

Policymaking at the Edge of Chaos

Written by Christopher Ford

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CHRISTOPHER FORD, FEB 7 2011

If it is indeed possible to conceive of human society as a complex adaptive system, Complexity Theory may thus have something valuable to teach us about politics and policymaking. Most accounts I have seen of work attempting to glean social science insights from Complexity, however, remain quite descriptive and analytical. As a former and conceivably future policymaker, however, I am particularly interested in what – if anything – Complexity can teach us about *operating* in the world of public policy.

This is a question that deserves study by people more steeped in Complexity Theory than am I, but I offer some tentative musings. I posit that policymakers can indeed learn from Complexity, but that it presents significant challenges to the very *idea* of public policy, and the lessons it offers are not straightforward.

One of the peculiar challenges I think Complexity may present for the public policymaker is that the nonlinearity and unpredictability it posits as being fundamental characteristics of complex systems are profoundly subversive of how we have traditionally understood policymaking. Complex adaptive systems are highly sensitive to initial conditions, as well as potentially subject to a variety of both positive and negative feedback loops that act either to amplify or dampen the effect of exogenous perturbations. This makes outcomes notoriously unpredictable over the long term.

This isn't necessarily a problem for descriptive analysis, but such fundamental unpredictability introduces great challenges for the public policymaker, because it seems to explode the very idea that systems in the human world may be manipulated in order to bring about specific desired situational outcomes. And what is public policymaking about, after all, if not deliberately creating perturbations in the current state of affairs in order to produce a specific, desired outcome at some point in the future?

Complexity insights may lend themselves well to innovations in the policymaking process whereby linear strategic planning paradigms are replaced by scenario-based approaches designed to maximize relevant decision-makers' repertoire of adaptively responsive behaviors with which to confront unpredicted systemic perturbations.

But Complexity would seem to provide great frustrations for anyone wishing to go further, into affirmative, direction-focused policymaking, for it presents a difficult paradox. Even as Complexity seems to offer the potential for even very small policy inputs to bring about transformative change in a complex adaptive social system – the result of nonlinearity and positive feedback loops, in a kind of policy-world analogue to Edward Lorenz's famous "butterfly effect" – it also seems to suggest that *many* such deliberate perturbations are likely to have no significant impact at all.

Indeed, the extreme sensitivity of complex systems to initial conditions and the very potential for nonlinear feedback that makes it *possible* for small inputs to have dramatic effects also suggests that a policymaker will not be able to predict just *what* effects, if any, his intervention will have. To the extent that Complexity Theory denies the possibility of long-term predictions, it does much to undermine the very *possibility* of policymaking. Without an operationally useful ability to predict the result of one's inputs, one lacks the basic control over future outcomes that policymaking requires.

As a tentative response to Complexity's seeming subversion of the policymaking paradigm, however, I speculate that

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it might yet be that *some* types of policy input are more likely to have significant effects upon long-term systemic patterns than others, and that some of these inputs may also develop in ways that are less stubbornly “unpredictable” than Complexity might at first seem to indicate.

The key point here is that human actors are *not* easily analogized to the constituent elements of most of the complex adaptive systems studied by Complexity scientists. Complex adaptive *social* systems *are* capable of responding to a type of input that no other complex system seems to be: *ideational* ones. Because the constituent units of complex adaptive social systems are *people* – and because people frequently change their behavior patterns in response to ideas that come into their heads – inputs at the level of conceptual organizing frameworks, the narratives that structure people’s understandings and expectations of the world around them, are important drivers for situational outcomes in social systems and politics. Moreover, they seem to shape outcomes in ways that are not entirely random. In humans, behaviors resulting from *ideas* are often understandable, and perhaps to some useful extent *predictable*, with reference to the substantive *content* of the ideational input that spurs them.

Just as importantly, such inputs clearly *can* be deliberately manipulated, for good or for ill, by members of the policymaking community. Ideas are policy *tools* of perhaps unique power. Public policy is, therefore, to some extent a challenge of what one might call memetic engineering.

I suggest, therefore, that a Complexity-informed approach to public policymaking might be supposed to require a twofold focus. First, it would acknowledge the world’s resistance to prediction and control, and policymakers’ responsibility to help prepare the ship of state not just for what an extrapolation from current trends suggests may occur in the future, but also for *non*-anticipated perturbations. Such a “Black Swan” sensibility, if you will, would seek to maximize the system’s ability to deal with sudden shocks of either the positive or negative variety, equipping it as well as possible for agility and responsiveness in taking advantage of whatever opportunities, and coping with whatever calamities, fortune may bring. This aspect of public policy is less about determining *where* to lead the polity than preparing it for resilience and flexibility in the face of the unforeseen.

Building upon the idea of purposive ideational input as a potentially system-transforming perturbation, however, the Complexity-informed policymaker should *also* devote time and attention to the realm of ideas as a source of general direction and behavior-shaping guidance for the socio-political system. One must *ground* one’s policy choices in a compelling conceptual and emotive framework that can be articulated and conveyed to others, equipping this grounding to compete successfully against rival visions.

And indeed, the political world seems to offer many examples of how ideas shape decision-making, how such concepts are sometimes purposefully manipulated, and yet how they can also come to acquire considerable power in shaping actors’ behavior and acquiring a sort of cognitive “momentum” of their own. Particular thrusts and themes seem to propagate themselves both laterally – “catching on” among greater numbers of people – and forward in time, maintaining a recognizable “family” resemblance even while changing in response to circumstances. Indeed, one might perhaps imagine cognitive frameworks and socio-political ideologies as being complex adaptive meme-systems that *themselves* function in some of the ways Complexity-derived organizational theories might expect.

A “fit” cognitive framework might be understood to thrive “on the Edge of Chaos” by having its conceptual elements be tightly coupled enough that the system provides a coherent way for adherents to understand and cope with key challenges presented by their socio-political environment, yet without proving so rigid and doctrinaire that the schema crumbles upon encountering the first perturbation not foreseen by, or intelligible within, its frame of reference. Fit thought-systems are loosely-coupled enough that they can “explain” and accommodate a good deal of circumstantial caprice without suffering a catastrophic collapse of legitimacy or coherence, but yet tightly enough inter-related that they manage to hang together in a form recognizable by their adherents (and third parties) as being the “same” framework over time. And participants in the public arena both react to these dynamics and help *shape* them over time, often quite deliberately.

I offer as an example of such a process the history of the old and now long-discredited ideology of racial “separate development” propounded for decades by the white minority government of the Republic of South Africa during the

Policymaking at the Edge of Chaos

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apartheid era. I won't bother you here with a detailed narrative of its development and demise, but the story arc of "separate development" over several decades as an organizing and justificatory scheme for the South African politics demonstrates the deliberate – and sometimes quite cynical – manipulability of political ideology. Yet it also shows how ideas can seem almost to bewitch political actors, and to function over time as tenacious shapers of behavior, with the result that policy choices can tend over time to exhibit patterns clearly traceable to the structuring and organizing principles of the conceptual framework. This is visible in the National Party government's co-optation of a notion of "separate development" it had previously rejected, and by the degree to which this adopted schema became powerfully internalized by Afrikaner Nationalist leaders for years thereafter.

At the same time, the story of separate development shows that idea systems can come to face internal contradictions or tensions as they struggle to reach a point of organizational "fitness" by accommodating exogenous reality *enough* to remain relevant and legitimate in the eyes of their adherents, yet without doing so in ways that forfeit their coherence and conceptual distinctiveness. The history of separate development theory illustrates the possibility of dynamic tensions within the conceptual frameworks offered by political ideology. And it shows that while ideological systems can sometimes absorb considerable perturbations, they may eventually reach the point at which the entire system disaggregates – thus permitting the crystallization of a new order around a *different* organizing concept.

These dynamics, are visible in the struggle of "separate development" to accommodate the conceptual inconveniences of Coloured and Indian identity, which prolonged its domination of the South African political landscape but led to doctrinal reformulations that in turn presented *further* tensions and contradictions – ones that in time helped bring about the bankruptcy and collapse of *apartheid* theory even *within* the discourse of Afrikaner nationalism. The formalized ethno-political groupism that made "separate development" so distinctive as a theory of self-determination has today collapsed.

The concept of complex *memetic* systems may provide only an incomplete answer to the policymaker's paradox inherent in Complexity, but I speculate that it is something of an answer nonetheless. Ideational inputs are a potentially potent tool for effecting purposeful systemic change. In the South African case, there was, throughout the period, a clear relationship between the ideas expressed about how the South African political system should work and the forms it actually took when acted upon by leaders guided by such formulations. Ideas *did* matter, and they were perceived – apparently quite accurately – as being capable of having significant, or even transformative, consequences.

Even given all the difficulties of applying Complexity science in the human realm, therefore, this may be a lesson that policymakers can learn. For better or worse, ideas matter, and their development, articulation, and manipulation is important to the policymaking and political process. On one level, no one who has studied policymaking will probably be too surprised by this conclusion: ideas clearly *do* matter. It is fascinating, however, that an effort to glean insights from the science of Complexity Theory – an approach developed initially in mathematics and the "hard" sciences, but to which thinkers have increasingly been turning in the social sciences and the study of organizational behavior – may be able to lead us back around to such humanistic conclusions.

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