

Majority Cycling and Agenda Manipulation: Richard McKelvey's Contributions and Legacy

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Introduction

Richard McKelvey's foundational work on "spatial instability" and "agenda manipulation" (McKelvey 1979) can be read in many ways. In our view, two of the enduring messages of his work concern (a) the multiplicity of outcomes that can potentially result when legislators bargain over at least two dimensions of policy at once; and (b) the importance of agenda power in determining which of the many possible outcomes will actually result.

In order to make his main points as clear as possible, McKelvey simplified many aspects of his model of legislation. Following Coase (1960), for example, he ignored the transaction costs entailed in forming legislative coalitions. Thus, in his model, any deal that makes any majority of legislators better off than the current policy is instantly and costlessly known to all concerned. Similarly, McKelvey ignored most of the institutional details of the legislative process, focusing solely on the ultimate rule regulating how many members must vote for a policy in order for it to be enacted. Later scholars have revisited and revised some of McKelvey's assumptions. His two main insights, however, have survived re-examination and, indeed, have helped spawn a large literature exploring the institutional devices by which legislatures stabilize policy and allocate agenda power.

In this essay, we consider some of the post-McKelvey literature on instability and agenda power. Most of this literature proceeds by specifying a particular set of institutional rules by which the legislature is thought to operate and then analyzing the consequences of the posited rules. McKelvey's work led naturally to this style of theorizing in several respects. First, he showed that an assembly operating under pure majority rule (with no other institutional features), and bargaining costlessly over well-

understood multi-dimensional stakes, would not settle down into a single predictable pattern of legislation. Instead, almost “anything might happen.” Second, he showed that adding an agenda control stage to the legislative game greatly affected the outcome, to the benefit of the agenda setter. This invited more systematic and detailed investigations of the possible and actual rules used in legislatures to structure agenda power, amendment activity, voting, and the like—an invitation that the subsequent literature has taken up.

We take up instability and agenda manipulation in the first two sections. We conclude with some thoughts about the implications of McKelvey’s work for unitary actors.

Instability

We begin the discussion with a brief characterization of McKelvey’s results and then examine some technical extensions these results have spawned. Needless to say, a treatise is required to treat this topic fully. Schofield (1985) and Austen-Smith and Banks (1999b; 2005) are highly recommended to the reader interested in a comprehensive technical elucidation. Following this, we trace some of the positive political theory developments stimulated by McKelvey’s findings.

The Results

McKelvey’s two “instability” papers (McKelvey, 1976, 1979) did not invent or discover “badly behaved” majority rule in spatial contexts, but they built upon this fact, and embellished it, in profound ways. Let X be a space of alternatives¹ and $W(\bullet)$ stand for the majority winset, $W(x) = \{y \in X / y \text{ preferred to } x \text{ by a majority}\}$. It had been shown by Davis, DeGroot, and Hinich (1972) in the case of Euclidean preferences that $W(x^*) = \emptyset$ for some $x^* \in X$, i.e., x^* is a majority Condorcet winner, if and only if x^* is a total median. This result generalized the seminal but technically more specialized result of Plott (1966).² Moreover, when the number of voters is odd (some qualification is

¹ McKelvey assumes X is Euclidean in his 1976 paper. In his generalization of 1979, X may be *any* topological space, though most of the development is in terms of a Euclidean space.

² Plott’s condition of *radial symmetry* is a special instance of the total median requirement. Black’s *single-peakedness* condition is a unidimensional instance of radial symmetry.

required when this number is even), they show that a distribution of voter preferences possessing a total median also yields a transitive social ordering with majority rule. McKelvey reports this as Theorem 1 in his 1976 paper. This is the building block – the spatial analogue to Arrow (1963) – on which McKelvey builds, noting that “...given the severity of the restrictions needed to guarantee transitivity...it is of considerable interest to explore the nature of the intransitivities when these symmetry conditions are not met” (McKelvey, 1976, 475). To underscore the severity of the total-median requirement, McKelvey later notes (McKelvey 1979, 1085-86, emphasis in original) that “the condition is so strong that even if it *were* met, a minor perturbation of any *one* voter’s preferences would cause it to be violated.”³

The magical point, x^* , variously referred to in the literature as a Condorcet winner, a core point, an empty-winsset point, a Plott equilibrium, or a majority-rule equilibrium, does not appear to be in the cards, generically. (See also Kramer 1973.) This much was known, in one way or another, when McKelvey began his inquiry. His great contribution was to ask, and answer, what happens when majority rule (almost always) “fails” in this fashion.

In doing so, he provided a surprise. Much of the literature at the time was not particularly troubled by the generic non-existence of x^* . It was believed, implicitly by some and explicitly by others, that majority rule, if not perfectly well behaved, was nevertheless centripetal – that there was some small central set of points toward which majority rule was inexorably driven. Tullock (1967) typified this view, believing that the “phantom [of majority rule intransitivity] stalked the classrooms” and that general impossibility results concerning majority rule were “generally irrelevant.” McKelvey suggested otherwise. For Euclidean voter preferences in his 1976 paper, and for continuous preferences in his 1979 paper (plus an assumption requiring modest preference diversity – see note 3), he demonstrated that there is a finite majority rule path between *any* two alternatives – a sequence z_0, z_1, \dots, z_K with $z_0 = x$ and $z_K = y$ – such that $z_j \in W(z_{j-1})$ for all j any $x, y \in X$ (including $x = y$). This finding undermined the sloppy

³ In his 1979 paper McKelvey extends his 1976 analysis, which assumed Euclidean voter utilities, to any continuous voter utility function. (He additionally requires that “no two voters’ preferences coincide locally” (McKelvey, 1979, 1087).)

optimism extant in the literature that even with majority-rule intransitivity a majority process is nevertheless centrist.

Though some of us dubbed McKelvey's theorems as "chaos" results, it is important to emphasize that his theorems are not empirical or substantive; they are logical. As Austen-Smith and Banks (1999a, 668, emphasis in original) remind us, "...the [McKelvey] theorem does *not* imply that observed *choices* under any strong simple rule are 'chaotic,' only that if the core is empty then (typically) *there exists a preference path* linking any two alternatives. It is a theorem on the analytical structure of a class of aggregation rules and not on the empirical behavior of politics using any rule within the class." McKelvey's result, that is, is not about outcomes; it is about collective preferences. It is a bit like the principle of gravity. The latter is a fact of nature and a force of nature, and as such must be factored into any analysis of physical phenomena. But it does not by itself constitute a positive description of nature, for then we would be unable to account for all those winged creatures and machines in the air. McKelvey (1979, 1106, emphasis added) put it this way: "...any attempts to construct positive descriptive theory of political processes based on majority rule (or other social choice functions satisfying the assumptions of this paper) must take account of particular institutional features of these systems, *as the social ordering itself does not give much theoretical leverage.*"

Some Technical Extensions in the Literature

These two companion results about collective preferences – the generic non-existence of core points and the all-inclusive cycling of the majority preference relation (more generally, strong simple preference aggregation rules) – stimulated a lengthy technical literature in which many facets of the McKelvey theorem have been extended. Schofield (1978), McKelvey and Schofield (1987), and Banks (1995) extend the result on generic non-existence of core points, establishing a bound on the dimensionality of the space of alternatives that guarantees the core will be generically empty. In particular, letting n denote the number of voters, q denote the number needed to make a decision, and k denote the dimensionality of the space, if $k > (n-q+1)(q-1)/(n-q)$, then a core point generically does not exist. A somewhat sharper bound is offered in Austen-Smith and

Banks (1999b, 167), based on a result by Saari (1997): $k > 2q - n + \max\{\frac{4q - 3n - 1}{2(n - q)}, 0\}$.

In the case of the majority rule (n odd), this latter bound reduces to $k > 1$: If the number of dimensions exceeds one, then the core is generically empty. This and related work are summarized elegantly in the treatise by Austen-Smith and Banks (1999b).

Roughly contemporaneous with McKelvey's papers is the research program of Norman Schofield (see Schofield, 1985, for a summary). Schofield's major contribution for our purposes concerns the propensity toward global cycling of collective choice rules, the second of McKelvey's twin contributions (Schofield, 1978). McKelvey's theorems establish the *existence* of a majority path between any two alternatives when the core is empty. Schofield focuses on the "local" properties of such paths and imposes a stricter requirement, namely that such paths be *continuous*. Moreover, he does not restrict himself to Euclidean preferences as in McKelvey (1976), requiring only continuous and differentiable utilities. He establishes a remarkable result, showing relatively mild conditions under which there is a continuous majority rule path connecting any point to any other. (Also see Schofield 1983 and McKelvey and Schofield 1986.)

Austen-Smith and Banks (1999a) push the cycling result in another direction. They note that the McKelvey theorem applies only to *strong simple* preference aggregation rules – those rules defined entirely by its winning coalitions and for which either a coalition or its complement is winning (but not both). Austen-Smith and Banks (1999a, 664) point out that "an important, but by no means exhaustive, class of simple rules are q -rules, whereby a set of individuals is decisive if and only if it includes at least q members with q strictly greater than half the population. However, the only strong q -rule is the strict majority rule (and then only when the number of individuals is odd); thus McKelvey's theorems do not apply to any super-majority rule." The McKelvey cycling result is limited in that it does not provide for situations in which *blocking* coalitions are possible. Austen-Smith and Banks prove that it can be extended, in weaker form, to *all* simple rules, including super-majority rules. In particular, they show that whenever the core is non-empty, the entire set is connected by weak majority rule. "...[A]lthough it may not be the case for non-strong simple rules that any two alternatives can be connected by a finite sequence of strict preference steps, it is the case that any two

alternatives can be connected by a finite sequence of weak preference steps (Austen-Smith and Banks, 1999a, 664).”

Some Positive Political Theory Extensions

Elections. A broad class of applications of the spatial model and the McKelvey results are related to two-candidate electoral competition. Putting abstention to one side, a subject on which a light industry has sprung up (for an overview, see Feddersen, 2004), with two candidates voters vote sincerely for the candidate whose platform they most prefer. A platform is taken to be a point in a multidimensional space over which voters have preferences (usually, Euclidean or weighted Euclidean preferences are assumed). The incumbent candidate (or his heir apparent) runs on his record, while the challenger is free to choose her own platform. The candidate with a majority of votes wins and implements his or her platform. The non-existence of a core in this spatial setting means (i) that any incumbent’s platform, $y \in X$, can be beat at the next election; and (ii) the sequence of winning platforms over a series of elections is indeterminate without additional motivational or institutional detail. If candidates want to win, but also entertain policy preferences (see Calvert, 1985), then they will choose $x \in W(y)$ that generates maximal policy utility for them.⁴ Kramer (1977) suggests that a challenger will pick a winning platform that *minimizes the maximum vote against it* next time. If there is a core point, she will pick it. Generically, however, from the empty-core principle, $W(y)$ is non-empty and is “star-like” (see McKelvey, 1986). Moreover, each petal in this set is convex so that well-behaved iso-vote curves imply that a minimum-maximum point as described above exists. Kramer (1977) shows that the sequence of winning platforms, so described, converges over a sequence of elections to a small centrally located set called the *minmax set*. Kramer (1978) describes both the attractive and retentive properties of this set. McKelvey (1986) proves that it is contained in the *uncovered set*, a generalization of the core (also see Miller, 1980). Thus, Tullock’s conjecture about convergence of majority rule to a small central set is provided support in this setting, but *not* because of the irrelevance of cycling but precisely as a result of it.

⁴ Calvert shows in the multidimensional case in which a core exists – a symmetric distribution of voter ideal points – that the total median remains the equilibrium, despite candidate policy preferences, i.e., the model is robust to perturbations in motivational assumptions.

Austen-Smith and Banks (2005, Chap. 7) provide an extensive survey of two-candidate spatial elections. The McKelvey theorems do not figure directly in these developments, but the empty-core condition clearly motivates this literature. The generic non-existence of a core means that equilibrium must be obtained “by other means,” unless the dimensionality of the space is small. One of those is to focus on *mixed-strategy* equilibrium. In McKelvey (1986) it is shown that the support of these mixed strategies lies in the uncovered set. The problem is one of general existence (owing in part to the discontinuity of candidate utility functions), though Austen-Smith and Banks report progress on this front. However, it does not appear promising that two-candidate electoral equilibria can be assured without further embellishments to the model. The spatial model of the world of perfect and complete information, costless and universal participation, deterministic voting, and candidates who only want to win provides insufficient leverage to cope with the empty-core condition.

Legislatures. The earliest spatial models (Downs, 1957) were primarily models of democratic elections. The preferences to be aggregated were those of voters over platforms. The objects of choice were candidates as “carriers” of platforms. The moving part, so to speak, was candidate platform selection. These elements, however, could be relabeled – legislators for voters, motions for candidates, and motion-makers for platform-selectors – producing a model of a majority-rule committee or legislature (Black, 1958). Consequently, the entire apparatus of the spatial model could be deployed in this new institutional setting. A considerable amount of research has taken this approach. Needless to say, issues of non-existent cores and global cycling carry over to this new setting, and researchers have had to grapple with these issues.

It is worth noting that investigations of core existence require *universal comparison*. Not only are voter (legislator) preferences complete; so, too, is the social preference. Thus x^* is an equilibrium platform (motion) if and only if x^* is socially preferred to *every* $y \in X - \{x^*\}$. In effect, it is assumed that no $y \in X$ can be excluded from social consideration.⁵ Legislatures, however, deploy myriad rules to restrict

⁵ Of all the conditions of the Arrow Impossibility Theorem, that of social completeness has been the least investigated. See Fishburn (1974) for one of the few explorations.

comparisons.⁶ And, while it is appropriate to be reminded that rules, themselves, are endogenous, for many purposes of analysis it is sufficient to take them as governance fixtures, at least in the short term.

Restrictions on comparisons as a means of circumventing McKelvey's empty-core condition and cyclic majority preferences was the intuition in Shepsle (1979).⁷ A *structure-induced equilibrium* is a core point when comparisons are restricted. (A core point when universal comparison is permitted is a *preference-induced equilibrium*.) Although we know that the core is generically empty when comparisons are *unrestricted*, there may be circumstances in which a point cannot be beaten when only pitted against *eligible* alternatives. Institutional rules and agenda-setting roles determine comparisons. For example, the rules of the U.S. House of Representatives distinguish a class of motions governed by a *closed rule*, e.g., conference reports. Such motions may only be pitted against the status quo, x^0 – a take-it-or-leave-it vote. In these circumstances, if a motion, x , is an element of $W(x^0)$ it defeats the status quo; if not, then x^0 prevails. Suppose $x \notin W(x^0)$, but an amended version, x' , is in x^0 's winset. Since the rules prohibit amendments, x' , is not admissible and, with only x to contend with, x^0 prevails.

To take another example, consider a motion x to change x^0 and an amendment y to this motion. A *jurisdictional germaneness rule*, common in the U.S. House, restricts x to changes in x^0 wholly contained within a pre-determined policy jurisdiction. The latter is a subset of dimensions of the policy space, X . Thus, x may not change the status quo except in the dimensions of a single jurisdiction. Likewise, the amendment, y , may only change x along these dimensions. Other examples of rules governing comparisons include the motion to adjourn – in effect to retain x^0 and permit no further motions – which is *always* in order in the House (and *never* in order in the Senate, constitutionally a continuing body). A motion containing constitutional content is also always in order.⁸

⁶ A large proportion of the pages in the 600-page *Deschler's Procedure*, the rule book governing procedure in the U.S. House of Representatives, is devoted to a determination of which motions are in order and when. See Deschler (1975).

⁷ Kramer (1972) uses similar analytical tools, but for different purposes.

⁸ It was this device by which Representative George Norris of Nebraska challenged and ultimately reduced the authority of Speaker Joseph Cannon in 1911, a major event in the history of the House of Representatives.

McKelvey's work also brought motivational factors into focus. This will be treated in the next section of this paper on agenda manipulation. But it is worth pointing out here that what may be voted on in a legislature is governed not only by rules on comparisons, but also by structural arrangements that generate the agenda. In the case of legislatures, a primary source of agenda content is the committee system. A committee system is a partition of the membership of the legislature into subsets given various agenda powers with respect to the dimensions assigned to their respective jurisdictions. The preferences of committee majorities will affect what motions are brought to the full legislature; indeed, they will affect whether *any* motions are brought to the full legislature. Committees, that is, possess both proposal power and veto power; they determine whether to "open the gates" in their respective jurisdictions and, if so, the content of what passes through them.

Parliaments. McKelvey's theorems launched intensive scrutiny of institutional detail, and legislatures are quintessentially highly detailed institutions. Indeed, he said as much in each of his papers which may rightfully be regarded as forerunners of what became "the new institutionalism," first in American politics and more recently in comparative politics. Of special interest is the work on parliaments. These are weighted-majority institutions in which the legislature chooses a government that, in turn, implements its policy program. Austen-Smith and Banks (1990) and Laver and Shepsle (1990, 1996) treat jurisdiction-specific *ministries* in parliaments as the analogues to committees in American-style legislatures. Ministers are endowed with the same agenda-setting powers American committees enjoy so that, given common knowledge about ministerial preferences, their policies may be anticipated. These models then ask whether a distribution of portfolios, and hence a particular jurisdiction-by-jurisdiction policy outcome, is a core point. In this setting the empty-core condition and global cycling of the majority preference relation again apply. These analysts sought institutional arrangements that would yield an equilibrium. Laver and Shepsle specifically *restrict comparisons* by assuming that political parties are committed to particular policies *ex ante* and are bound to implement them if invested with ministerial authority; thus, the space of alternatives is reduced to a finite set of potential governments – namely the finite number of ways in which a fixed set of portfolios can be allocated among parties. Work

by Baron (1991), Baron and Diermeier (2001), and Huber(1996) are part of a growing literature that grapples with related McKelvey problems. An extensive survey is found in Laver and Schofield (1998).

Bicameralism, Courts, and Administrative Agencies. The basic spatial legislative model, begun with a single chamber like the U.S. House in mind, has been extended to more complicated settings with multiple arenas. The underlying empty-core problem and the cycling of majority preferences are also the fulcrums for these analyses. Studies of bicameralism consider policies that are stable in the sense that no alternative exists that majorities in both chambers prefer. If, for some $x^* \in X$, it is the case that $W_H(x^*) \cap W_S(x^*) = \emptyset$, where H and S are “House” and “Senate,” respectively, then x^* is a *bicameral core point*. Cox and McKelvey (1984) provided an early characterization of bicameral cores that undergirds some of the later results in works such as Tsebelis and Money (1996), Hammond and Miller (1987), and Tsebelis (2002).

Adding courts and administrative agencies to the brew of agents, one has a multitude of players. If each has an independent and symmetric voice in determining policy, then a generalization of the set equality above may be used to characterize when core points exist (cf. Tsebelis 2002). In non-cooperative models, there is a sequence in which House, Senate, and President bargain over a policy which is then implemented by an administrative agent or prospectively overturned by a judicial agent, judgments which, in turn, may be reversed by the legislature and president. See McCubbins, Noll, and Weingast (1987) on legislative-agency interactions, and McCubbins, Noll, and Weingast (2005) and Eskridge and Ferejohn (1992) on judicial agents. Both of these literatures are now extensive.

Can Anything Happen? Probably the most famous and widely repeated “implication” of McKelvey’s theorems, more normative than positive, is wrong. Riker (1980, 1982) believed politics, not economics, is the “truly dismal science,” because he inferred from the McKelvey results, among others, that democratic collective choice is chaotic and, thus, that “anything can happen.” We have already cited Austen-Smith and Banks’ reminder on this score, but let us cite them again:

...it is important to emphasize that these instability and chaos theorems are results on the consistency of the various means of aggregating individual *preferences*. As such they are not results on individual *behavior* or the aggregation of such behavior, they are facts about the formal properties of preference aggregation rules on given sets of profiles. In particular, the results do not predict that political behavior is chaotic or that “anything can happen.” Instead, they demonstrate that we can *not* view or explain collective behavior as simply an exercise in selecting best alternatives according to some social preference relation. (Austen-Smith and Banks, 1999b, 184, emphasis in original)

What one may say is that the non-existence of the core and the cyclicity of the majority-rule preference relation constitute contextual features that may be exploited, but this “opportunity” will depend upon other background features. So long as the full set of alternatives is available, then absent other features or restrictions, collective preferences may give us no purchase on predicting collective outcomes. If, on the other hand, we enrich the rather Spartan model of McKelvey in various ways, we may be able to say more. With transactions costs in coalition formation, for example, in effect producing “thick” voter indifference contours, there may be a core-like equilibrium (Sloss, 1973). If, on the other hand, voters are non-myopic strategic agents, then there are limits on where a majority-rule process can be driven (Shepsle and Weingast, 1984). Finally, if institutional arrangements, a topic we address below, endow particular agents with strategic resources (proposal power, veto power, gate-keeping), then these may restrict the range of feasible results. That is, contextual features transform McKelvey’s problem of aggregation into one of strategic interaction.

In personal conversation with Peter Ordeshook at a conference in memory of McKelvey, one of us was advised to read the last paragraph of each of McKelvey’s intransitivity papers. There McKelvey conveys quite clearly that global cycling is not a description of majority rule, but a *condition* of it. He is one of the earliest to appreciate that these results provide a basis and a rationale for turning to other factors, especially *institutional* features, to understand majority rule in practice.⁹ Many of the positive elaborations of the McKelvey theorems are institutional elaborations. One large class of

⁹ In something of an about-face, McKelvey (1986), reprinted elsewhere in this volume, seeks to sever general statements about politics from institutional detail.

these, to which McKelvey (1976) himself devoted attention, is agenda formation and manipulation, a topic we take up next.

Agenda manipulation

Studies of agenda control post-McKelvey have considered many aspects and consequences of such control (cf. Cox 2005 for a recent review). Here, we focus on the question that McKelvey himself broached most clearly, concerning how much agenda power benefits its wielder(s). In the space allotted, we can only scratch the surface and provide pointers to further sources for the interested reader.

Romer and Rosenthal's setter model

Romer and Rosenthal (1978) investigated a model in which an agenda setter has the exclusive right to make a single, take-it-or-leave-it proposal to another group of agents, who must then vote either to accept or reject her proposal. For example, Romer and Rosenthal's model covered the case in which a school superintendent proposes an overall budget for public schools, and the local electorate accepts or rejects it in a referendum. If the local electorate accepts the proposed budget, then that budget is implemented for the coming school year. If the local electorate rejects the proposal, however, then a pre-defined reversionary budget comes into force.

Romer and Rosenthal show that if the reversionary policy is sufficiently extreme, then the agenda setter in their model can secure her ideal policy,. For example, if the consequence of rejecting the setter's proposed school budget was that the school budget would be zeroed out, forcing closure of the schools, then the local electorate would presumably accept quite a range of (positive!) budgets, rather than face the reversionary outcome. Romer and Rosenthal's finding provided surprising new insights regarding reformist proposals for sunset provisions and zero-based budgeting – reforms that render the reversionary policy extreme and thereby enable agenda setters to extract rents. Their results also resonated to some extent with McKelvey's multidimensional model, where the agenda setter was sometimes able to secure her ideal only after the reversionary policy had been strategically moved to a sufficiently extreme location. Unlike McKelvey, however, Romer and Rosenthal's original papers took the reversionary policy

as an exogenous given, not something the setter (or anyone else) could manipulate. Thus, their model admitted the possibility that some reversionary policies might be so attractive to the group considering the setter's proposal, that the setter could no longer secure her ideal policy. For example, if the reversionary school budget were simply "last year's budget plus an adjustment for inflation," if the median voter wants a slightly larger budget than this, and if the setter wants a much more substantial increase in funding, she can no longer attain her ideal budget. However, even in the cases where the setter's proposal has to "beat" a relatively attractive reversionary policy, as in the example just given, Romer and Rosenthal show that the setter is often able to extract the lion's share of the available "gains from trade."

Both McKelvey's and Romer and Rosenthal's model envision a single agent with the exclusive right to make proposals. The models differ in that the Romer-Rosenthal setter makes a single proposal in a unidimensional policy space, whereas the McKelvey setter makes multiple proposals in a multidimensional policy space. There are logically two other models that might be considered: a single proposal in a multidimensional policy space; and multiple proposals in a unidimensional policy space.

The first of these models yields a simple result: the setter can choose any policy in the winset of the reversionary policy. Thus, the setter can get her ideal policy in a single-proposal model only if that policy beats the reversionary policy, whereas in the multiple-proposal (McKelvey) model the setter can always get her ideal. Thus, the ability to make multiple proposals is valuable, when proposals are multidimensional.

Primo (2002) has investigated the second model noted above, in which the Romer-Rosenthal stage game is repeated and, hence, the setter can make multiple proposals. In Primo's model, the consequence of rejecting the setter's initial proposal is not that an exogenous reversionary policy is implemented. Instead, rejecting the setter's initial proposal simply uses up a little bit of time and puts the ball back in the setter's court: she can then make another proposal, and keep on making new proposals until one is accepted or the number of rounds hits a pre-determined level, at which point a reversionary policy is (finally) implemented. He shows that repeating the stage game neither impairs nor improves the setter's influence. Indeed, the equilibrium outcome in the repeated game

remains the same as in the original one-shot game. Thus, the ability to make multiple proposals is inconsequential, when proposals are unidimensional.

The Romer-Rosenthal line of models reduces the power of the agenda setter from the McKelvey baseline in two main ways: the setter can only make one proposal (that is accepted) rather than a sequence; and the setter can propose on only one dimension of policy at a time rather than on multiple dimensions at once. Despite these reductions in prerogative, however, the setter still accrues a substantial benefit.

Recent empirical works using setter models include Cameron's (2000) study of the politics of presidential vetoes, Gerber's (1996) and Feldmann's (1999) investigations of how the possibility of legislation by initiative affects the incentives of elected legislators, Dion and Huber's (1996) study of the conditions under which the House Rules Committee grants restrictive rules, Cohen and Spitzer's (1996) examination of judicial deference to agency action, and Cox and Katz's (2002) study of the reapportionment revolution. Rosenthal (1990) provides a more complete review of earlier work.

Baron and Ferejohn's model

Baron and Ferejohn (1989) investigate a model in which the right to make proposals is not fully monopolized by a single agent. Instead, each player i has a probability π_i of being recognized at the beginning of any given stage of play. If recognized, player i proposes a division $x = (x_1, \dots, x_n)$ of a pie, with $x_j \in [0, 1]$ denoting the share of the pie to be awarded to player j . If a majority of all players approves i 's proposal, then the pie is immediately divided and consumed per that proposal (and the game ends). If no majority approves i 's proposal, then the current round of bargaining ends and a new stage of the game begins (with each player i again having a probability π_i of being recognized to make a proposal). Players are impatient, preferring to receive and consume a given share of the pie in earlier rather than later stages. Baron and Ferejohn show that the agent initially recognized to propose a division of the pie—the analog to the agenda setter in the Romer-Rosenthal model—is able to secure a substantially larger share than other players in equilibrium.

Another way to interpret the Baron-Ferejohn model is in terms of the bonus that accrues to the formateur party in government negotiations (cf. Snyder, Ting, and Ansolabehere 2003). The formateur party is defined as the one chosen (typically by the head of state) to take the lead in forming a government. It makes proposals regarding the allocation of ministerial positions, essentially dividing a fixed pie among its own and its prospective partners' members. In this setting, the Baron-Ferejohn model can be interpreted as arguing that formateur parties should be able to extract a bonus when forming a government.

Kalandrakis (2004) provides a more general illustration of agenda power, building on the Baron-Ferejohn approach. In particular, a near-corollary of his main result is the following: by varying a player's recognition probability from zero to one, that player's equilibrium share of the pie also varies from zero to one, regardless of the voting rule in force and regardless of players' discount factors. Eraslan (2002) also provides a broad demonstration of the value of proposal power.

The Baron-Ferejohn line of models reduces the power of the agenda setter from the McKelvey baseline, primarily by making each agent's agenda power probabilistic rather than deterministic. Despite this reduction in power, the setter still accrues a substantial benefit.

Recent works applying or empirically examining the Baron-Ferejohn model include Diermeier and Feddersen's (1998) study of how votes of confidence affect the cohesion of legislative parties, Ansolabehere et al.'s (2004) investigation of how coalition governments allocate cabinet posts among their members, and Diermeier and Merlo's (2004) study of formateur selection in European democracies. In addition, a series of experimental studies have also appeared, such as Fréchette, Kagel and Morelli (N.d.) and Fréchette, Kagel and Lehrer (2003). The works cited provide a more complete review of related work.

Cox and McCubbins' "negative agenda power" model

Building on Shepsle (1979), Cox and McCubbins (2005) consider a model in which any legislator can make proposals but these proposals may or may not be considered and voted upon by the legislature. Instead, proposals seeking access to the floor of the legislature—a necessary step if they are to be enacted—must pass muster with one or more agenda-setting agents. In their simplest model, Cox and McCubbins consider a single agent who has “negative” agenda power—i.e., the ability to *block* any proposal from reaching the floor. If the agenda setter allows a bill onto the floor, that bill is then considered under an open rule (meaning that any member may offer any germane amendment to the bill that he or she sees fit). If the agent blocks a bill from consideration, then the status quo on the policy dimension the bill proposed to change is preserved.

Cox and McCubbins point out that the agenda-setting agent is able to avoid “bad” bills—defined as those that, if allowed onto the floor for consideration, would result in policy changes contrary to the agenda setter’s wishes.¹⁰ Thus, although the setter is able neither to secure her ideal policy (as in McKelvey’s model) nor to secure policies away from the floor median (as in Romer and Rosenthal’s model), she can still prevent policy changes on some issue dimensions and allow them on others, a valuable ability in itself.¹¹ Empirical studies have emerged focusing on this sort of agenda power in various assemblies worldwide, including those in Argentina (Jones and Hwang 2005), Brazil (Amorim Neto, Cox and McCubbins 2003), and Japan (Cox, Masuyama and McCubbins 2000).

Weingast's last-mover model

Some legislative agents have early influence over legislation; others have late influence. For example, non-privileged committees in the U.S. House of Representatives

¹⁰. They assume that the agenda setter can anticipate the final policy outcome that will result from allowing a bill targeting dimension k to reach the floor (it will simply be the median legislator’s ideal point on the k th dimension). In light of this knowledge, the agenda setter can block the “bad” bills.

¹¹. In another version of their model, Cox and McCubbins endow the agenda setter with the ability both to choose which bills to block and also which bills to allow onto the floor under a closed rule. In this model, the setter is able to accrue the sorts of benefits that arise in Romer and Rosenthal’s take-it-or-leave-it model.

exert most of their influence early in the legislative process; they are widely credited with the ability to delay and even kill bills referred to them, by refusing to report those bills back to the House. In contrast, conference committees in the U.S. Congress exert influence late in the legislative process – that is, they are sometimes in a position to make final take-it-or-leave-it offers to the House and Senate (see Shepsle and Weingast, 1987).

In general, assemblies that allocate a lot of early negative agenda power are analogous to filtration systems: bills must pass through several filters (i.e., stages at which negative agenda power might be deployed to delay or block them) before they can reach the floor. In contrast, assemblies that allocate a lot of late positive agenda power are analogous to rapid response teams: whatever else has happened previously in the legislative process, the last-mover is given a chance to snatch victory from the jaws of defeat by making a final, take-it-or-leave-it offer. Models of this sort include Weingast (1992), analyzing the power of committees in the U.S. House; Heller (2001), analyzing the power of governments in European parliaments; and Krehbiel and Meirowitz (2002), analyzing the power of the minority party in the U.S. House. As with the other models reviewed above, agenda power—in this case, the ability to make a “last offer”—redounds to the benefit of the agent wielding it.

Summary: varieties of agenda power

The models surveyed suffice to illustrate some of the varieties of agenda power that appear in legislatures worldwide. In particular, there are two distinctions that the models illustrate (for others, cf. Cox 2005).

First, both Romer and Rosenthal (1978) and Baron and Ferejohn (1989) consider cases in which a given player has a monopoly on making legislative proposals for a given period of time. No other player can delay or prevent a vote on the agenda setter’s proposal; the other players can only accept or reject (and, in some variants, amend) the setter’s proposal. These are models of *positive agenda power*, in which a stipulated agent has the power to put proposals to a vote. In contrast, Cox and McCubbins (2005) focus not on the allocation of recognition probabilities (or proposal rights), but rather on the allocation of delay or veto rights. Theirs is a model of *negative agenda power*, in which a stipulated agent has the power to prevent proposals from reaching a vote. Shepsle

(1979) is a model of positive *and* negative agenda power in which jurisdiction-specific subunits (committees) may initiate change in “their” jurisdictions on the one hand, and may “keep the gates closed” on the other.

Negative agenda power helps the agent wielding it to avoid “bad” dimensions. This ability in itself can stabilize policy and ensure that all actual policy changes are to the liking of the veto agent. Positive agenda power allows the agent wielding it to push “good dimensions”—i.e., those that will result in favorable policy changes. This ability in itself ensures that all policy changes the agent wishes to make (and that will pass muster with a floor majority) actually occur.

A second distinction is between *early* and *late* agenda power. As noted above, some legislatures operate like filtration systems, by setting up several stages in which they must pass muster. Other legislatures make it easier to reach a final consideration on the floor but then also give the government (or other central actors) extraordinary rights to make “final offers.”

Conclusion: Future Directions and Implications for Unitary Actors

McKelvey’s original work assumed a minimal institutional structure and nil transaction costs. The ease with which alternative majorities could be formed in such a frictionless world, and the consequent instability of policies, did not gibe with empirical observations of actual legislatures, thus motivating investigation of more elaborate institutional structures and non-zero transaction costs. One branch of post-McKelvian studies has focused on institutional rules that further constrain decision-making. Under the general heading of structure-induced equilibrium (Shepsle 1979), this branch has entered a “normal science” phase, with an increasing number of papers that explore the consequences of sundry institutional structures around the legislative world. A second branch of post-McKelvian studies is currently dominated by one particular way of modeling transaction costs (Baron and Ferejohn’s time discounting approach) and has also entered a “normal science” phase, with an increasing number of papers using the Baron-Ferejohn bargaining model to achieve the twin goals of taking some account of

transaction costs and helping to “close” models in which the institutional rules by themselves do not suffice to generate clear equilibrium predictions.

While there is considerable room left for more normal scientific progress along both these branches of post-McKelvian studies, we can also tentatively suggest some issues that, while not demanding a paradigm shift, suggest larger adjustments. Regarding structure-induced equilibria, a natural question that has been prominent but unresolved since the beginning concerns where institutions themselves come from and how they are stabilized. While many scholars accept, as a practical matter, that institutions have some stickiness to them, exactly how to model this in a theoretically defensible way remains less consensual. Regarding transaction costs, there are other ways to bring them into the analysis, besides time discounting. For example, Sloss (1973) uses thick indifference curves and one might think also in terms of wars of attrition (e.g., Wawro and Schickler 2004). What has not yet emerged from either of these other ways of modeling transaction costs, however, is a cumulative body of scholarship exploring empirical patterns.

As we hope to have made clear in this essay, the legacy of Richard McKelvey is reflected in the wide range of theoretical and applied work stimulated by his results on instability and agenda manipulation. Whole literatures have been launched by the two papers under review here, a sentiment that constitutes a refrain throughout this volume. While we needn't be as troubled as Riker (1980, 1982) by these characteristics of democracy, there are still theoretical puzzles that are troublesome. In political science, in all its fields, we struggle to construct a theoretical micro-foundation and the struggle is on-going. One of the most glaring signs of unfinished business in this project is our partiality toward unitary actors. Students of international relations are least apologetic and most guilty of this penchant. But students of domestic politics are guilty as well, sprinkling their analyses with references to parties, committees, chambers, bureaus, courts, and interest groups. We reify the collective and treat them as unitary. Yet, from McKelvey, we know these collectives are *not* unitary on the one hand, and that adding up the heterogeneous tastes comprising their memberships is problematical on the other. Even when a collective has legal standing, as do corporations and political parties in most countries, “it” is not really an it. There is much to be learned from McKelvey on (i) the conditions under which a collective may be treated as an “it,” and (ii) what happens when

those conditions do not prevail. These are the twin contributions of the fine papers we have considered here.

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