

1 Critical Transitions in Political Orders

In my 2021 book on *Grand Challenges of Planetary Governance*, I argue that the world today is confronted with a growing collection of unprecedented needs for governance that have profound implications for human well-being on a global scale but that are difficult – perhaps impossible – to address effectively within the confines of the current global political order (Young 2021). The most familiar example is the climate emergency; maintaining a stable and benign climate system on a human-dominated planet will require fundamental changes in the socioeconomic structures of advanced industrial societies. But this case is not unique. Other prominent examples include the challenge of controlling the spread of infectious diseases that may prove more severe than COVID-19; the difficulty of managing rapidly evolving digital technologies to promote beneficial applications while minimizing a growing array of disruptive uses, and the puzzle of guiding the revolution in biotechnology including the prospect of heritable germline editing. There is every reason to expect that additional needs for governance of this sort will arise in the future.

These challenges have a number of differentiable sources. These include an inability on the part of states to make dependable commitments to contribute to the provision of collective goods (e.g. a benign climate system); a tendency to turn inward, closing national borders in the hope of warding off external threats (e.g. infectious diseases), and the lack of effective means available to authorities to control the actions of those motivated to use sophisticated technologies for antisocial purposes (e.g. cyber terrorism or identity theft). But if my argument is correct, analysts and practitioners concerned about addressing these twenty-first-century challenges of governance must begin to think broadly about the fate of the global political order. What are the prospects that a critical transition will occur in the near future resulting in the emergence of a new order replacing the existing order? What would be the defining features of an alternative order? Would it be easier to address the grand challenges of planetary governance within the new order than within the existing order (Duit and Galaz 2008)? To ask these questions is to launch an enquiry into the forces that control critical transitions in complex systems and, in this case, transformative change in the constitutive features of political orders treated as assemblages of social institutions that guide the activities of human actors in multiple issues areas and provide procedures for arriving at collective choices in these spheres (Jervis 1997; Harrison 2007; Scheffer 2009; Young 2017). An examination of the operation of these forces and their

probable consequences with particular reference to political order on a planetary scale is the focus of this Element.¹

A defining characteristic of political orders ranging from small local orders to the global order is that they are all social constructs. What this means is that they are assemblages of institutional arrangements either created intentionally by human actors seeking to address some consciously delimited domain of human affairs or evolving through recurrent social interactions as distinct and generally stable practices dealing with more-or-less well-defined spheres of human affairs. The elements of such orders do not take the form of natural laws, such as the laws of gravity, that are invariant across both space and time. They are specific to particular times and places and apply to the actions of those active in such settings. This means that political orders are dynamic; they are subject to change as a result of shifts in the capabilities, preferences, and practices of human actors responding to a variety of biophysical and socioeconomic developments. Some of the resultant changes are incremental in nature, as in the case of a court decision setting forth a new interpretation of a specific provision of a national constitution. Such changes do not precipitate transformative shifts in the character of the political order within which they occur. But other changes are more fundamental, producing what those who study complex systems think of as critical transitions or bifurcations in which old orders fall by the wayside and new orders arise (Scheffer 2009).

The current global order shares these features with all other members of the class of political orders. But two factors that make an enquiry into the prospects for a critical transition in this order difficult require recognition at the outset. The prevailing global order is unique in the sense that there is only one political order operating on a planetary scale. We regularly analyze changes occurring within this order. There are lively debates today, for example, regarding shifts in the distribution of power among leading members of the global order and the growing importance of a variety of nonstate actors together with enquiries regarding the political consequences expected to flow from such developments (Kissinger 2014; Allison 2017; Acharaya 2018; Dalio 2021). But the uniqueness of this order makes it impossible to engage in comparative analyses, examining a set of global orders in a search for insights about the determinants of critical transitions at this level.

Treated as a global order, moreover, the current political order has a surprisingly short history. Those of us whose thinking is rooted in the

¹ I use the phrase planetary governance in this Element to convey the idea that human societies are embedded in biophysical systems that affect the degree to which societies thrive in significant ways. In this setting, issues of governance include interactions between societies and biophysical systems as well as interactions among human actors.

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European experience typically date the inception of the idea of a state-based system to 1648 with the conclusion of the Peace of Westphalia bringing an end to the Thirty Years' War and, in the process, putting in place the defining features of the political order that arose in Europe in the aftermath of this watershed event (Opello and Rosow 2004). As a global political order, however, the prevailing order did not come into existence until the second half of the twentieth century following the onset of wholesale decolonization and the subsequent spread of sovereign states to encompass the landmasses of all the planet's continents other than Antarctica (Bell 2008).² In thinking about the future of the current order, therefore, we must reckon with the fact that this unique system has a track record as a global order spanning only a few decades.

Still, there is nothing new about the emergence of large political orders in the sense of orders encompassing extensive spatial areas their inhabitants have typically regarded as the civilized world, though they also involve more-or-less complex interactions with outsiders often lumped together under the rubric of barbarians (Scott 2017; Jones 2021). Prominent examples include large kingdoms, such as Ancient Egypt and China during the Qin and Han Dynasties, centralized empires, such as Imperial Rome, the Mongol Empire, and the Inca Empire, and more complex political orders, such as the Maya Civilization and premodern Europe. There are lively debates about the forces controlling both the rise and the fall of these orders, with proposed explanations pointing to the role of different biophysical and socioeconomic factors and to variations in the importance of internal and external drivers. Explaining the fall of the Western Roman Empire toward the end of the fifth century CE, to take a single prominent example, is a matter of perennial debates among historians who periodically introduce new interpretations regarding the forces that came together to produce this critical transition. There is no doubt that such orders take the form of complex systems in which the interplay of multiple forces makes it difficult to anticipate the occurrence of critical transitions, much less to point to the role of some particular factor as *the* cause of the transition in specific cases (Young 2017). A distinctive feature of all complex systems is the prominence of emergent properties or developments reflecting the impacts of multiple interactive drivers whose individual contributions to the behavior of these systems are impossible to pin down precisely. But one clear conclusion from thinking about these cases is that large political orders are not immune to the operation of tipping elements and the impacts of nonlinear cascades of change that can give rise to critical transitions or what analysts of complex systems

² Many analysts use the phrase international society in discussing the resultant global order. But because this phrase obscures several features of the prevailing global order, I have chosen to avoid using it in this Element.

often refer to as bifurcations in contrast to oscillations (Lenton et al. 2008; Scheffer 2009). There is no reason to assume that the prevailing global political order constitutes an exception to this observation.

At the level of individual societies, critical transitions in political orders are relatively common (Lebow 2018). As prominent examples, consider the transition associated with the establishment of the United States under the terms of the Constitution negotiated in 1787 and ratified in 1788 to replace the preexisting order articulated in the Articles of Confederation; France's transition from a monarchical to a republican form of order in the decades following the revolution beginning in 1789; the rise of the Soviet order in Russia and surrounding areas following the revolution of 1917; the establishment of new political orders in Germany and Japan following their defeat in World War II, and the rise of the contemporary order in China in the aftermath of the final communist victory in 1949 in a civil war that had raged on and off since the 1920s. The common feature of all these transitions is the occurrence of fundamental change in at least one and often several of the defining or constitutive features of the old order.

Beyond this, differences abound. The American transition took place relatively quickly and in the absence of intense civil strife. On the other hand, it took decades to secure the dominance of a republican order in France. The Soviet order in Russia collapsed after a run of some seven decades. The current order in China has morphed into a system that shows little commitment to the traditional philosophical precepts of communism, though the Communist Party of China retains its position of dominance in China's political order. It is essential to bear in mind the fundamental differences between individual societies and the global order when it comes to thinking about the determinants of critical transitions in political orders. But that said, it is instructive to reflect on the sources of bifurcations in the larger class of political orders as a point of departure for a more intensive effort to think about the future of the prevailing global order treated as a specific case. An analysis of this case also may offer insights regarding the general phenomenon of critical transitions in political orders worthy of investigation in further studies of the dynamics of such orders.

In the substantive sections of this Element, I tackle the questions identified in the opening paragraphs above within the framework of contemporary thinking about the dynamics of complex systems. My argument proceeds as follows. To set the stage, Section 2 provides a brief introduction to current thinking about complex systems. Section 3 directs attention to the defining features of the prevailing global order; it explores developments I call constitutive pressures that have the potential to erode or at least call into question the dominance of one or more of these features. I then move on in Section 4 to examine several

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developments of a more general nature that I call systemic forces and that may give rise to global changes that have the effect of making the current order obsolete or at least obsolescent. Building on this foundation, I turn in Section 5 to an adaptation of the idea of tipping elements, well known in the literature on Earth system science and complex systems more generally, to the study of critical transitions in the global political order. Taken together, Sections 3–5 provide an assessment of the prospects for the occurrence of transformative change in the existing order.

In the remaining sections, I turn to issues relating to the constitutive features of a potential successor to the existing order. Section 6 drills down on the effects of scale, an issue of sufficient importance in this setting to require special attention in thinking about the future of political order on a planetary scale. Do considerations of scale rule out arrangements at the global level that have proven effective in efforts to address governance challenges in more circumscribed settings? This sets the stage for an exploration in Section 7 of the constitutive features of a global political order that may succeed the current order in the coming decades. Does the rise of virtual reality provide opportunities to introduce workable substitutes for the centralized arrangements typical of smaller societies? Might a successor to the current global order recognize more than one class of members and feature a novel procedure for allocating authority among its members? Finally Section 8 turns to a consideration of pathways to a new global order. Given the character of political orders as complex systems, it is hazardous to offer an explicit forecast regarding the timing of a critical transition leading to the emergence of some distinct successor to the current global order, much less to anticipate the nature of the constitutive features of such a successor. Nevertheless, there is much to be said for engaging in a robust and informed discussion regarding possible trajectories of change in planetary governance. Overall, my goal is to improve our capacity to take advantage of opportunities that arise to address the twenty-first century's grand challenges of planetary governance effectively and, in the process, to contribute to our understanding of the dynamics of political orders more generally.

Before moving on, let me take a moment to situate this assessment in the overarching frame of reference that animates the work of the Earth System Governance community (Biermann 2014). The analysis of critical transitions in political orders brings together this community's concern for architecture and actors on the one hand and its emphasis on transformations on the other hand (Earth System Governance Project 2018). The concern for architecture and actors draws attention to the ways in which institutions shape both the identities and the opportunities available to those who operate within their confines

(Biermann and Kim 2020). But the emphasis on transformations signals an awareness that institutions themselves are social constructs subject to more or less dramatic changes over the course of time. Framing this enquiry as a study of the determinants of critical transitions in political orders signals a sustained interest in processes leading to stability and change in the governance systems human communities devise to guide their collective destinies.

2 Political Orders as Complex Systems

Treating political orders as complex systems provides access to a set of concepts and theoretically grounded propositions that can help us to make progress in understanding the prospects for critical transitions in all political orders, including the prevailing global order. With a few exceptions (Jervis 1997; Harrison 2007; Kavalski 2015), efforts to understand the general features of complex systems have emerged from the work of natural scientists (Levin 1999; Janssen 2002; Johnson 2009; Scheffer 2009). But this does not limit the applicability of this body of work to our efforts to understand the dynamics of political orders.

Like all systems, complex systems involve collections of distinct elements that interact with one another to produce patterned outcomes on a systemic scale (Meadows 2008). Such systems are subject to a variety of feedback processes, including both negative feedback mechanisms serving to constrain forces of change that may disrupt normal operations and positive feedback mechanisms serving to reinforce and in some cases accelerate processes of change once they get underway. Both sorts of mechanisms are operative in most systems, and the relative importance of these mechanisms is apt to change over the course of time. As a proper subset of the broader class of systems, however, complex systems share a number of distinctive features that are of particular interest to those concerned with the dynamics of political orders.

2.1 Telecoupling

To begin with, complex systems are subject to what systems analysts have come to regard as telecoupling (Liu et al. 2013, 2015; Kapsar et al. 2019). The essence of telecoupling is the existence of linkages between or among elements of a system that appear on the surface to be distant or unrelated but that turn out to be of great importance. In the Earth's climate system, for example, melting occurring on the Greenland icecap has the effect of raising global sea levels producing more or less dramatic impacts on small islands located in the South Pacific. Similarly, political disturbances occurring in Syria and other parts of the Middle East trigger cross-border flows of migrants that generate domestic crises in European countries like Germany and Greece when migrants seek to enter

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these countries as refugees. Telecoupling is a variable; the resultant links may be loose or tight and become looser or tighter over the course of time. As telecoupling becomes tighter, as appears to be happening in the global political order today, it becomes increasingly important to watch for important links that may seem anything but self-evident until we uncover the mechanisms that give rise to them.

2.2 Nonlinear Change

A related feature of complex systems is the prominence of nonlinear and sometimes exponential processes of change. We are used to thinking about systemic changes that occur gradually or incrementally over the course of time. We anticipate that glaciers will melt slowly over decades or centuries; we expect public opinion regarding matters of current interest to shift gradually over time. But in complex systems, this is not uniformly the case. Although most glaciers do melt slowly, specific glaciers may reach thresholds leading to sudden dramatic collapses. While public opinion does shift gradually under some circumstances, there are also cases in which sharp transitions occur over remarkably short periods of time. Often, such nonlinear developments occur once a threshold or what those who study complex systems often call a tipping point is passed (Gladwell 2002). Think of the rapid and dramatic consolidation of American public opinion regarding the participation of the United States in World War II following the Japanese attack on Pearl Harbor on December 7, 1941, or the coalescence of public opinion in Finland and Sweden regarding membership in NATO in the wake to the Russian invasion of Ukraine on February 24, 2022. This makes the study of the nature of tipping elements in general and the character of trigger mechanisms more specifically a matter of intense interest to those seeking to understand the dynamics of complex systems.

2.3 Oscillations and Bifurcations

This leads as well to an emphasis on the distinction between what analysts call systemic oscillations and bifurcations (Lenton et al. 2008). Oscillations involve fluctuations in the behavior of a system whose magnitude and timing are controlled by the operation of negative feedback mechanisms. Seasonal fluctuations in the Earth's climate system provide a prominent case in point. Much modern thinking in the field of macroeconomics centers on efforts to construct feedback mechanisms that employ a range of monetary and fiscal policies designed to control the fluctuations associated with business cycles. Bifurcations, by contrast, occur when systems break through the boundaries

imposed by negative feedback mechanisms, shifting from an initial state to some wholly different state or from what some analysts describe as one basin of attraction to another (Scheffer et al. 2012; van der Leeuw and Folke 2021). This is the focus of the recent literature exploring what analysts call planetary boundaries (Rockström et al. 2009; Steffen et al. 2015). Critical transitions are, in effect, bifurcations, and I will use both terms in analyzing the future of the global political order. Clearly, a prominent focus of attention in this context involves the boundaries separating situations subject to oscillations in contrast to bifurcations together with trigger mechanisms that can push systems across such boundaries. An important observation in this context is that once a threshold or tipping point is reached, a relatively modest trigger mechanism may suffice to catalyze a cascade of developments leading to a critical transition (Gladwell 2002).

2.4 Emergent Properties

It should come as no surprise, under the circumstances, that complex systems typically exhibit what analysts describe as emergent properties (O'Connor 2020). The key insight here is that outcomes emerging from interactions among the elements of complex systems involve the impacts of so many variables that it is generally impossible to predict their nature and timing precisely, much less to attribute specific outcomes to the impacts of simple causal mechanisms. The development of increasingly sophisticated models makes it possible to analyze the dynamics of some complex systems with greater precision. This is why we are now able to produce weather forecasts that do a reasonably good job of predicting weather conditions unfolding over a few days rather than over just a few hours (Coiffier 2012). Nevertheless, emergent properties make it extremely difficult to anticipate the behavior of really complex systems with any precision. A prominent case in point involves the difficulties of projecting the likely trajectory of climate change on a global scale even over the course of the next few years. A moment's thought will suffice to make it clear that this difficulty is front and center with regard to efforts to anticipate the trajectory of changes in political orders. This is why most observers were taken by surprise by the onset of the French Revolution in 1789 and the collapse of the Soviet Union in 1991, though they were aware of destabilizing forces that had been present in these political orders for some time. The upshot is that surprise is a common feature of our efforts to understand the behavior of complex systems. We may endeavor to limit the scope for surprise in thinking about the dynamics of such systems. But we must also learn to live with relatively

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high levels of uncertainty about matters like the timing and nature of critical transitions in large political orders.

With this analytic framework in hand, we can return to the central focus of this Element. What are the prospects for the occurrence of a critical transition in the global political order treated as a complex system? What forces might trigger a bifurcation in this realm? In the event that a bifurcation does occur, what form might an alternative order take? Before tackling these questions, however, let me pause to comment on a tension arising from the treatment of political orders as complex systems. This analytical framework offers a way forward for those interested in enhancing our understanding of the dynamics of political orders. But many analysts and policymakers take an interest in this subject, in part at least, because they want to improve our ability to address contemporary needs for governance. As I have noted, both the timing and the results of critical transitions are difficult to anticipate clearly; surprises are common in the world of complex systems. Those who are not content simply to augment our understanding of the dynamics of political orders will find this situation perplexing. It makes it difficult to distill from the analysis clear policy recommendations. The resultant tension is real. But it is important not to exaggerate its importance. It is naive to think that we can make accurate predictions regarding the probable consequences of policy initiatives under any circumstances (Harrison 2007). At the same time, there is much to be said for improving our understanding of the roles of telecoupling, nonlinear changes, and emergent properties in complex systems as a way to avoid naive expectations about the relative merits of various options for responding to specific needs for governance under real-world conditions.

3 Constitutive Pressures

One way to engage in systematic thinking about the prospects for a critical transition in the prevailing global political order is to focus on the constitutive features of this order one at a time, asking in each case about the resilience of the feature or, in other words, its capacity to adapt to emerging challenges without undergoing fundamental change (Gunderson and Holling 2002; Folke 2006). Proceeding in this way, I direct attention to matters of membership, authority, and obligation, starting with conventional formulations of these features and considering developments leading to significant changes in these institutional arrangements over time. The traditional view of membership centers on the requirements a social entity must fulfill to be recognized as a state and consequently eligible to be treated as a member of the global order. Authority then refers to the principle that member states have the right to exercise control over

matters taking place within their jurisdictional boundaries. Obligation, on this account, has to do with interactions among the members of the global order. In its simplest form, this feature of the current global order asserts that states cannot be bound by obligations they do not accept on a voluntary basis.

Like other political orders, the prevailing global order is dynamic. It evolves in response to a variety of forces developing over time and often interacting with one another to produce effects that are systemic in character. Some of these effects, such as the emergence of new states that are accepted as members of the global order, are easy to accommodate without altering the constitutive foundations of this system. Others, such as shifts in the distribution of power among the members of the current order, have consequences that are important but not because they change the character of the system (Kissinger 2014). Still others, such as the emergence of many new issues (e.g. international air travel, commercial shipping on a large scale, the rise of the Internet), generate distinct needs for governance. But so long as states take the lead in responding to them through the creation of (increasingly complex) international regimes, the treatment of these issues does not raise serious questions about the nature of the current order.

Other developments, by contrast, lead to changes that have the potential to shift the character of the current political order in more or less fundamental ways. Among the most important of these developments are the growing importance of various types of nonstate actors, the increasing frequency of efforts to accord some of these actors the authority to make decisions without reference to the preferences of individual states, and the emergence of a denser web of relationships that entangle states and make it difficult for them to exercise the freedom to make their own decisions about specific issues. Some analysts, especially those who belong to the English School of thinking about international relations and who have articulated the idea of solidarism, make the case that these developments taken together have transformed the character of the global order or, in any case, are in the process of doing so (Linklater and Suganami 2006; Hurrell 2007). How persuasive is this line of thinking? Do we need to restructure our understanding of the prevailing order as a result?

3.1 Membership

The conventional view is that membership in the global order is reserved for states treated as social units that are spatially delimited, include well-defined human populations, have governments capable of making and implementing collective choices applicable to all those subject to their jurisdiction, and are