridging theoretical domains, capture the dilemma well: ‘The sea is fertile but rough where two ocean currents meet’ (Cooter, 1992: 1).

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