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APPLYING HIERARCHICAL COMPLEXITY TO POLITICAL DEVELOPMENT

SARA NORA ROSS
Dare Institute and ARINA Inc., Bethel, Ohio, USA

MICHAEL LAMPORT COMMONS
Department of Psychiatry, Harvard Medical School, Cambridge, Massachusetts, USA

Hierarchical complexity's unidimensional measurement can help rectify policy confusion and debates about democratization and terrorism reduction. Stages of political development examined using the method yield task analyses demonstrating why stages cannot be skipped or rushed. Composites of stages and societies' transitions implicate policy change for anti-corruption and nation-building. New indexes for the political domain should be developed using hierarchical complexity to account for and measure a multitude of political tasks regardless of content or context. Measurement offers a reliable, empirical basis to resist attempts to rush development. Hierarchical complexity accounts for why such efforts are doomed in advance to fail.

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The political domain, and thus notions of political development, is exceptionally broad from both a practical and an analytic standpoint. It is comprised of many large subdomains. Due to the reach of their behavioral influences, we situate nation-states and governments as anchors of the political domain. Yet they are always in company with the interrelated systems that along with them, comprise the entire political domain. In broad terms, the political domain includes the legal, economic, and military domains. These lie within national boundaries but also frequently and increasingly cross such boundaries. Each of these can be observed to function at different scales ranging from the very local to the national and international.

Notions of political development must accommodate the breadth of the political domain. Where used, the term political development (1) "has gone undefined and un- or under-conceptualized; (2) was restrictively defined (e.g., to formal institutions); (3) referred not to development but to change, such as consequences of

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Address correspondence to Sara Nora Ross, Ph.D., ARINA, Inc., 3109 State Route 222, Bethel, OH, USA. E-mail: sara.nora.ross@gmail.com

development or to other events; (4) and otherwise created 'corresponding definitional confusions' (Chilton, 1988, p. 8)" (Ross 2007a, p. 12). Other than Chilton's (1988, 1991) work, that has continued to be the case. We use his definition of political development: "***a specific form of change in the political culture of a society***. The political cultural system, not the individual or social systems, is the locus of development" (1988, p. 28, emphasis in the original). For Chilton, a political culture results from the shared, publicly common ways of relating. The way of relating in a culture is "the organized system of mutual expectations by which social behavior is informed and made meaningful" (Chilton, 1991, p. 66). For example, respectful deference may be expected toward certain roles or individuals such as leaders, patrons, or fathers, whereas disdain may be expected toward certain other roles or individuals, such as immigrants, women, or members of a particular caste or ethnic group. Culture is circumscribed and defined thus:

> I first propose to call "a culture" *only* groups of people who share, in the special way described herein, a way of relating. I next propose to term a way of relating "shared" only if it is *publicly common* within the collectivity. "Publicly common" means that the way of relating is both (a) understood by all in the culture (a *common* understanding); and (b) in fact used by all actors to orient to one another (the *public* focus of orientation) (Chilton, 1991, p. 68, emphases in the original).

Chilton's approach embeds the recognition that in the political domain, "profoundly dissimilar forces" interact: "forces inducing cognitive development and social invention, forces of social inertia, forces of hegemonic control, and forces of subgroup/subculture interaction" (1988, p. 97–98). Defining political development in these terms results in a coherent framework to examine the political tasks of relating and how they develop.

This article is about applying the developmental perspective that flows from the Model of Hierarchical Complexity to tasks in the broad political domain. This responds to contemporary needs because there is a "strong, undeniable relationship between the order of hierarchical complexity of political tasks that need to be solved" and the type of policies, systems, and behaviors that can solve them (Commons and Goodheart, 2007, p. 94). Political development manifests in increases in stage of performance on political tasks of given orders of hierarchical complexity (see "Introduction to the Model of Hierarchical Complexity," this issue). Thus, by definition, political—and all—development occurs task by task. This concept applies to the actions of individuals, groups that fall anywhere on a spectrum from tightly to loosely knit (e.g., patronage networks, ethnic groups, terrorist cells and groups), organizations, formal nation-states and governments, international bodies, and cultures. Just as individuals vary widely in their performance in different domains (Mascolo, this issue; Wolfsont, Ross, Miller, Commons, and Chernoff, this issue), so also such entities as these vary widely in their performance within and across domains. For example, the United States may have a high-complexity ideal of free speech accompanied by low-complexity laws on association (e.g., the Patriot Act and wiretapping policies) (Commons and Goodheart, 2007).

Stages of political development have been examined to date from four angles using the Model of Hierarchical Complexity (MHC) for political task analysis. Commons and Goodheart (2007) examined their relationship with society and government building and in the process, their relationship with terrorism. Ross examined their relationship with troubled and often incendiary democratization processes (2007c) and, not unrelated, with political economies of corruption (2007b). Sonnert and Commons (1994) examined the highest stage possible in this domain. Using a slightly different but related developmental theory as a basis, Chilton (1988) developed and later grounded (1991) his theory of political development based on Kohlberg's (1984) model of the psychology of moral development, which also shaped Habermas' analyses (e.g., 1979, 1990).

The more recent MHC-based efforts were undertaken to (1) apply political behavioral developmental perspectives to increase understanding of government and nation-building tasks, (2) suggest correctives to widespread assumptions in international policy, and (3) contribute clarity to serve social science, especially where "imprecision and confusion are the rules rather than the exception when it comes to serious discussion of democratic consolidation" (Adcock, 2005, n.p.). The shared thesis underlying this work is that attempts by developed countries to encourage other cultures and subcultures to "leap over" the next requisite order of hierarchical complexity tasks, for example, in economic development, nation-building, and democratization efforts, will fail because it is literally impossible to skip stages. This is true regardless of the current stage of government and society functioning. This mathematically based proposition is rooted in the axioms of the Model of Hierarchical Complexity (see "Presenting the Formal Theory of Hierarchical Complexity," this issue). By definition, for development to happen at all, an entity—country, culture, subculture, organization, group, individual—must progress through each developmental stage sequentially within a give task sequence. It must successfully accomplish tasks at each order of hierarchical complexity to *acquire* the component actions necessary to undertake the more complex tasks of a next order. This approach could supply rigor to inform and perhaps transcend key debates about democratization between "sequentialists" and "gradualists" (Carothers, 2007) and "preconditionists" and "universalists" (Berman, 2007), among others. Efforts that ignore or attempt to force the process of development increase social, political, and economic instability, even when the effort is to spread democracy (Ross, 2006, 2007c). Such efforts, by their failure to recognize the role of developmental stages, may be major influences contributing to the rise of terrorism and insurgency (Commons and Goodheart, 2007).

The purpose of this article is to build on this recent work by moving a step closer to operationalizing its premises of stages of political development. Operationalizing those premises might require many forms. Regardless of form, the unifying feature is the unidimensional measure of hierarchical complexity of tasks. It enables content-free and culture-independent measures in any domain in which tasks are performed (Commons, Trudeau, Stein, Richards, and Krause, 1998; also see "Introducing the Model of Hierarchical Complexity," this issue).

Such a measurement method should be particularly useful across the widely variable but interdependent terrain of the political domain. It is a means to introduce coherence of some social significance across that terrain of tasks performed by individuals, groups and organizations, governments, and other institutions. Measurable tasks can be analytically shown to comprise complex processes of development, such as democratization, and issues defined by their complex causation, such as terrorism. Thus, our objective here is to lay some basic foundations to launch consideration of, and interest in, how to employ hierarchical complexity measurements.

One of the leading problems in advancing the contributions of behavioral science is the tendency to allow content of a task to obfuscate the underlying patterns of task behaviors in which the content is embedded. For example, Adcock (2005, n.p.) has noted that despite the fact that "Dahl's minimal prerequisites for democracy are generally agreed upon, it is the unique political and social phenomena inherent to every fledgling democracy that muddies terms and definitions, making generalization nearly impossible." Both prerequisites and the "unique" phenomena are content-based variables giving rise to confusion that begs to be cut through. Such confusion has been long-standing in the field of democratic transitions, leading Anderson (1999) to liken it to a ship adrift. It is a Metasystematic stage 12 task to see patterns that are free of content and context and to generalize from them. If one can apply the MHC, and its measurement system, analyzing the task sequences is made much easier. Its difficulty is lowered by one stage because of the level of support provided by having the model and examples. This reduces the level of that task's difficulty (see "Cultural Progress is the Result of Developmental Level of Support," this issue). Most importantly, the clarity made possible by task analysis can inform national and international efforts and policies. This is a critical arena, because they wreak havoc on the ground in countries where, "when [democratization is] tried in countries poorly prepared for it . . . it can and often does result in bad outcomes" (Carothers, 2007, p. 12). Such factors as these underlie our motivation to propose the need for practical political development applications of hierarchical complexity measures. These can be employed in assessments, interventions, theorizing, analyses, and policymaking. This step appears to be the next logical phase of applying the Model of Hierarchical Complexity to such concerns.

To introduce this proposal, our discussion is organized as follows. It begins with an overview of the characteristics of societal stages of development ranging from Concrete stage 8 to Paradigmatic stage 13. Societies "house" the political domain and cannot be divorced from it. The societal characteristics are, however, limited to reflect our present focus on political development, with some emphasis on a range of tasks related to government. In the next section, we narrow the scope to show the application of hierarchical complexity to the vital subject of change from one stage to another. We discuss the transitions from the concrete to the abstract stage, and from the abstract to the formal stage. These are targeted for their relevance to terrorism reduction, democratization, and other nation-building processes. Although space does not permit discussion of how to employ hierarchical complexity measures and analyses, and operationalize their uses, these

discussions indicate how it may be possible to ensure that stages of develop-
ment are not skipped or rushed. We conclude by summarizing implications and
suggesting near term applications to international political development concerns.

OVERVIEW OF SOCIETAL STAGES OF DEVELOPMENT

The modal stage at which individuals operate within governments, societies, and
countries is used to characterize the stage at which such entities operate (Commons
and Goodheart, 2007). Societies are comprised of individuals operating at multiple
stages of development in various domains. Thus, political cultures and social
systems display concurrent operations of several different stages. There are many
overlapping systems and relationships among different people and entities. That
fact has understandably contributed to the analytic and policy confusion mentioned
earlier. This overview does not attempt to tease apart component tasks to address
that issue of multiple systems and relationships, but portrays modal stages for many
of those relationships. The following summaries of societal stages are composites
chiefly drawn from Commons and Goodheart (2007) and Ross (2004, 2006, 2007b,
2007c). For additional discussion of stages of political development, see Chilton
(1988, 1991), and for in-depth descriptions of individuals' political reasoning at
several of these stages, see Rosenberg (1988, 2002).

Concrete Stage Societies

The Concrete stage 8 is defined, in general, by actions that organize two actions
from the Primary stage 7 by, for example, carrying out full arithmetic in long
multiplication that coordinates multiplying and adding. It also focuses on events,
people, and places that are personally known. Societies at this stage are dominated
by subsistence concerns and demonstrate short time horizons. Social behavior
is characterized by reciprocal exchanges involving concrete goods and services,
and simple social rules. Dyadic relationships are prevalent (e.g., to plan deals,
trade favors, and barter) and coexist with forming factions. Others' perspectives
are considered only *if* those others affect oneself or one's close group or enable
deals that both parties regard as fair. Thus, hostage takers and human slave and
sex-slave traders consider hostages' or slaves' perspectives and feelings only to
the extent that the person who is taken can offer some reward or help them avoid
some punishment. Centralized governments are personally feudal or dictatorial,
populated by lesser lords and aristocracy, advisers, retainers, friends, family, ser-
vants, and sycophants. Bureaucracies as civil services do not exist in societies at
a (hypothetically) pure concrete stage.

At some point, some approach to formal government is introduced in concrete
stage societies. Ideas about what "democracy" is, if any, are vague because the
purpose or function of government is not about democracy but rather power and
wealth of its leaders, and only to some degree the protection of its subjects (see
section on formal stage societies, later in the article). At this stage, specific of-
ficials (e.g., a king, leader, warlord, president, or minister) essentially "are" the
government from the concrete stage perspective. This is because roles are not

separated from the ones who fill the roles. They do not have to be, because leaders are personally known or known of, and followership is based on personal and economic ties, not roles. Without concepts of contracts or title to goods, government is not needed to regulate transactions; physical possession constitutes ownership and power. Despite possible appearances of a form of central government, rule is exercised in traditional ways: making deals and exerting raw power in the "friend or foe" mode. Warlords' power often exceeds that of a fledgling government. If election processes are introduced, the Abstract stage 9 concept of political party is meaningless; instead, votes predominately follow a tribal or ethnic group's choice or patrons, that is, those who are "like us." Concrete stage societies' efforts to have and run governments are commonly judged corrupt by higher stage governments and international bodies. Yet, from the concrete society perspective, bribes and "under the table" reciprocal arrangements are the normal way to conduct affairs. Attempts to regulate free speech and media access are common ways to limit the formation of a public voice at the concrete stage. Among other characteristics of this stage, such actions inhibit political development. This may be the modal stage in the least developed countries.

Abstract Stage Societies

In general, the Abstract stage 9 is defined by actions that form variables out of finite classes, and make quantifying abstract propositions (none, some, all). This underlies forming generalizations, such as stereotypes. The end result at this stage is the use of a comprehensive set of variables used to make classifications: time, place, act, actor, state, and type, and quantifiers and categorical assertions (e.g., "We all die."). In abstract stage societies, group associations begin as memberships in political parties, trade associations and unions, and religious organizations. In contrast to the concrete stage, one can feel that one is in a social relationship with others and be loyal to it, even without proximity to other members. Loyalties to groups, leaders, and belief systems are strong. These loyalties are sometimes unquestioned, because group memberships help people form their identity at this stage. Strong, paternal-type leaders, often charismatic, tend to be preferred, on the assumption they will take care of their children/followers and keep the group or society harmonious and fair. A so-called ideology often espoused by leaders in abstract stage society is actually comprised of characteristically dualistic assertions about prejudices, stereotypes, and definitions of the "in-group" and the "out-group."

   In non-Western settings, individuals performing at the abstract stage are likely to associate with concrete-stage persons, often their clients, but abstract stage *groups* are more likely to become an elite class, distanced from concrete stage groups. At this stage, the beginnings of the concept of *roles* are learned, such that people understand that different individuals may fill and later leave the same role (e.g., boss, broker, religious leader, teacher, president). Among other factors, this enables bureaucracies to *begin* to form. At that point, a leader may rule by decree and be served by the organization. Individual rules can be conceived to accomplish a desired end, but the method to implement the rule cannot be conceived (although

punishments for breaking rules come easily as it has since the Primary stage 7 and even earlier). A rule can be explained and followed, yet contradictions with other rules or norms go unnoticed. For example, a bureaucrat may be as faithful to the norm of charging bribes (because that is the way things get done), as to the rule to be honest and give constituents fair and equal service. People performing at the abstract stage value social norms, thus can negotiate by trading normative values (unlike Concrete stage 8's dealing in tangible currencies from money to animals to people). When real differences cannot be solved any other way, abstract stage negotiations can agree to live with them to preserve harmony. This stage may be the modal stage in many less developed countries.

Formal Stage Societies

The Formal stage 10 involves solving problems using logic, mathematics, and empirical investigation in order find out what is true. What is true is based on forming relations out of variables, where logic is linear and one-dimensional because only one input variable can be considered at one time. Formal stage 10 societies develop empirical interests in increasing productivity, training, and wealth distribution, which in turn lead to formal economics and laws. People functioning at this stage participate in the formal economy. Truly bureaucratic governments form, with extensive written laws and regulations that are implemented in "letter of the law" fashion. Law is effective in moderating crime, including terror. Societies discover that the existence and enforcement of criminal and civil law promotes trade and investment. This connection is made easily at this stage because each is a simple empirical relationship between two variables. Competition is largely civil and regulated. The contingencies of the marketplace control social relations and status. This societal stage is the objective of many efforts to introduce democracy.

However, when formal stage regulatory ideas are exported to non-Western countries, there may be too few persons performing at the formal stage to understand how procedures are supposed to work or their underlying logic (e.g., separation of legal powers or administrative duties). The non-Western society may be mistaken for a formal stage society. But the new forms of government or business procedure provide new façades to which conventional behaviors of patronage adapt and persist, usually more effectively because access to new resources is available. For example, the formal concept of employees on payroll is used to pass resources to clients, often as "ghost employees" who do not work for the employer. Bureaucracies become engorged through such arrangements. Because in-group ties are stronger than other ties in abstract settings where formal stage structures are imported, many people are often less successful at distinguishing an employment role from political party role, for example, party loyalty trumps formal role responsibility. People who use formal reasoning are good at using rules to find or create loopholes to implement strategies. They are not very successful at foreseeing unintended consequences of their strategies. They may be clever at "cooking the books" to hide bribes yet not foresee how they will still get caught. Countries that operate at this stage do not necessarily have a real

multiparty system, even if they have relatively free and fair elections. This stage may have been, or be, the modal stage for Eastern block and some number of Latin American countries.

Systematic Stage Societies

Actions at the Systematic stage 11 are defined by the coordination of more than one variable as input and the consideration of simple relationships in context. These coordinations and considerations construct multivariate systems, matrices, and webs of causation, resulting in more complex societies. In systematic stage societies, systems of relations are coordinated among the legal, societal, corporate, economic, and national spheres. At this stage, government systems are complex enough to address and achieve multiple goals simultaneously, society is predominately lawful, and advanced accounting practices make business relatively transparent. Markets, stock exchanges, and the like produce complex impersonal relationships among people, and more intricate laws and regulations stabilize markets and prevent monopolies. These laws deal with multidimensional aspects, requiring advanced systematic stage actions. Applications of laws are more "in the spirit of" than "the letter of" the law. Democracy can function as such and governmental processes are orderly and mostly fair.

At this stage, more highly abstract concepts appear, such as transparency, accountability, social justice, and sustainability. Note that these ideals are imposed on and expected from lower-stage societies to no avail. They fail because they are systematic stage actions. The introduction of professional norms reduces corruption at this stage because part of being a professional is having a role independent of personal affiliations and conflicts of interest (Gutheil, Commons, Miller, and LaLlave, 2000). People can consider a multivariate combination of such factors as the rule of law, fear of exposure, preservation of image, methods of reporting, and market pressure. People can conceive a system of transparency to reduce corrupt practices, but also conceive a system to skirt efforts to enforce transparency. This stage can neither succeed in entirely escaping transparency measures nor eliminate efforts to sabotage efforts to institutionalize transparent practices and reduce corruption. Legislators, judges, and administrators tend to view the problems of government based on their own experiences, which are then projected onto others in a logical, but non-empirical or scientific manner. This tendency results in assumptions that in turn motivate the export of Western systems to non-Western settings where they fail. In a related way, at this stage people also assume that everyone has free will and will respond as they assume they would to inducements and threats. They assume a common value system or where values differ, that the system of the international body, legislators, or government officials is "right" and that of the others is "wrong." Thus, at this stage, there are still "in-groups" and "out-groups," and war is still used in international conflicts.

Metasystematic Stage Societies

The Metasystematic stage 12 is defined by actions that create supersystems out of systems of relationships, compare systems, and systematic stage perspectives.

Where they appear to exist, metasystematic political systems to date are incomplete and inconsistent (Sonnert and Commons, 1994). At this stage, our analysis suggests that governments must do a more complex job of, for example, conceptualizing the legal system and international development. They would use context-aware environmental, behaviorial, and psychological analyses in conjunction with scientifically informed bases. A successful example is the way the U.S. Bill of Rights and Constitution together form a metasystem, reflecting the coordination of the system of rights under the Bill of Rights and the system of duties under the Constitution. Such coordination is evident also in the U.S. Declaration of Independence and the concepts and principles embedded in the European Union. One source of incompleteness of such political metasystems is that they still fail to incorporate the much higher amount of complexity involved to adequately qualify any system of duties, for example, beyond "one size fits all." Such systems are limited by assumptions that do not stand up to the order of complexity that actually must be addressed.

Paradigmatic Stage Societies

Just as for individuals, as the order of hierarchical complexity of the tasks increases, the number of societies at that stage that successfully address those tasks decreases. The Paradigmatic stage 13, for example, does not yet exist at a societal level, thus, this section is speculative (also see "A Future Society Functioning at the Paradigmatic Stage?" in this issue). In general, this stage is defined by fitting metasystems together to form new paradigms. Tasks at this order are more difficult than governments' stage of performance can yet recognize or even address the need to do so. Because the tasks are extremely complex and therefore difficult, processes to enable at least partial syntheses tend to be developed instead. These may take the form of weak political structures, accommodating the impossibility of developing a complete and consistent set of governing principles, as did Madison, in drafting the U.S. Constitution: he recognized the incommensurate and potentially conflictual systems of administration, legislation, and justice. Future paradigmatic societies, we expect, will resolve such institutionalized conflicting claims. In doing so, they will employ choice between many possible axioms underlying abstract conceptions of society that is not tethered to and thereby limited by the abstraction of the individuals that limits earlier stages. They will attempt to coordinate the complex array of metasystems that constitute the complex causation of societal ills. Paradigmatic approaches to governmental and societal issues will use co-construction of an acceptable shared set of precepts (Sonnert and Commons, 1994) and co-constructed solutions (Ross, 2002, 2007a) by all stakeholders, including real or perceived enemies.

People performing at the Metasystematic stage 12 and above do not project enemy status on others because they successfully coordinate multiple actors' perspectives. These other people may be in opposition to one's own group. Still, there will always be mixtures of people operating at various stages who do perceive enemies. Thus, performed at a much more complex order, this societal incorporation of "the other" can be perceived as somewhat similar to the Systematic stage

11 action of forming of an alliance with the "healthy" part of a person so that a mutual set of positive goals may be pursued (e.g., in psychotherapy and counseling settings). Public and other forms of discourse and inquiry will become embedded in society, including "discursifying bureaucracies" at perhaps a yet higher stage of society (Sonnert, 1994, p. 133). Discourse will flow from higher principles and the coordination of metasystems. Torbert (1991) posits the establishment of the principle of inquiry at this stage, to incorporate with equality and other bedrock principles the perspectives of all stages of development. In a similar way, Ross (2002b, 2007a) sets forth a developmentally structured discourse process that embeds recognition of issues' complex causation and perspectives and tasks of multiple stages of development. Such are necessary to institutionalize, enable, and motivate use of replicable processes that she proposes can result in Metasystematic stage 12 tasks as outcomes of issue-analysis, deliberation, decision making, and systemic action, and permeate all levels of society in doing so.

SOCIETAL TRANSITIONS FROM ONE STAGE TO ANOTHER

There are always mixtures of orders of hierarchical complexity evidenced in tasks performed by individuals and larger social entities. Ross (2007b) demonstrated this using the Model of Hierarchical Complexity to analyze cases researched and reported as ethnographies. For example, in an Argentine study (Auyero, 2000), there was a particular Formal stage 10 government program that was "managed" by patrons and patron/politicians who, in certain domains related to it and its clientele, functioned at Abstract stage 9 (and in other domains, at Formal stage 10). These, together with the program, served a mixture of Concrete stage 8 and Abstract stage 9 "followers." Followership roles (and thus, tasks in those roles) included those of social welfare program recipients, clients of the patrons' brokers, and voting citizens. Such roles were not mutually exclusive; the same person could have all three follower roles. Such mixtures as these indicate the amount of complexity inherent in understanding social systems and actors and tasks within them, including changing stages of performance of tasks.

   Because the Model of Hierarchical Complexity establishes that skipping any stage of development is impossible, it is necessary to account for *how* stage change occurs, and *what* changes. The transition step sequence posited by the Model accounts for *how* the change of moving from one stage to the next occurs (see "Fractal Transition Steps to Fractal Stages: The Dynamics of Evolution, II," this issue). *What* changes is the stage of performance of a task, from one order of hierarchical complexity to the next. A comparison of the tasks *from* which and *to* which one transitions in stage change is one way to shed light on what changes. To illuminate such task-level stage change, this section focuses on the task changes from Concrete stage 8 to Abstract stage 9, and then to changes from Abstract stage 9 to Formal stage 10. All of the changes require the coordination of elements from the next lower order. "Coordinate" means compare, contrast, synthesize, or otherwise put disparate elements into coherent relationship at a higher-order of complexity. Examples are provided to illustrate this task.

From the Concrete Stage to the Abstract Stage

As posited by the Model, actions of the Concrete order 8 tasks coordinate two or more Primary stage 7 task-actions in a nonarbitrary way, such that an inter-relationship of them is formed. For example, at Primary stage 7, one may see army trucks leave the base each morning and the clock says six o'clock. One may also observe that some of the trucks have a big cover over things of different shapes. One day, one saw an army truck with a particular covered shape arrive in the village. A soldier was heard telling the local chief, "Your grenades are here." One concludes that a truck with that particular shape under the back cover means grenades are under the cover. A possible Concrete stage 8 coordination of these Primary stage 7 "building blocks" could result in such interrelationships as the following: "John, you will be on lookout at 6 o'clock each morning to tell me the next day they truck out grenades. I will follow the grenade truck when you give me the word. I can make a deal with the chief they deliver them to. He will want something from us that he cannot get from the army. He might want some of our tobacco stash. I could trade him part of what we have here for a couple boxes of grenades. Once we have our hands on them, we can plan our next attack. The sooner we can blow up those [explicative], the better."

The example highlights two key tasks possible for the first time only at Concrete stage 8. One is planning deals. Another is *social perspective-taking* (Commons and Rodriguez, 1990, 1993; Selman, 1980). The speaker in the scenario per-formed the task of taking the perspective of the chief and coordinated it with the speaker's perspective. The other party in the transaction would plan to get some-thing meaningful out of the trade, just as the speaker did. Note also the absence of perspective-taking with regard to the lives of those who would be blown up using the thus-acquired grenades. The only persons whose perspectives are considered and coordinated are those who "matter." At subsequent stages, more people matter as broader forms of perspective-taking develop.

To move *from* Concrete stage 8 *to* Abstract stage 9 performance requires that one coordinates two or more Concrete stage 8 task-actions in a nonarbitary way such that an abstract class that refers to them is formed. An abstract class is often a variable because it refers to a class that has ordered values of members. For example, our side of the conflict and their side of the conflict are two values. Abstract variables are new concepts that enable and play crucial roles in this stage change. The following composite indicates challenges of this stage change in the political domain, which have much to do with the *significance* of forming and using abstract variables. Certain of them infer the key political tasks: boundaries, social or political conflict, social or political decisions, degree of fairness, group, social or political group loyalty, majority, opinion, organize, paperwork, policy, political party, politics, popularity, property, private versus public, religion affiliation, roles. None of these abstractions "exist" with any meaning to persons functioning at the concrete stage, who instead use concrete concepts such as those in the grenade scenario. This stage change involves moving from specific knowns like "land" to generalizations that include unseens like "boundaries" and "property." But before one can name an abstract class to refer to types of people,

types of events, and types of things, one generalizes about people, events, and things that are not concretely familiar.

With major political implications, an obstacle to generalizing about people and events is the inability at the concrete stage to take perspectives of others who are the perceived enemy. This task is necessary in any negotiation to resolve a conflict. It also underlies terrorist attacks. The perspective that matters to someone operating at the concrete stage is that person's own perspective. Thus, it is very difficult for concrete stage elites such as warlords and tribal leaders to care about anyone but "their own" or anything but exercising their own power through control over armed bands, a wealth of resources, and fear. They require only concrete stage interrelationships among people, things, and events to perform successfully. For warlords and tribal leaders to move to the abstract stage requires trading one form of power for another, one that contributes to the law and order of an abstract stage society. The pressure from others of following social norms, which develops at the abstract stage, can be an inducement to such an exchange. Strict approaches to maintaining law and order are essential to overcome the concrete stage chaos of tribal warfare and anarchy. That is why areas in developing countries that instigate Islamic law demonstrate more general order than those that do not. Some such strong authority is essential for this stage change to occur.

To eschew non-democratic but benign authoritarian leadership is a mistake if a concrete stage society is ever to move to the abstract stage. Democracy is impossible at this stage. First, there must be control, fair rules, some early social contract, and pre-bureaucratic structures to enforce order and safety, for example, police forces. During the Middle Ages, commerce grew only after sheriffs and police came to control highway men. Such early structures support the abstract stage need to identify with an extended group beyond one's face-to-face peers. A strong king or dictator who uses a social contract with the populace thereby defeats warlords and tribal leaders, forcing movement to the abstract stage. Abstract stage public recordkeeping becomes essential for such tasks as issuing tickets for violations and permits for certain activities, and collecting fines. These transactions, of course, become fodder for charging abstract stage bribes, which only a formal stage society can just begin to address successfully.

The connection of terrorism reduction with the change from concrete to abstract stage society is developed in Commons and Goodheart (2007); other points are mentioned briefly here. The abstract stage social contract in a collectivity is to provide order and safety as a social norm, not as the prerogative of a powerful individual leader, not as a bargaining chip, and not as "everyone fend for themselves." People do excel at fending for themselves, and when they feel trapped in conditions over which they have no control, they perform tasks to attempt to change their condition. At the concrete stage, that means subvert, punish, or attempt to destroy the perceived perpetrator of the unlivable conditions. Some of the tasks they perform are terroristic, and concrete stage societies are observably the prevailing seedbeds of terrorist activity.

The behavioral challenges are not only to leadership roles and terrorist activities of a few, but also to citizens at large. Members of society—and the international

community—must initially accept, for example, former warlords or military lead-
ers into newly sanctioned political roles, as in the new political parties that form
at the abstract stage. Initially, they are not true political parties, but rather politi-
cized forms of existing ethnic and kinship groups. This, too, is a necessary step in
the change. Concrete stage identities are tethered to such concrete relationships,
and abstract stage identities are tethered to abstract group memberships. Political
parties evolve to idea-based groups only later, at the formal stage.

Finally, an abstract stage performing society is defined by its geopolitical
boundaries and identity. At the societal level, this means national identity, and may
include or be preceded by provincial boundaries and identities. This task is akin to
perspective-taking. It means subjugating smaller groups' status to that of a group
of groups that comprise a state or nation. Many early nation-building tasks are
involved, well described by Ayoob (1995). The nationalism that becomes possible
only at the abstract stage requires tasks of: (1) forming the concept of geopolitical
boundaries, (2) forming the concept of nation with larger unknown territory defined
by political boundaries, and (3) identifying with the new group, "us," the whole
nation. At the concrete stage, only geographic and other such concrete markers
define a group's territory. Jordan (1998) has employed a developmental stage
approach to issues related to developing concepts of boundaries and the conflicts
related to them. These and the other changes mentioned in this section indicate
some of the major tasks involved in the change from concrete to abstract stage
society.

From the Abstract Stage to the Formal Stage

As posited by the Model, in tasks performed *at* the Abstract 9 order, one coordinates
two or more Concrete stage 8 task-actions in a nonarbitrary way, such that an
abstract class referring to them is formed. For example, at Concrete stage 8, one
may know that in large buildings there are rooms called an "office" in which men
and women work. One may know that the local government has a building with
such rooms where men and women work. Possible Abstract stage 9 coordinations
of these Concrete stage 8 "building blocks" could result in such abstract classes
as "government offices," "government buildings," "office workers," "government
workers," and "government men [and/or women]." Note that it is only at the
abstract stage of performance that the abstract concept of *roles* is first developed,
for example, government workers.

To move *from* Abstract stage 9 *to* Formal stage 10 performance requires that
one coordinates two or more Abstract stage 9 task-actions in a nonarbitary way,
such that formal relations among them are formed. Table 1 provides examples
of what this coordination looks like at this stage transition. The content of most
of the examples is designed to highlight an important task of moving from the
abstract to the formal stage in the political domain (and equally so in all other
social domains). The task is to discriminate (i.e., coordinate) *that* a particular role
is distinct from the person who fills the role and therefore that behaviors by the
same actors may vary by virtue of their roles. For example, in the patrol duty
scenario (Table 1), at the formal stage, the person subjugates performing personal

Table 1
Political Tasks of Moving from Abstract Stage 9 to Formal Stage 10

Examples' Categories	Abstract Variable 1	Abstract Variable 2	Example of a Formal Stage 10 Task Coordinating Variables 1 and 2
Tasks related to work roles	In our *jobs* at the Treasury Ministry...	... the files are all supposed to be *private*.	Because our job is to handle private records, we have to keep everything we know about them confidential.
	I am on *patrol duty* until after the store closes today.	But I need to run *some errands* at the store.	If I take time out of patrol duty to run the errands, I will not be able to respond if there is trouble somewhere at the same time.
	We always charge *bribes* with the permit fees. We deserve to get a tip for doing this work.	Two people said my paycheck is the only *payment* I should get.	I never thought of that before. Since I get a paycheck from the government for doing this job, I do not deserve to take money out of customers' pockets for doing the job.
Tasks related to roles in groups	I pledged *loyalty* to our jihad cell for the glory of Allah...	... but they never said we would be *militants*, blowing up our own city.	I have to break my oath to the cell and leave, because I did not join it to do that.
	Everyone in the government sets up as *employees* lots of the people they are used to helping out.	The Minister announced new *rules* for putting people on the payroll.	I cannot help my family and friends anymore because there is just no way to get around the new rules.
Tasks related to other entities	We used to just turn in all our *ticket paperwork* at the end of the night and not have to do anything else.	Now we write a long report on everything that happened, look at the list, and match the ticket to one of the new *violations.*	If we can match our description to the definitions of the violations, then we know we cited the right ordinance for issuing the tickets, and then we know they will stand up in court.
	As President, I am used to making all the *decisions* about this sort of thing.	New legislation forces me to get *approvals* from the Cabinet on such decisions.	If I can appoint a few more of the right people to the Cabinet, and if they know I will steer contracts their way, then I should be able to get the approvals I want.

errands to the behavior demanded by the work role. This involves a more complex task in perspective-taking. In various combinations depending on the situation, the perspective of the individual, another person, a role, and/or an entity like employer or other organization may be coordinated. Such tasks as this are possible only at Formal stage 10 or higher.

To provide a level of support for considering *what exactly it is that* changes between the abstract and formal stages, the key abstract stage variable within each of the abstract stage statements in Table 1 is in bold italics. This is done to call attention to the higher stage coordination evident in the formal stage statements.

Such examples as in Table 1 indicate why Commons and Goodheart (2007) observe that abstract stage societies are somewhat chaotic, inconsistent, and eventually fail because their governments do not base decisions on logical or empirical relationships. However elementary it may appear to be, the "logical rigor" evident in each of the aforementioned Formal stage 10 statements stands in sharp contrast to the declarative assertions of the Abstract stage 9 statements it coordinated. Those examples serve as a backdrop to the following summary, drawn from Commons and Goodheart (2007) and Ross (2004, 2006, 2007b, 2007c), of common tasks *from which* Abstract stage 9 performances must move to *change to* Formal stage 10.

At the abstract stage, civil servants use government structures to maintain and/or extend their patronage and brokerage influences with relatives, friends, and political allies. Personal and public budgets are strained as the abstract-stage norm of bribes inflates the cost of obtaining goods and services for individuals and the society, and benefiting few at the expense of many. To reduce corruption, logical cause-and-effect-based regulations and procedures are required to prevent payroll abuses. Development in such tasks as social perspective-taking, distinguishing roles, and developing formal logics to understand procedures, benefits, and consequences occurs in the move from abstract to formal stage behaviors. The ability of individuals to exercise personal power over public resources declines once regulations define power in legal and regulatory terms, supported by systems of checks and balances. Citizens begin to explicitly demand the rule of law to prevent the range of corruption in public service positions. Depending on the culture, it takes time and courage for citizens to publicly voice such demands. Such behavior may risk one's status in the patronage systems people have long relied on. A key government task in the change from abstract to formal stage is to legislate a social contract that takes over that function from these ubiquitous informal systems.

Elections gradually increase the government's stage as people vote for effective anti-corruption candidates. People prefer uncorrupt practice once they deduce they can save money and have more predictability. People gradually reduce their attachments (see Miller and Lee, 2007) to selecting parental figures as leaders, and elect those who will shift the social contract to government. These new logical relations give people functioning at the abstract stage needed experience in distinguishing roles from persons who play the roles. Roles and procedures come to be viewed as logical necessities for organizations and government to function well enough to succeed. This helps people adapt to more impersonal contacts to

get things done. This reduces abstract stage corruption, while it also paves the way for formal stage corruption.

Abstract stage bureaucrats can gradually detach from the patronage networks embedded in government structures as new regulations weaken them and government pay becomes adequate to live on—part of the social contract. They also come to want both autonomy and standard rules to follow so decisions are efficient and fewer need approval. Similarly, standard procedures based on logical sequences and relations are required at the formal stage before a government can successfully develop, operate, properly maintain, or restore public infrastructures that meet basic needs, such as power, potable water, and roads. The necessity of the formal stage for maintenance of public infrastructure cannot be overstated. These seem to be some prerequisite conditions if governments want to reduce terrorism: they respect and meet basic needs reliably. Government thus depends on tax laws and revenue, impartial public treasury and judiciary systems, and citizens and businesses sufficiently educated to participate in the formal economy. Without such formal stage tasks, taxes will not be reliably calculated, reported, paid, collected, assessed, or deposited into the treasury. Finally, the abstract stage identification with religious groups may loosen slowly as secular but multi-religious states gradually become more secular. Practices of excluding out-groups backfire in violence and secession efforts. The formal stage solution of religious freedom increases religious tolerance and reduces conditions for religious-based conflict and terrorism.

IMPLICATIONS OF APPLYING HIERARCHICAL COMPLEXITY TO POLITICAL DEVELOPMENT

Applications to date of hierarchical complexity to political development have indicated its significance for understanding behaviors in the political domain. This article has provided both broad and specific explanations and examples of tasks that comprise those behaviors at various scales. We expect that exploiting hierarchical complexity to far greater degrees may advance policies and international development efforts. To do so will involve developing specifications and definitions for domains, subdomains, and various cross-cutting task categories related to them. New methods need to be developed to utilize hierarchical complexity measures to systematize analyzes that are sophisticated enough to inform, measure, and compare political development efforts. Hierarchical complexity–based indexes could provide unidimensional consistency at the same time they provide categorical specificity for benchmark, comparative, and developmental purposes. These would be meaningful adjuncts to traditional measures to assess how societies, governments, and groups function. Most importantly, hierarchical complexity is the only universal basis to account for and measure tasks regardless of content or context. Thus, it is the first reliable basis on which to define and guard against attempts to skip or rush stages of development, which are doomed in advance to fail.

Many of the political development issues suggested in this article are not commonly recognized. To develop and apply hierarchical complexity insights to them at the level of policy implies a great deal of education is needed at various scales

and institutions. Some applications of hierarchical complexity are susceptible to more rapid deployment. One is addressing why "so many anticorruption initiatives fail" (Mungiu-Pippidi, 2006, p. 86). As this article indicates, corruption is a phenomenon that is inherently both political and economic (Mungiu-Pippidi, 2006), and permeates societies to high degrees at the concrete to formal stages, and to lesser but still destructive degrees at traditionally higher-stage societies such as the United States. An actionable possibility in the near term is to re-conceive and reframe anti-corruption efforts as positive political development efforts that do not embed the impossible requirement to skip stages of development. Transparency International could deploy assessments based on hierarchical complexity's distinctions. With the current ability to assess countries' stages of political development in already-identified domains, another near-term possibility is to consider how policies can lower the target stage of certain democratization efforts where they clearly attempt stage-skipping. Beyond accomplishing the prerequisite task of hierarchical complexity education in the institutions that need to employ it, there is no need or justification to delay basic country stage analyses and the design of policy to support positive political development based on actual rather than imagined or presumed stages of performance. The healthier, safer, less violent general evolution of society that can result from hierarchical complexity–wise action and policy is intimately tied to our world's future.

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