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process work? Is the process specific to this institution and its historical context(s), or is the process, at least in part, more generic?

- An entrepreneurial group of legislative staff and legislators with close ties to the powerful Speaker of the California Assembly sought the Speaker's assistance for a major reform in mental health policy only in the closing days of the legislative struggle. Why did they wait? Might they have been better off not waiting so long?

While this chapter does not attempt to answer these questions in particular, it does seek to describe and evaluate a number of conceptual frameworks for answering questions like these.

1. OVERVIEW

This is not a review essay on the status of a mature field. It does not try to summarize comprehensively the works of others. The study of policy dynamics is not a field at all; and, to the best of my knowledge, no one has previously brought together all the phenomena I canvass here. I have scanned for work in which dynamics and policy both happen to be present, even if the authors did not self-consciously intend to make the connection. I have also not aimed to eliminate subjectivity on my part. Scanning is bound to be subjective, perhaps idiosyncratic, as is interpretation of the results.

My main objective is to stimulate research interest in a neglected phenomenon and, by way of doing so, to present concepts and substantive hypotheses that I have found stimulating or that others might find so.

The most important others are the likely readers of this *Handbook*. I assume the average reader to have a generalist's interest in the policy process. Hence, I have favored breadth over depth. Secondly, I have focused more on the institutional dynamics of the policy-making process than on the evolution of substantive policies themselves, though obviously the two subject matters overlap. This focus has naturally led me to look primarily to the work done by political scientists, though I also mention stimulating contributions by economists and other social scientists.² Thirdly, I have tried to point to policy-relevant applications of leading ideas in the study of dynamic social systems, even though such applications are often isolated, pioneering, and not necessarily widely cited by students of the policy process. Fourthly, I occasionally refer to studies or bodies of work that, although not closely related to the policy process, suggest the power of certain approaches to the study of dynamic systems.

² I am, of course, indebted to the work of Baumgartner and Jones, who have presented a survey on these topics as well (Baumgartner and Jones 2002).

In Section 2, I explain some key concepts in systems analysis that are necessary for understanding dynamics.

Section 3 deals with dynamic processes dominated by negative feedback. They are in some sense equilibrating, or balance seeking. However, in most cases equilibrium is not actually achieved, unless one is willing to call oscillating within some broad or narrow range an equilibrium. They all have to do with what one might think of as “the balance of power.”

Section 4 discusses processes dominated by positive feedback. These are the more integrative processes of political life, e.g. consensus building, network construction, community mobilization, collective learning, interorganizational collaboration.

Section 5 briefly describes dynamic processes that unfold in only one direction. That is, they do not involve feedback loops. The processes selected here for discussion involve filtering and chain reactions, or “cascades.”

Section 6 concludes with a short wish list for future research.

1.1 Do Dynamics Matter Anyway?

As this chapter is devoted exclusively to policy dynamics, it would be easy for both author and reader to be carried away by the putative importance of dynamic processes and process-related tactical skills relative to, say, institutionalized authority or interest group power or interpersonal influence. The conceptual fascination of the subject matter, and some of the exotic models to deal with it, increases the temptation. Not all scholars working in this area have been immune. We should probably believe, though, that in the end, authority, power, and influence all matter more. If you are wrestling Hercules, you will lose eventually, no matter what the sequence of holds and escapes along the way. The assumption behind this chapter is merely that *when* process dynamics are consequential, we need the conceptual tools and empirical knowledge for understanding them.

2. “SYSTEMS” AND “DYNAMICS”

Not all systems are dynamic, but all dynamics occur within systems. We must therefore say something at the outset about how to understand systems.

Robert Jervis, in *System Effects: Complexity in Political and Social Life*, provides this useful definition of a system: “We are dealing with a system when (a) a set of units or elements is interconnected so that changes in some elements or their relations produce changes in other parts of the system, and (b) the entire system exhibits properties and behaviors that are different from those of the parts” (Jervis 1997, 6).

A closed system is one that is responsive only to changes initiated by its own elements; an open system contains an endogenous core that behaves in many ways like a closed system but can also receive inputs from its environment. In this chapter, I consider only open systems but often focus mainly on the dynamics of their endogenous cores.³

To convey the flavor of what counts as what, in Terry Moe's paper on the dynamics of the National Labor Relations Board (NLRB), the endogenous core consists of the Board, the staff, and the millions of employers and workers who are potential complainants, whereas the environment is composed of political officials, judges, and a variety of economic conditions (Moe 1985). In Moe's analysis of who wins and who loses at the NLRB, the workings of the endogenous core have an interesting but minor influence compared to influences from the larger environment. Exogenous influences on the Board, especially by way of presidential appointments, importantly shift its pro- or anti-labor tilt. Then endogenous dynamics take over. Suppose, for instance, the Board shifts its interpretative standards in a direction favorable to labor. This leads to a temporary increase in the win rate. But this increase is only temporary. As the backlog of cases to be settled favorably to labor under the standards diminishes, so too does the average win rate. But the temporarily above-average win rate, in combination with signals about the Board's new interpretative standards, encourages an increase in labor filings. The average quality of the new filings is below the average quality of the old caseload, however, and the win rate at the staff level (as they filter cases up to the board) drops. As staff criteria and labor perceptions of those criteria stabilize, the average merit of cases and the labor win rate converge on some "normal" level. This new level, though, is more pro-labor than it used to be before the shifts in the Board's composition.

2.1 Negative and Positive Feedback Loops

The structure of a system consists of (1) its constituent elements, (2) the rules governing their interactions, and (3) the information required by the system to apply the rules. In virtually all dynamic systems of interest to students of policy, "running" the system creates feedbacks that might alter the structure of the system.

By means of feedback loops certain system outputs (whether intermediate or final) influence certain of the system's inputs. For instance, teachers encourage parents to read to their children, and the children's improved performance encourages parents to keep up the good work. The literature on systems dynamics calls such growth-inducing feedback loops "positive" because in conventional loop diagrams such as

³ Richardson usefully distinguishes two meanings, analytical and material, of "closed" system. In a material, or real, sense all systems are open. For analytical purposes, however, it sometimes makes sense to treat certain systems as closed. Jay W. Forrester, a pioneer of at least one wing of contemporary systems analysis, works only on analytically closed systems (Richardson 1991, 297–8).

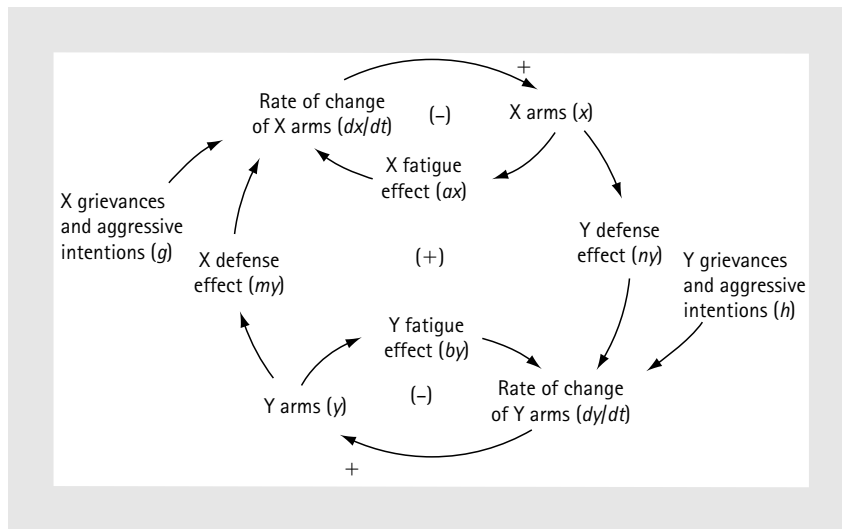


Fig. 16.1. Loop structure of Richardson's linear model of an arms race

Fig. 16.1 the product of the components' polarities is positive. "Negative" feedback loops, on the other hand, have balancing, or equilibrating effects, as the product of the polarities is negative. Figure 16.1 diagrams the well-known arms race model of Lewis Richardson. Richardson's algebraic model is given in equations (1) and (2), with x and y representing stockpiles of arms in two nations, m and n being positive "defense" coefficients, and g and h representing "grievances" or "aggressive intentions" (Richardson 1991, 40).

$$dx/dt = my - ax + g \quad (1)$$

$$dy/dt = nx - by + h \quad (2)$$

In the NLRB case, a larger gap between cases filed and cases won increased worker realism, while increased realism fed back and decreased the gap.

2.2 "Emergent Properties" and "Developments"

As they run, most complex systems with positive feedback loops create new features, "emergent properties." In the physical world, think of a pot that miraculously emerges from the system of clay, wheel, and potter. In the social world, think of gridlock that emerges from thousands of drivers converging on the same highways or urban streets. As these examples suggest, emergent properties are properties of the system as a whole rather than any of its component parts.

"Emergent properties" can loosely be translated back into more conventional language as "developments." In the course of this chapter I shall refer to many

such developments in policy-related systems. I have already mentioned win rates in the NLRB case. Other such examples will be:

- Partial fragmentation of an advocacy coalition following soon after counter-mobilization by its opponents.
- The emergence of a functioning “interagency collaborative” out of a combination of human and non-human assets hitherto relatively independent of one another.
- A variety of momentum processes that go into the creation of electoral bandwagons, the construction of implementation networks, and the development of legislative consensus.
- The “lock-in effect” that comes to hem in social policy by all the policies previously enacted and with which any new policy must be reconciled.

3. NEGATIVE FEEDBACK PROCESSES: THE BALANCING OF POWER

I discuss two types of negative feedback, or equilibrating, processes. They are:

- Oscillations occurring within certain—perhaps changeable—limits.⁴
- Efforts being made to maintain a “monopolistic” equilibrium condition, one based on the superior political power of the monopolists. When reformers do manage to succeed, this might be termed a “disequilibrating” process.

I will note preliminarily that I ignore the large domain of processes that either do or might reach a game-theoretical equilibrium. Many of these, such as the Prisoner’s Dilemma game, are of great relevance to policy making and implementation and have inspired a large literature. The reason for this omission is that equilibration in these games, if it occurs, is instantaneous; hence, there is no “dynamic” to talk about. For the same reason I also omit effects that compensate for failures to reach an equilibrium, such as discussed in Miller (Miller 1992).

3.1 Oscillating Processes

Before turning to domestic policy processes, our main interest, let us consider the classic oscillating system, balance of power politics in the international arena. At its

⁴ In their generally thorough and insightful work on both positive and negative feedback, Baumgartner and Jones refer occasionally to the “homeostatic” role of negative feedback (Baumgartner and Jones 2002, 8–9). This implies a return to some prior defined state. I do not think this occurs very frequently. All I attribute to negative feedback is system movement in a reactive direction.

core, the process features (1) the rise of a countervailing coalition to challenge any emerging coalition of states and (2) fluidity in coalition formation, so that today's enemy may be tomorrow's ally. The system oscillates between relative peace and near-war, sometimes tipping over into actual war when countervailing threat fails to deter. However, it also tends to preserve most actors' territorial integrity and bars the way to successful total domination (Jervis 1997, 131–3).

Whether or not one thinks the balance of power actually “works”—in Renaissance Italy or in Europe, say, from the seventeenth century until the Second World War—it is clear that it does not work all the time. When rulers are extremely ambitious or miscalculate, or countervailing forces are slow to mobilize, the system will break down. That is, war will occur. These failures do not arise from the dynamics of the system's endogenous core, however, but from exogenous forces in the system's environment, such as leaders' psychology (Napoleon, Hitler) or the influences of domestic politics (public opinion in Neville Chamberlain's England).

Regulatory agencies. In domestic politics, the oscillation of regulatory policy is the best illustration of negative feedback. As we have seen in the case of Moe's study of the NLRB, the influence of exogenous factors on the dynamics of the core is a point of great importance and general applicability. Of course, one might say that the oscillations in the political environment are themselves the expression of endogenous processes within a larger system. Like the NLRB, risk regulators such as the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) are more aggressive regulators when Democrats are in power than when Republicans are. This oscillation between parties, and the interest groups that thrive under their protection, is certainly systematic after a fashion. We shall return to this point below.

Politics aside, the very nature of risk regulation probably guarantees a certain amount of endogenous oscillation independent of that induced by the political environment (Hood, Rothstein, and Baldwin 2001; Bardach and Kagan 2002/1982). All that is required is regulators who wish to adhere to norms about making “good public policy” but who work under conditions of great technical uncertainty. This is a standard condition for almost all risk-regulating agencies. Good scientific information is often lacking about what exposures cause how much damage to what kinds of individuals under which circumstances. Nor do regulators know with certainty whether, in the real world of policy and program implementation, particular remedies will be applied effectively or not. Following Jonathan Bendor, suppose that regulators follow heuristics like “If it seemed to work in the past, keep on doing it” and “If it didn't seem to work, tighten (loosen) the regulatory regime.” As long as mistakes appear to happen, the agency will not get trapped in a suboptimal regime, but it will not be able to prevent its oscillating away from an optimal regime either (Bendor 2004, 13–14).

Bendor uses the Food and Drug Administration as his primary illustration, following the work of Paul Quirk (Quirk 1980, ch. 6), and plausibly assumes that the point of optimal stringency lies within the limits of oscillatory movement. But of course, it need not do so. Bardach and Kagan (2002/1982) postulate a regulatory

dynamic that has regulatory stringency (in its multiple dimensions) oscillating according to political pressures in the short run and the medium run but over the long run, drifting upward. They refer to a “regulatory ratchet.” In any given cycle, stringency may be reduced, but it will not be reduced below its lowest level in the previous cycle. If such a ratchet is indeed at work,⁵ it would be a fortunate but only temporary happenstance that the optimum point would be located within the oscillatory limits.

Spending. In “The public as thermostat: dynamics of preferences for spending,” Christopher Wlezien explicitly tests a negative feedback hypothesis, one based on what he takes to be a theory of democratic accountability, in which the public “would adjust its preferences for ‘more’ or ‘less’ policy in response to policy outputs themselves. In effect, the public would behave like a thermostat; when the actual policy ‘temperature’ differs from the preferred policy temperature, the public would send a signal to adjust policy accordingly, and once sufficiently adjusted, the signal would stop” (Wlezien 1995, 981). Wlezien did find, in regard to defense and to five social programs, that public preferences were a counterweight to budgetary appropriations: whatever direction they had moved in, public opinion wanted them to move back.

Elections and parties. Periodic contested elections in a two-party system are, of course, a negative feedback system writ very large. Although in a separation-of-powers system the idea of a “party in power” is sometimes ambiguous, over time grievances build up against whoever is identified as “the party in power,” and voters “throw the rascals out.” That these grievances may not realistically be attributable to the actions of the party or its standard bearers (Fiorina 1981) is not to the point. The feedback loop from party conduct to voter attributions of responsibility is not the only source of such attributions, and systems can function as smoothly with irrational as rational feedback. The system-like quality of electoral oscillations is not diminished by the lack of uniformity in the intervals between turnovers. The duration of such intervals probably must be explained by exogenous factors, such as business cycles, changing demographics, and random shocks from foreign events or scandals.⁶

Within particular election seasons, negative feedback systems also come into play. Anthony Downs’s well-known spatial models of party positioning show that, in a simple single-dimensional (left/right) world of voter preferences, two parties are driven towards the center as they compete for the loyalties of the median voter. This is not a negative but a positive feedback system. However, the process may not move to completion, as the party leaders (candidates) are dragged back from the center by the threat of non-voting (and non-campaigning) from their party’s base. Negative

⁵ For evidence that the ratchet effect occurs, see Ruhl and Salzman 2003.

⁶ The duration of intervals might, however, have a statistical regularity such as Zipf’s law, which connects the frequency of an event type with the rank of that type in a population of related events. Zipf’s law holds for diverse events like the appearances of words in the English language and the population sizes of cities. See Bak 1996, 24–6. For instance, the tenth most frequently used word appeared 2,653 times in Zipf’s sample; the twentieth most used word, 1,311 times; and the 20,000th most used word once. Such data fit a straight line on a logarithmic plot with slope near one.

feedback arising from moves too far towards the center or back towards the party's enthusiasts leads to an equilibration of candidates' positions short of the median voter (Shepsle and Bonchek 1997, 114).

Reform cycles. Observers have noted episodes of reform—principally anti-corruption, anti-business, and/or anti-government—in American political history. Samuel Huntington speaks of a characteristically American “creedal passion” to create a civic life of democratic and ethical purity erupting every sixty years (Huntington 1981, 147 ff.). This eruption occurs when the “ideals-versus-institutions gap” has grown too large. Although Huntington does claim there is a systematic basis for the sixty-year cycle, he does not explain what it is.

Similarly, McClosky and Zaller, in their much praised *The American Ethos* (1984) postulate that, over decades, there are “swings in the national mood” between support for “a competitive, private economy in which the most enterprising and industrious individuals receive the greatest income” and “a democratic society in which everyone can earn a decent living and has an equal chance to realize his or her full human potential.” These values of “capitalism” and “democracy” are in some tension politically and philosophically, they argue. Yet beyond this they do not specify the mechanisms whereby the predominance of one value set begins to retreat in the face of its rival.⁷

In the classic age of interest group theory, David Truman once famously wrote of the “balance wheel” in American politics, which had interest groups who triumphed in one round losing to newly mobilized “potential groups” in the next (Truman 1951, 514). “In a relatively vigorous political system . . . unorganized interests are dominant with sufficient frequency . . . so that . . . both the activity and the methods of organized interest groups are kept within broad limits” (1951: 515). Here indeed is a theory of reform cycles based on negative feedback.

Andrew McFarland has updated Truman and proposed a “reform cycle” theory focused on pro- and anti-business policies and politics from 1890 to at least 1991, the date of his paper (McFarland 1991). His summary:

Economic producer groups have a more stable incentive to participate in issue area decision making than the reform groups that challenge their control. However, after a few years of the business control phase of the cycle, unchecked producer groups tend to commit “excesses”, violations of widely shared values. This leads to political participation [and policy triumphs] by the reformers [1991, 257]. [But once legislation has been passed, and regulations drawn up] . . . the period of high politics is over: the public loses interest, journalistic coverage ceases, Congress and the president turn to other issues . . . , but the activity of producer groups remains constant, due to their continuing economic stakes . . . After a few years, another period of producer group power is at hand, leading eventually to new excesses, a new reform period and so forth. (1991, 263–4)

One implication of this theory, says McFarland, is that “across the scope of hundreds of issue areas, business control or reform phases tend to occur at the same time” (1991, 257).

⁷ McClosky and Zaller greatly overstate the general case for a tension between these two value sets. Exchanging the highly charged “capitalism” for the more neutral “markets,” democratic and market institutions are not only compatible but may be mutually required.

That there are indeed waves of “reform” cutting across many issue areas simultaneously is true enough. McFarland points in particular to the Progressive movement (after 1900), the New Deal (in the 1930s), and the 1960s (the civil rights and anti-Vietnam War movements). Whether these represent true cycles in an oscillating system is questionable, however. In McFarland’s theory the stimulus for the reform phase of the cycle is “new excesses” by business, implying that it is an *increase* relative to some accepted or acceptable lower level of misconduct that triggers reform. The basic driver of the system is thus varying and objectively perceived levels of business misconduct. It is just as likely to be the case, however, that the actual levels of business misbehavior do not vary greatly over time and that changing social and cultural conditions trigger collective expressions of outrage and demands for “reform.” It is noteworthy that since the 1960s, reformist demands have been directed at *both* business and government, that is, at institutions representing hierarchy (Douglas and Wildavsky 1982; Inglehart 1997).⁸

If there were indeed reform cycles in the past, they might have given way since the 1960s to a world of institutionalized “reform” almost on a par with the institutions of business. Critics would say even stronger than those of business. Reformist interest groups abound. In Washington and in some US state capitals, those representing “good government,” environmental, gay, women, and safety interests have solid financial bases, professional staffs, and strategic sophistication.⁹ Those representing the poor and various minorities are much weaker. All such interests benefit from the “rights revolution” of the last thirty to forty years, however, and have legal protection, at least in principle, against a great many more impositions than in earlier eras. Actual implementation of these rights is, of course, very patchy.

3.2 Monopolistic Equilibria and Punctuated Equilibria

Frank R. Baumgartner and Bryan D. Jones have taken an important step beyond the imagery and theory of the oscillating equilibrium (Baumgartner and Jones 1993). They postulate a condition of monopolistic control of the agenda in an issue area by established interests. An older imagery describing the same thing is the “iron triangle” (also “subgovernment”) of interest group, executive agency, and congressional appropriations and policy committees. If this triad agreed on policy, no one else could get into the game. And even if they disagreed, they had a stake in keeping others out while they settled matters among themselves. Knowing this, few even tried. Baumgartner and Jones call this condition an equilibrium, even though it does not in fact equilibrate anything. It is an “equilibrium” only in the same sense that death is a state of “peace.”

⁸ Rejecting both cultural and corporate misconduct theories, David Vogel argues that reformist movements flourish when the economy is performing relatively well and become more quiescent when it is deteriorating (Vogel 1989).

⁹ See Baumgartner and Jones 1993, 179–89 for useful details.

Nevertheless, the term is usefully applied here because overturning this system of domination, unlike being resurrected from death, is actually possible. Adopting the language of evolutionary biology, they call the overturning process a “punctuation” of the existing equilibrium. In a useful departure from the oscillation imagery, they presume that the forces unleashed by punctuation can start at almost any time and go off in many directions. Once alcohol abuse, for instance, gets on the agenda of social problems that government must somehow attend to, a variety of remedies are considered in a variety of venues. The brewers and distillers lobby cannot suppress all the talk everywhere. Policy approaches run the gamut from supporting research into drunk driving to education against alcohol abuse, to funding treatment. Moreover, institutions are established, such as the National Institute on Alcohol Abuse and Alcoholism, that ensure a continuing level of attention to the issue even after a popular groundswell may have receded (Baumgartner and Jones 1993, 161–4, 84).

Baumgartner and Jones describe two “models of issue expansion.” In one case a wave of popular enthusiasm for dealing with a novel problem or opportunity leads to the creation of new policies and institutions. In the other case, there is a “mobilization of criticism,” which invades existing monopoly turf and seizes control of the agenda. In both cases, media attention is a central and early developmental catalyst, followed by the attention of elected officials. Although Baumgartner and Jones count both cases as representing “pattern[s] of punctuated change” (1993, 244), the first ought not to count as an instance of “punctuated equilibrium.” If there is indeed novelty, there is nothing substantive to punctuate. The punctuated change is only with respect to the pace of change itself.

4. POSITIVE FEEDBACK PROCESSES: ENDOGENOUS DEVELOPMENTS

In a purely technical sense positive feedback processes are more interesting than negative feedback processes. They are more complex and are sometimes counter-intuitive. They are also more interesting substantively, in that they are at the heart of all processes of growth and development.¹⁰

4.1 Momentum

Momentum affects many political processes, such as electioneering, legislative coalition building, developing interagency collaboratives, implementing complex pro-

¹⁰ It is worth emphasizing that I am referring here to positive and negative feedback *processes* rather than *systems*. Systems often contain both, and which type of feedback dominates is often dictated as much by how an observer defines “the system’s” boundaries as by ontological realities, such as they may be.

gram designs, energizing social movements, building community consensus, and diffusing innovations. The central structural fact about a momentum process is that every step in the process has a dual aspect. On the one hand, it is a movement in the direction of a goal; more indirectly, it creates a stimulus or an opportunity that encourages others to move towards the goal as well. In the simplest case, a bandwagon, every new supporter is an increment towards getting enough support to win according to the rules of the game; but it is also an addition to the signal that observers on the sidelines should regard this as the winning side.

A more complicated dynamic involves not merely signaling but interacting as well. Each new recruit to the cause becomes an asset in the emerging advocacy coalition as well, a potential proselytizer. Thus, in a community consensus-building process, each new recruit is both a confidence-building signal on a broadcast channel, so to speak, and a persuader and reinforcer to those with whom she communicates in a network of narrowcast channels. To take another example, implementing a complex program design, or building an interagency collaborative, is even more complicated. Each new institutional actor that begins to play its required role becomes (1) a bandwagon signal, (2) a persuader and reinforcer for others who are more reluctant, and (3) another node in a communications network that creates more capacity both to mobilize and to work through further implementation details. The constructive role of momentum building and of emergent new communications capacity was underappreciated in the pioneering work on implementation by Pressman and Wildavsky (Pressman and Wildavsky 1979), who assumed that all institutional actors made decisions independently of one another, whereas in most cases positive decisions by some increase the likelihood of positive decisions by others.

Momentum dynamics are at the heart of the very complex phenomenon of revolutions. Susanne Lohmann has postulated a model of “informational cascades” to illuminate mass protest activities leading to regime collapse and applied it persuasively to East Germany in the period 1989–91. The model incorporates: (1) “costly political action” by individuals that expresses dissatisfaction with the regime; (2) the public receiving “informational cues” from the size of the protest movement over time; and (3) loss of support and regime collapse “if the protest activities reveal it to be malign” (Lohmann 1994, 49).

4.2 Selective Retention

From biological evolution, selective retention is familiar as a competitive process. This model obviously applies to the results of electoral competition as well. A less obvious application of the model is to agenda setting. John Kingdon has applied the model, however, to remarkable effect (Kingdon 1995).¹¹ Separate streams carrying problems, policies, and politics course through a community of political elites, intersecting haphazardly if not exactly randomly. Elements of each stream may

¹¹ He calls it a “garbage can model,” but this counts as a type of evolutionary model.