Limited Obstruction and Monopoly Agenda Setting

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Abstract

Theories of collective choice and policy-making are hard-pressed to account for the widespread existence and persistence of the politics of obstruction. Moreover, tolerance of dilatory tactics is all the more puzzling in institutions that have the authority to change their own rules. We embed the key components of obstruction in a two-person, agenda-setter-versus-obstructer noncooperative game. The model is consistent with large variation in the time it takes legislatures to pass different bills of the same type and it illustrates how and why a self-governing body may prefer a corpus of rules in which dilatory tactics are easy to deploy to an alternative institutional arrangement that is more rigid and streamlined. We empirically motivate and illustrate many of the strategic forces at work with reference to obstruction in the U.S. Senate.

In political organizations whose members have differing preferences, two premises are eminently defensible. First, leaders of the dominant, governing coalition actively try to advance a policy *agenda*, i.e., a subset of all proposals whose advancement they deem as paramount. Second, members of an opposition coalition resist advancement of the agenda by exercising selective acts of *obstruction*[1] An immediate implication follows: democratic processes are often unnecessarily time-consuming. Furthermore, the amount of time consumed (and wasted) in democratic policy-making tends to increase with the use of dilatory tactics by

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[1]Obstruction can be construed either as strategic *action* (e.g., a calculated decision to engage in dilatory tactics), or as a continuum of *consequences* of obstructive acts, ranging from none (no marginal effect), to limited (costly but non-fatal delay), to absolute (killing the proposal indefinitely, e.g., exercising a veto). In our formal analysis we have the former, "strategic action" meaning in mind. Elsewhere we occasionally use the term more broadly.

opponents of policies under consideration. It is hardly surprising, then, that obstruction is one of the single most acute irritants among critics of the "dysfunctional" contemporary U.S. Government (Mann and Ornstein, 2016; Smith, 2012; Loomis, 2012).

Notwithstanding the bad reputation of obstruction as it plays out in the political arena, this paper suspends judgment about the normative properties of the politics of obstruction while seeking instead a preliminary, positive (explanatory) understanding of obstruction as an important but understudied set of strategies that is generally available to opponents of policy initiatives. We develop a flexible, parsimonious model whose core intuition will carry over to many settings. For the sake of concreteness and specificity, however, we embed the model in the institutional context of the Senate. In the model, a monopoly agenda setter has the right to pass any bill from some pre-defined set of policy alternatives. But because time is scarce, the agenda setter must choose only a subset of these bills. A strategic obstructer, in contrast, has only the right to engage in dilatory tactics which, if exercised, delays passage of the bill but does not kill it. We call this limited obstruction and show that this modest procedural right gives the obstructer considerable influence over the agenda that is set by a so-called monopolist. The model also rationalizes two regularities in the Senate that have not been explained by previous work: (1) variation in the time it takes to pass different bills with similar properties, and (2) the Senate's unwillingness to pass reforms that would reduce the amount of time required to bring bills to a final vote. More broadly, it provides a useful starting point for understanding the role of obstruction in other institutional contexts, especially government bureaucracies.

1 Preliminaries

1.1 Case: 111^{th} Congress

If limited obstruction is consequential, then in every Congress, there are bills that are appealing to members of the majority party that fail to pass. Ordinarily, it is difficult to discern why this happened. Was it because the bill was not appealing to the members of the minority party needed to muster a filibuster-proof coalition? Was it because the agenda setting coalition anticipated that the House of Representatives would fail to pass the bill, or that the president would veto it? Or was it because the Senate just ran out of time? The 111th Congress, which began in January, 2009 and stretched to the lame duck session that ended in December, 2010, offers an opportunity to gain some preliminary insights about the politics of obstruction.

Along with newly elected Barack Obama in the White House, Democrats enjoyed a commanding 256-178 majority in the House of Representatives, and, most unusually, a caucus in the Senate that at times reached a coveted filibuster-proof 60-40 majority.[2] Given this arrangement, not only common sense but also theories of lawmaking predict that: (1) the Senate Democrats will use their filibuster-proof majority to pass an ambitious liberal agenda, and (2) the Senate Republicans, lacking the numerical prerequisites for successful use of unlimited debate, will be unable to stop them.

Broadly consistent with both majority-party-based theories (Cox and McCubbins, 2005; Rohde, 2010) and nonpartisan/supermajoritian theories (Brady and Volden, 1998; Krehbiel, 1998), the Senate Democrats scored an impressive array of legislative victories. The 111th Congress enacted Barack Obama's economic stimulus package, funded health insurance for

[2]The delicately intermixed details involve Senators Al Franken (D) who was admitted to the Senate several months late, Ted Kennedy (D) who died, Paul Kirk (D) who temporarily filled the vacancy via Democratic Gubernatorial appointment, Scott Brown (R) who won the special election, and Arlen Specter (R/D) who defected to the Democratic party.

poor and middle-class children, set aside public lands for wildlife preservation, strengthened protections against pay discrimination, extended unemployment benefits, reformed the American financial sector, extended tax cuts for middle class families, repealed Don't Ask, Don't Tell, and passed the Patient Protection and Affordable Care Act.

Some of this legislation passed relatively swiftly and quietly over mild Republican objections, but other bills were subjected to blistering public attacks and concomitant aggressive use of dilatory tactics. Most notably, the Senate had to stay in session for over a month to pass the Affordable Care Act, because Republican opponents forced the Democrats to invoke cloture at nearly every opportunity. True, Democrats had the votes to invoke cloture. Even so, delay persisted due to layover requirements and to Republicans' insistence on consuming the full 30 hours of post-cloture debate.[3] Similarly, the Dodd-Frank Act consumed another month, while several other bills took several days each. The pace of legislation slowed to a crawl prior to the election in the fall of 2010. Not a single regular appropriations bill made it to the floor.

However, the lame duck session that followed the election, in which President Obama conceded his party took "a shellacking," was marked by an inexplicable spike in productivity (Austin, 2011). The Senate agreed to Obama's tax deal, ratified the New Strategic Arms Reduction Treaty, and repealed Don't Ask, Don't Tell. Even though the majority of Republicans voted against these measures, these bills passed without serious obstructive resistance.

Yet, although the 111th Congress was one of the most productive in recent history, several high-priority items on the Democratic agenda were bumped from the active list, and, therefore, failed to pass in spite of the likelihood that the requisite yea votes could have been found. The locus of obstructionism was undoubtedly in the Senate. The House passed a

[3]The Republicans permitted the final 30 hours to be waived on Christmas Eve so that Senators could spend Christmas with their families.

cap-and-trade program to reduce carbon emissions; the Senate did not. The House agreed to a conference report that provided a path to citizenship for undocumented immigrants who had arrived in the United States as children; the Senate did not. The Senate considered but failed to pass campaign finance reform, the extension of collective bargaining rights to public safety employees across the country, and punishments for companies that engage in outsourcing.

1.2 Anomalies

The 111th Congress illustrates two anomalies that or occasionally obliquely mentioned in the literature but have not received serious attention.

1. Variation in Time-to-Pass. The Affordable Care Act and the Dodd-Frank Act each took about a month of floor time to pass. Other controversial items which were opposed by the majority of Republicans, such as a bill to expand the States Children's Health Insurance Program (SCHIP) and the Small Business Jobs and Credit Act of 2010, took only a few days each. More astonishing still, 27 bills passed by unanimous consent in the lame duck session alone, consuming almost no floor time.[4] This variation cannot be explained simply in terms of complexity of the legislation, the extent of disagreement in the legislature, or the priority that the majority leadership places on the bill. Both the American Recovery and Reinvestment Act and the Dodd-Frank Act were enormously complex, controversial, and of high-priority to the filibuster-proof majority party. Yet, the behemoth American Recovery and Reinvestment Act passed in about a week in spite of Republican pleas for more time, while the smaller but also complex Dodd-Frank Act took a month. Why—especially in a unified government with a filibuster-proof Senate—is there so much variation in the time it takes to pass a bill?

2. Unwillingness to Adopt Streamlining Reform. Virtually all observers agree

[4]Source: advanced search on congress.gov. Link available upon request.

that in the contemporary era passing legislation in the Senate requires 60 votes *de facto*. But the modern filibuster procedure is much more complex and time consuming than it would be simply to bring a bill to the floor, debate it, and subject to to 3/5 super-majority vote. Invoking cloture is often a tedious process. The Senate must wait a day after the motion to invoke cloture before it can vote on the motion. Even after cloture is invoked, Senators are entitled to an additional 30 hours of post cloture debate. This process may need to be repeated many times as petulant obstructionists attempt to draw out debate on the motion to proceed, the motion to bring the bill to a final vote, and the motions to request a conference, appoint conferees, and agree to House amendments. Consequently, the Senate typically prefers to consider bills under unanimous consent agreements (UCAs) which specify the terms of the debate. However, any Senator can object to a UCA and thereby thrust the entire Senate through the cumbersome cloture process. Holds, which are essentially threats to object to UCAs on a given legislative item, are often sufficient to prevent a bill or nomination from being considered. Given that the rules of the Senate are endogenously determined and procedure is now de facto super-majoritarian, conceptually arcane, and extremely prone to delay, why doesn't the Senate drastically reduce its collective costs of delay by eliminating the filibuster and replacing it with a simple 60-vote requirement?

1.3 Partial answers

Can existing theories of lawmaking rationalize or account for such variation? Do more Senate-specific studies solve any of the many puzzles implicit in the history of the 111th Congress and summarized in the anomalies?

The first question is not difficult to answer. Notwithstanding their many useful features, existing theories of lawmaking do not and cannot account for either type of obstruction-related variation. It is straightforward and ultimately constructive to point out their inherent limitations as models of obstructive politics.

Consider briefly four workhorse theories in the literature:[5] the median voter theory (Black *et al.*, 1958), the cartel agenda model (Cox and McCubbins, 2005), the pivotal politics theory (Krehbiel, 1998), and the-bargaining-in-legislatures model (Baron and Ferejohn, 1989).

To explain or to rationalize variation in the time it takes different bills to pass, a model obviously needs an explicit time component and needs to accommodate multiple different proposals over time. Only one of the four models begins to do this. The-bargaining-in-legislatures model is theoretically infinitely repeated, however, in equilibrium, a randomly drawn agenda setter's first proposal is crafted so that it passes immediately and the game is over. There is no new and different bill waiting in the wings, nor is there any player resembling an obstructionist.[6] Similarly, none of these models do provides guidance regarding our institutional-choice anomaly. This fact is surely forgivable given their respective objectives. Our point is simply that the puzzle, while important especially to those who bemoan obstruction and advocate institutional reform, has not been subject to theoretical scrutiny.

A vibrant body of empirical research has focused quite specifically on obstruction. While it provide many useful insights, it nevertheless ultimately falls short of addressing our specific anomalies. Studies that have some bearing on variation in the time required to pass bills can be grouped according to three focal points in the broader study of Senate behavior: end-of-session effects, party polarization, and preference intensity.

First, a number of studies contend that delay tactics are most potent near the end of the session (Binder *et al.*, 2002; Wawro and Schickler, 2004; Oppenheimer, 1985). Perhaps the time until the end of the session is related to the amount of time required to pass a bill. However, it is unclear whether this observation would hold in equilibrium. Why wouldn't an

[5]This list is not intended to be exhaustive, but it covers major and diverse types that have proven useful in applications beyond the original works.

[6]Cox and McCubbins have observed that floor time is scarce, and, accordingly, that the agenda setter must make choices about which bills will be included on the agenda (Cox and McCubbins, 2007, 2011). However, they do not consider the role of obstruction or any other form of resistance to their agenda setter, and they take variation in the time required to pass bills as exogenous. (Neither do they address our second anomaly further below.)

agenda setting majority anticipate that the minority will be more inclined to obstruct near the end of the session and adjust the types of bills that it tries to pass accordingly? Indeed, it is probably no accident that the stimulus bill, the Affordable Care Act, and Dodd-Frank were all passed well in advance of the end of the 111th Congress.

A second possibility is that obstruction (and, by extension, the amount of time required to pass bills) is driven by partisan conflict. Binder *et al.* (2002) finds a strong relationship between the frequency of filibusters and the strength of the majority party. Woon and Anderson (2012) likewise find a relationship between polarization and the delay in the passage of appropriations bills. Koger (2013) carries this line of reasoning to its logical conclusion: an obstinate minority can delay bills to reduce the majority's total productivity over the course of the session, and so the minority has an incentive to drag its feet.[7] While polarization could explain variation in the time needed to pass bills across sessions, it offers little leverage in explaining variation within a given session. It does not explain why the stimulus bill and the Lily Ledbetter Fair Pay Act passed almost unobstructed, even though each of these major legislative achievements received only two Yea votes from Republicans.

If variation in time to passage cannot by explained by polarization, perhaps it is related to the intensity of preferences of individual legislators. Wawro and Schickler (2006) present a model of the filibuster in the historical Senate (before the adoption of Rule XXII) in which obstruction provides the minority a means of communicating the intensity of its preferences to the majority, and the majority respects sufficiently intense preferences out of respect for a variety of Senate norms. Black *et al.* (2011), in an empirical study, find that Senators are more likely to issue blue slips (a kind of hold on judicial nominations) when they are ideologically distant from the president, which supports the hypothesis that preference intensity

[7] Koger's insight poses a serious problem for an otherwise promising lead for variation in bill time. Ainsworth and Flathman (1995) portray UCAs as leadership tools and model bargaining over the amount of debate time that will be allotted by the UCA. Their model presumes that both the leadership and the rank-and-file value time and would prefer not to squander it by dragging out UCA negotiations indefinitely. Koger gives us reason to doubt this assumption.

is related to the level of obstruction.

The preceeding explanation is intuitively appealing, but it begs the question of why the agenda setting majority tolerates rules that allow individual Senators to slow the pace of legislation. This is precisely our second puzzle, and its explanations can be divided into two categories. One is that obstructers restrain themselves out of respect for norms and/or out of fear that the rules will be changed. This is the position taken by Overby and Bell (2004) as well as Wawro and Schickler (2006). However, Wawro and Schickler are self-admittedly and understandably reluctant to apply this logic to the polarized and partisan milieu of the modern Senate. The norms that formed the foundation of their analysis seem to have eroded. Indeed, Sinclair (2013), quoting a Senate staffer, dismisses the role of norms of civility and reciprocity in sustaining UCAs in the modern Senate.

The second possible explanation is that obstructers are able to prevent changes to the rules by brute parliamentary force (Binder and Smith, 1997). Koger (2006) finds that the minority party and those far from their party medians on both sides are consistently less likely to support filibuster reform. This may be so, but it does not actually answer the question. If the majority is able to muster a coalition to pass legislation, why is it unable to muster a coalition to change the rules so that it can pass that—and future—legislation quickly rather than slowly?

1.4 Missing pieces

For all of the theories of lawmaking, gridlock, and obstruction that we have considered, we still lack a satisfying theory that explains why some bills take longer to pass than others and why the Senate has failed to adopt reforms to speed up the legislative process. That is not to say that past work has been unhelpful in answering these questions. To the contrary, it has provided many of the pieces of the puzzle. Floor time is scarce, and some bills that could pass during any given session will fail to pass for want of time. An obstinate minority can dampen the productivity of the majority by deploying dilatory tactics. Yet, for some reason, Senators usually do not leverage all of the dilatory tactics available to them, even when they oppose the bills under consideration.

We believe that previous work has invesetd too little in understanding the strategic position of Senators on the losing side of votes. These losers have been portrayed as potted plants passively acceding to the will of the majority (as in the main theories of lawmaking), shrinking violets fearful of the majority curtailing their rights (as in Wawro and Schickler), and bulls in a china shop unleashing havoc on the majority (as in Koger's account). No model has imbued these losers with the same sophistication attributed to the majority agenda setter. None has considered the possibility that obstructers, like the agenda setter, are trying to influence what bills the Senate ultimately passes.

We believe that the obstructer's desire to influence the agenda is the missing piece of the puzzle. Specifically, a first-generation theory of lawmaking with strategic obstruction needs:

1. to accommodate multiple pieces of legislation over which decision-makers have different preferences but not diametrically opposed preferences;

2. to have multiple finite periods of decision-making in which there are too few periods to pass all bills (so that time is scarce);

3. a well-defined, endogenous agenda setting process in which a designated setter not only balances the *relative* costs and benefits of passing specific bills under variable degrees of obstruction but also considers the *opportunity* costs of considering one bill versus another; and

4. a player (or representative of a minority faction) who can selectively employ dilatory tactics to slow the consideration of policy initiatives.

2 A theory of obstruction

The politics of obstruction is modeled as a game between two players: an agenda setter and an obstructer. For ease of exposition, we begin with a special case in which decision-makers have only two periods to pass bills. The main proposition states equilibrium behavior for a more general $T \geq 1$ game.

2.1 A short game

The agenda setter (a female) is assumed to have not only the exclusive procedural right to determine what is brought to the plenary body for consideration but also the unilateral right to pass her proposal without the possibility of amendments. This assumption embodies an extraordinarily high degree of agenda setting, spanning selection or rejection of all legislation for consideration, monopoly proposal rights on such proposals, and a guarantee that all such proposals can and will pass, if the requisite time is allotted. The agenda-setting assumption is essentially three independently valuable legislative luxuries rolled into one: a gatekeeping right, a closed rule, and presumptive support by a disciplined winning coalition.

In contrast to the setter, the obstructer (a male) is allowed only to make one decision for each bill: whether to let it pass quickly in $t = 1$ units of time, or whether to delay a given bill via dilatory tactics so that it takes $t = 2$ units of time for passage of the setter's bill. At the risk of repetition, we emphasize that even in the case of delay, the obstructer does not possess a veto. The most he can do is introduce a finite amount of delay into the process, slowing but not stopping the throughput of bills taken from the setter's agenda.

In this short game, then, a session of collective decision-making consists of only two moves. The obstructer begins by stipulating how long it will take each bill to pass if the agenda setter chooses to put the bill on the agenda. (We assume that the obstructer can commit to threats to impede the flow of legislation.) The agenda setter responds by deciding precisely which of an abundant set of bills to place on the agenda for consideration and presumed passage during a short, finite session. Some formalization is now useful.

2.1.1 Players and payoffs

- B is the countable set of all possible bills that the agenda setter, s, can pass if time permits.
- $u^s : B \to \mathbb{R}$ is a function that maps each bill, $b \in B$, to the utility that the agenda setter, s, accrues if b passes.
- $u^o : B \to \mathbb{R}$ is a function that maps each bill, $b \in B$, to the utility that the obstructer, o, accrues if b passes.

2.1.2 Strategies

- $A \subseteq B$ is the agenda–a set whose members are the bills that pass during the session. This subset is chosen by s.
- $t : B \to \{1, 2\}$ is the amount of obstruction o engages in if s puts bill b on the agenda. These values are chosen by the obstructer, o.

2.1.3 Game form

1. The obstructer, o, announces a delay schedule $t(b) \in \{1, 2\}$ for each $b \in B$.
2. The agenda setter, s, chooses an agenda $A \subseteq B$ subject to the constraint $\sum_{b \in A} t(b) \leq 2$.
3. Payoffs are awarded. The setter s gets utility $U^s(A; t) = \sum_{b \in A} u^s(b)$, while the obstructer o gets utility $U^o(A; t) = \sum_{b \in A} u^o(b)$.

An economic analogy clarifies the structure and sequence of the game. Imagine s is a shopper with \$2 in her pocket, and B is the set of available goods in a store in which she shops. The merchant, o, of the store sets the price of each good to either \$1 or \$2; the mapping from goods to prices is given by t. The shopper and merchant both have preferences over the baskets of goods that s may buy. Naturally, o sets prices to influence which goods s buys, and s purchases the best available basket of goods that she can afford given the prices set by o. The basket which s ultimately buys is denoted as A.

This economic analogue of the model is less interesting than its political counterparts. To demonstrate this, however, requires an appreciation for, and somewhat flexible interpretation of, institutional details. We offer three interpretations of the parameters in the model as they apply to the U.S. Senate.

First, although the agenda setter, s, is referred to as a unitary actor both for purposes of empirical motivation and analytic convenience, the game is structured so that s implicitly represents a filibuster-proof coalition with a monopoly agenda setting right. An obvious example of such a coalition is the union of (a) most majority party members with (b) the cloture-invoking requisite number of relatively moderate minority party members. Such a coalition might form, for instance, when, in accordance with Senate Rule XXII, a 3/5 supermajority votes to invoke cloture, i.e. to close debate.

Second, the obstructer, o, can be interpreted as either a lone-wolf obstructer,[8] or as the floor manager of a numerical minority bill-opposing coalition. Like the agenda setter(s), the obstructer(s), too, have readily available party interpretations. It bears emphasis, however, that the model readily accommodates situations of bipartisanship and/or nonpartisanship, too. We will show how to model o as a coalition of obstructers with different preferences in Section 2.1.5.

Third, we simplify and purify the analysis by imposing two relevance criteria for inclusion of any bill b in B. (1) The bill must be *passable*, meaning that, given sufficient finite time

[8]Senator Ted Cruz (R-TX) is a recent example of a lone-wolf obstructer, modulo Mike Lee (R-UT), when he unilaterally mounted a filibuster, insulted his party's majority leader, and alienated himself from his own party as the Senate considered a trillion dollar federal spending plan in 2014.

not greater than the duration of the full legislative session, the setter s and coalition she represents can invoke cloture or circumvent any other dilatory tactics and pass the bill. (2) The bill must be *minimally controversial*, meaning that, non-negligible time-consuming floor debate is required to pass it. This inclusion criterion, therefore, filters out so-called pro mom, flag, and apple-pie resolutions that are passed under expedited procedures. Because such measures consume only a negligible amount of floor time, they are not of first-order strategic importance and would only clutter the analysis.

Finally, no assumption is needed on the structure of the payoffs, u^s and u^o. This is an asset, because it allows for flexibly diverse interpretations of several different institutional settings. For instance, this is not a spatial model, nor is it necessarily a party model. As such, although the model is amenable to partisan and perhaps spatial interpretations, concepts such as party polarization, party discipline, party-based coalition composition, etc. are not presumed in model or in its interpretation. Similarly, due to the minimal structure on the payoffs, the model can implicitly incorporate the actions of other institutions. The payoff is accrued when the Senate brings the bill to a final vote. Thus, the utility can be interpreted as a lottery over whether the bill passes the House, is vetoed by the President, is implemented faithfully by the bureaucracy, survives judicial scrutiny, and is well-received by the electorate.

2.1.4 Equilibrium for $T = 2$

To uncover the logic of obstruction as an equilibrium phenomenon, first consider the setter's problem of constructing an optimal agenda conditional on the obstructer's choice of t. Equivalently, this is the problem of finding $a^*(B, t)$ in the simple case in which there are only two periods. The agenda setter contemplates two possibly viable strategies. She can pass two bills each of which consumes only one period. Or, she can pass one bill that consumes two periods.[9] Therefore, in describing the agenda setter's best response to an obstructer's schedule t, three bills are critical: the setter's two most-preferred bills that will pass in one period each, and her single most-preferred bill among all of those that consume two periods to passage due to bill opponents' right to impose delay.

Formally, let $\bar{b}_1^s$ be the highest utility bill (for s) that can be passed in one period, $\bar{\bar{b}}_1^s$ be the second highest utility bill that can be passed in one period, and $\bar{b}_2^s$ be the highest utility period bill that can be passed in two periods. Parsing the notation, the subscript shows how many periods the bill takes to pass, and the superscript shows whose utility is under consideration. One bar denotes the most-preferred bill that the agenda setter can pass in the number of periods defined in the subscript. Two bars means that it is the second most-preferred bill in the specified set.

If the setter prefers passing both $\bar{b}_1^s$ and $\bar{\bar{b}}_1^s$ to passing only $\bar{b}_2^s$, then her optimal agenda will be to pass the pair of bills that consume one period each. Otherwise, her optimal agenda will be to consume both periods to pass $\bar{b}_2^s$. Formally:

$$\bar{b}_1^s = \underset{b \in B}{\operatorname{argmax}}\ u^s(b) \quad \text{subject to: } t(b) = 1$$

$$\bar{\bar{b}}_1^s = \underset{b \in B \setminus \{\bar{b}_1^s\}}{\operatorname{argmax}}\ u^s(b) \quad \text{subject to: } t(b) = 1$$

$$\bar{b}_2^s = \underset{b \in B}{\operatorname{argmax}}\ u^s(b) \quad \text{subject to: } t(b) = 2$$

$$a^*(B,t) = \begin{cases} \{\bar{b}_1^s, \bar{\bar{b}}_1^s\} & \text{if } u^s(\bar{b}_1^s) + u^s(\bar{\bar{b}}_1^s) \geq u^s(\bar{b}_2^s) \\ \{\bar{b}_2^s\} & \text{otherwise} \end{cases}$$

Now consider the obstructer's problem of choosing the optimal delay strategy t^*. If he

[9] To simplify the exposition, assume the agenda setter can pass at least two frivolous bills (e.g., commemorative resolutions) such that $u^s(b) = u^o(b) = 0$ for both bills. This guarantees that there are always at least two bills such that $t(b) = 1$. In the event that there are no bills that take two periods to pass, the optimal response to t is a trivial optimization problem: the setter places on the agenda her top two, one-time-period-consuming bills, which both pass.

obstructs every bill, then the setter will spend the entire session of this simple two-period game passing her most preferred bill. Accordingly, the challenge for the obstructer is to find a pair of individual bills that both he and the agenda setter prefer to spending the entire session to pass the agenda setter's most preferred bill.

To derive the equilibrium strategies, it is helpful to define distinct pairs of bills b' and b'' that, as a pair, are preferred by both players to the setter's most-preferred of all bills $\bar{b}^s$, i.e., the highest utility bill for the agenda setter.[10] The lack of a subscript indicates that $\bar{b}^s$ is the highest-utility bill for the agenda setter in all of B. Formally,

$$\mathcal{C} = \{\{b', b''\} : u^s(b') + u^s(b'') \geq u^s(\bar{b}^s) \text{ and } u^o(b') + u^o(b'') \geq u^o(\bar{b}^s)\}.$$

$\mathcal{C}$ is the set of pairs of bills for which (a) the setter is willing to give up her most preferred alternative, and (b) the obstructer is willing and able to facilitate by assigning $t = 1$ to the bills in the pair. In this sense, the elements of $\mathcal{C}$ can be thought of as a set of *mutually-desirable, compromise*, or *agenda-worthy* bills. For the sake of brevity and mnemonic convenience, we will refer to $\mathcal{C}$ as the compromise set.

If $\mathcal{C}$ is empty, then the obstructer's optimal strategy is to obstruct every bill and to anticipate that the setter will respond with $a^*(B, t) = \{\bar{b}^s\}$, her most preferred bill.[11] If $\mathcal{C}$ is non-empty, however, then the obstructer should choose the pair of bills within the compromise set, $\mathcal{C}$, that give him the greatest utility, proclaim a willingness to accept those bills without delay (i.e., assign both of them values of $t(b) = 1$), and state his intention to obstruct all other bills in $\mathcal{C}$ by setting ($t(b) = 2$). This strategy ensures that the setter will opt for inclusion of the obstructer's favorite pair of bills from $\mathcal{C}$—namely, $\{\bar{b}^o_{\mathcal{C}}, \bar{\bar{b}}^o_{\mathcal{C}}\}$—and forgo the setter's pursuit of her favorite bill, $\bar{b}^s$. This reasoning is summarized in the following

[10] Note that $\bar{b}^s$ might be one of the two bills in this pair. For ease of exposition, we will treat b' and b'' as different bills from b^s in our plain language explanations, but all of the inequalities we present and our statement of the equilibrium allow for the possibility that $\bar{b}^s$ is in this pair.

[11] We might call this the Koger equilibrium.

proposition.

Proposition 1. *A subgame perfect Nash equilibrium to the game is a pair of strategies* (t^*, a^*) *that meet the following conditions.*

- $t : B \to \{1,2\}^{|B|}$ *is a mapping that assigns a level of obstruction to each bill. It is chosen by the obstructer.*
- $a : (B,t) \to 2^B$ *is a mapping that says which bills in* B *will be placed on the agenda, conditional on an obstruction schedule* t*. It must satisfy* $\sum_{b \in a(B,t)} t(b) = 2$*. It is chosen by the agenda setter.*
- a^* *is a best response by the agenda setter to every choice ot* t*.*
- t^* *yields the highest utility for the obstructer in* a^**.*

The subgame perfect Nash equilibrium of the two-period obstruction game is:

$$t^*(b) = \begin{cases} 1 & \text{if } \mathcal{C} \neq \emptyset \text{ and } b \in \{\bar{b}^o_{\mathcal{C}}, \bar{\bar{b}}^o_{\mathcal{C}}\} \\ 2 & \text{otherwise} \end{cases}$$

$$a^*(B,t) = \begin{cases} \{\bar{b}^s_1, \bar{\bar{b}}^s_1\} & \text{if } u^s(\bar{b}^s_1) + u^s(\bar{\bar{b}}^s_1) \geq u^s(\bar{b}^s) \\ \{\bar{b}^s\} & \text{if } u^s(\bar{b}^s) > u^s(\bar{b}^s_1) + u^s(\bar{\bar{b}}^s_1) \end{cases}$$

Proof. The proof straightforwardly parallels the backward-induction verbal derivation that precedes the the Proposition.

Proposition 1 illustrates that the outcome hinges on $\mathcal{C}$, the set of compromise agendas. Each player's procedural rights and preferences determine the composition of $\mathcal{C}$. The agenda setter's right to pass any bill from B implies that she always has the option to pass her most preferred bill, $\bar{b}^s$, in two periods. This has two effects. First, it makes the agenda setter's most preferred bill, $\bar{b}^s$, the benchmark against which all potential compromise agendas must be compared. Second, every compromise agenda must yield a higher utility to the agenda setter than $\bar{b}^s$ alone, because otherwise she will pass $\bar{b}^s$ instead of putting an inferior pair of bills on the agenda. Similarly, every compromise agenda must yield a higher utility to the obstructer than $\bar{b}^s$ alone, because otherwise he would not allow the bills in the compromise agenda to pass in one period each. Finally, because the obstructer selects which bills are allowed to pass in one period, he ultimately chooses which compromise agenda from $\mathcal{C}$ will be available to the agenda setter.

This clarifies how much latitude the obstructer has in influencing the agenda. All else equal, the more the agenda setter values b^s, the smaller the set of compromise agendas will be. For smaller $u^s(b^s)$, the set of compromise agendas grows larger, and the obstructer's procedural right to choose, in effect, which compromise agenda from $\mathcal{C}$ he presents to the agenda setter becomes more potent. Conversely, for a sufficiently large $u^s(b^s)$, the obstructer's right to obstruct shrinks to the ability to prevent the agenda setter from passing her second most preferred bill. Ironically, if each pair of bills is preferred by both the obstructer and the agenda setter to passing b^s in two periods, the obstructer's ability to pick one from the set of compromise agendas effectively transforms into an agenda setting right.

A specific illustration of the behavior that gives rise to the elsewhere invisible or overlooked power of delay is further fleshed out in 1. The scenario is one with four bills (A, B, C, and D) that the two players rank in opposite order with a modicum of lumpiness in their utility assessments (left-side table). Such cardinality can be interpreted as reflecting intensity of preference. Because the agenda setter may pair these bills any way she pleases, the obstructer must consider all such pairings which represent agendas. Six such agendas are shown in the right side of the table. Each cell entry is the sum of the utilities for the two items on the agenda.

Much is known about monopoly agenda setting in spatial models. In contrast, nothing is known about how limited obstruction—the simple right to delay—might impinge upon an agenda setter's ability to extract monopoly rents from the pivotal voter or, in our case, a losing faction. A key to discovery is to assess the size, hence the constraining effect, of the consensus set $\mathcal{C}$. In the example, the basis for comparison is the setter's most preferred singleton $\bar{b}^s$, which is bill A because $u^s(A) = 6$, and the setter prefers A to all other singletons. Next we identify the consensus set, namely the set of 2-tuple agendas that both players prefer

Table 1: Example of equilibrium in the short game.*

Bills:	A	B	C	D
u^s	6	5	3	2
u^o	0	3	4	5

Agendas:	{A, B}	{A,C}	{A,D}	{B,C}	**{B,D}**	{C,D}
u^s	11	9	8	8	**7**	5
u^o	3	4	5	7	**8**	9
Agenda $\in \mathcal{C}$	Y	Y	Y	Y	**Y**	N

*The upper-left-most cell entry, $u^s(A) = 6$, represents $\bar{b}^s$ which plays a key role in the alogorithms. The bold-faced column {B,D} describes the equilibrium agenda and payoffs. This agenda maximizes the obstructer's utility u^o within the set $\mathcal{C}$.

to the singleton A. The first five of six agendas meet this condition. The sixth, $\{C, D\}$, we deem *politically infeasible* because, even in the best of circumstances in which the obstructer chooses not to obstruct, the monopoly agenda setter will leave these proposals off the agenda because she prefers passing A alone even if it consumes two periods. Because the obstructer knows this, he restricts his attention to the first five agendas (all of which are elements of the consensus set) and chooses the one that gives him the greatest individual utility. That agenda is $\{B, D\}$. He therefore assigns $t = 1$ to these two bills and $t = 2$ to bills A and C. Practically speaking, this presents the agenda setter (sic.) with a take-it-or-leave-it offer. The setter's best response is to propose the agenda $\{B, D\}$. each of its bills passes and payoffs are awarded: 7 for the monopoly agenda setter and 8 for the limited obstructer.

Two closely related features of the example deserve emphasis. First, the compromise set can be large relative to the set of all agendas. This is especially true when the most favored bill of the setter is not much more favored than other desirable bills and is not much liked by the obstructer. Under these conditions many *pairs* of bills (at $t = 1$ each) are preferred even by the setter to her most preferred bill by itself ($t = 2$). Second and consequently, the equilibrium behavior of the nominal "monopoly agenda setter" in this example is inconsistent with what the player's name suggests. Taking the setter's preferences as given, it is actually the *obstructer* rather than the setter who determines, via selective delay, which pair of bills from a large set of consensus agendas *not* to obstruct.[12] Although it begs for more systematic scrutiny under more general conditions, this second feature is a potentially profound discovery. In future research, we hope to identify conditions under which this curious role reversal occurs.

2.1.5 Multiple obstructers

The game readily extends to instances with N obstructers. Consider the following modification:

1. Obstructer o_1 announces a delay schedule $t_i(b) \in \{1, 2\}$ for each $b \in B$.
2. Repeat Step 1 for $i = 2, \ldots, N$.
3. The agenda setter, s, chooses agenda $A \subseteq B$ subject to the constraint $\sum_{b \in A} \max_i \; t_i(b) \leq 2$.
4. Payoffs are awarded. The setter s gets utility $U^s(A; t) = \sum_{b \in A} u^s(b)$, while obstructer o_i gets utility $U^{o_i}(A; t) = \sum_{b \in A} u^{o_i}(b)$.

This game is the same as the original game except that a bill requires two periods to pass if *any* of the obstructers decides to slow down the passage of that bill. Setting $t(b) = \max_i t_i(b)$, the agenda setter's best response function is the same as before. The obstructer o_N's strategic situation is very similar to the obstructer's in the original game, except that he operates under the constraint that $t(b) \geq \max\limits_{i=1,\ldots,N-1} t_i(b)$. Qualitatively, then, he will behave just as the obstructer would have in the original game if some subset of bills were required to be in B_2.

[12] A third, byproduct of the example is that the equilibrium is social welfare maximizing. We return to this topic below.

Formally,

$$\bar{b}^s = \underset{b \in B}{\text{argmax}}\ u^s(b)$$

$$\mathcal{C}_n = \{b', b''\} \ : \ u^s(b') + u^s(b'') > u^s(\bar{b}^s) \text{ and } u^o(b') + u^o(b'') > u^o(\bar{b}^s)$$

$$\text{and } \max_{i=1,\ldots,N-1} t_i(b') = \max_{i=1,\ldots,N-1} t_i(b'') = 1$$

$$t_n^*(b) = \begin{cases} 1 & \text{if } \mathcal{C}_n \neq \emptyset \text{ and } b \in \{\bar{b}^o_{\mathcal{C}_n}, \bar{\bar{b}}^o_{\mathcal{C}_n}\} \\ 2 & \text{otherwise} \end{cases}$$

Intuitively, some bills cannot be used to construct compromise agendas because other obstructers have already committed to obstruct them. If any agendas that both o_n and s would prefer to $\bar{b}^s$ in two periods remain by the time o_n takes his turn, then he offers his most preferred compromise agenda to the agenda setter and obstructs all other bills. Otherwise, he obstructs every bill. The preceding obstructers must anticipate o_n's behavior. That is, collusion or cooperation is not presumed among obstructers. They must obstruct bills that are unacceptable to them, but they must beware of the possibility that o_n will not tolerate a compromise agenda that leaves him worse off than passing only $\bar{b}^s$.

By iterating this logic, the subgame perfect equilibrium strategy is clear. If there are any compromise agendas that are acceptable to o_i and all subsequent obstructers, then o_i will obstruct all bills except her most preferred agenda in this set. Otherwise, he will obstruct every bill. The outcome can be inferred from the strategy of o_1. If there is at least one compromise agenda that the agenda setter and every obstructer prefers to the $\bar{b}^s$ in two periods, then the first obstructer's most preferred agenda in this set will be the realized agenda. Otherwise, the agenda will be $\bar{b}^s$.

Formally, o_1's strategy can be written as follows:

$$\mathcal{C}_1 = \{b', b''\} \;:\; u^s(b') + u^s(b'') \geq u^s(\bar{b}^s) \text{ and } u^{o_i}(b') + u^{o_i}(b'') \geq u^{o_i}(\bar{b}^s) \;\; \forall \;\; i = 1, \ldots, N$$

$$t_i^*(b) = \begin{cases} 1 & \text{if } \mathcal{C}_1 \neq \emptyset \text{ and } b \in \{\bar{b}^o_{\mathcal{C}_1}, \bar{\bar{b}}^o_{\mathcal{C}_1}\} \\ 2 & \text{otherwise} \end{cases}$$

Thus, the multiple obstructer game is almost identical to the original game. The only difference is that compromise agendas must be acceptable to *every* obstructer.

2.2 A game with a finitely long agenda

Perhaps the most constraining feature of the game solved in Proposition 1 is its confinement to two periods during which at most two bills can be passed. Even in an era of arguably unprecedented gridlock, Congress has a record better than the $t = 2$ model suggests. Proposition 2, therefore, generalizes the game to situations with a known but arbitrary number of periods and in which, accordingly, the agenda can grow to any finite size. The main difference between the simple versus the more general game lies not in setter's and obstructer's behavior, which is ultimately much like that in Proposition 1. The formal derivation of strategy, however, is quite cumbersome once the number of time units reaches $T = 5$ or so. Because of the need to specify off-the-equilibrium-path behavior to achieve subgame perfectness, it is difficult to express equilibrium strategies in closed form. Instead, we take an algorithmic approach. That is, we seek, discover, and formalize a precise instruction set first for the agenda setter and second for the obstructer. More specifically, it must be case that: (1) the agenda setter, when applying her algorithm, reliably produces a specific set A^* of bills that is the best-response to *any* possible partition of bills $B = \{B_1 \cup B_2\}$ that is passed on by the obstructer; and (2) the obstructer's algorithm, given the anticipated strategy of the setter, optimally maps every element of the potentially large number of bills in B into one and only one of two subsets of the partition. This algorithm is figuratively the obstructer's instruction manual for optimal delay.

Derivation of these two algorithms is facilitated by developing and adopting abbreviated reference to a repeatedly-used condition that bears a close relationship to the concept of "compromise" or "agenda-worthy" bills used in the short game. When ascertaining their optimal strategies, both players frequently ask: "Which of two outcomes would I prefer: passage of two bills, say bill x_1 and bill y_1 that absorb one time period each, or passage of a single bill z_2 that uses two units of time?" If the former pair of bills is preferred to the latter single bill, we economize on notation by saying that, for a specific ordered triple (x_1, y_1, z_2), *Condition* $2 \succeq 1$ is met when the two one-period bills (x_1, y_1) are weakly preferred to one two-period bill z_2. The $2 \succeq 1$ condition plays a key role each of the two algorithms in Proposition 2, which we derive and illustrate informally below, while relegating formalization and proofs to Appendix B.

2.2.1 The setter's algorithm

As before, we begin with the equilibrium strategy for the agenda setter. Her algorithm stipulates how to process any and every specific bill from set B_1 and B_2 to determine whether to include or exclude the bill from what will upon completion become the optimal agenda, A^* whose size—T units of time—is given exogenously.[13]

Each round of processing begins with the setter evaluating three bills: her two most-preferred bills from B_1 and her single most-preferred bill from B_2. She first applies Condition $2 \succeq 1$ to the tuple $(\bar{b}_1^s, \bar{\bar{b}}_1^s, \bar{b}_2^s)$. If the pair is preferred to the singleton by the setter, then she includes *only the better bill in the pair*, (namely, $\bar{b}_1^s$) from B_1 in the agenda A where it occupies one time slot.[14] In contrast, if Condition $2 \succeq 1$ is not met, then the setter's

[13] As before, we assume there are at least T motherhood and apple pie resolutions for which $t(b) = 1$ and $u^s(b) = u^s(b) = 0$ to simplify the exposition of the algorithm. The adjustments needed for an exhaustible B_1 are trivial.

[14] To see why only the first bill from the pair is added to the agenda, suppose there are four bills remaining:

most-preferred bill from B_2 is placed onto the agenda A where it occupies two of its T time slots. (Bills so selected from B for inclusion in A are not subject to further consideration in the agenda construction process.)

A few finer points convey additional intuition. First, the algorithm is one of figurative and iterative cream-skimming. At each iteration, the agenda setter considers the two best bills remaining in B_1 and the one best bill from B_2, and, of those three, chooses the one for inclusion on the agenda that gives the most utility in the next allotted time slot(s).[15] Therefore, the resulting bills will be ordered, best to worst, according to the agenda setter's preferences. This ordered array proves to be an analytically convenient feature in the design of the obstructer's algorithm below, but the elements of A do not need to be ordered; the setter can bring bills from A before the plenary body in any order she wishes.

Another subtle feature of the algorithm is that, prior to the commencement of each iteration, notation updating occurs that can be described as selection without replacement. Specifically, if the one-period bill is selected, then it goes into A but not back into B_1; meanwhile, the two b_1^s terms are redefined because the formerly second- and third-best alternatives from B_1 move up to fist- and second-ranked. Likewise, if the two-period bill is selected for agenda inclusion, it leaves B_2 forever, and the most-preferred remaining alternative from the now-skimmed set B_2 becomes the new $\bar{b}_2^s$. In all other respects, this process of cream-skimming, application of Condition $2 \succeq 1$, agenda growth by one bill (possibly occupying two time slots), and ascension of the successor of the chosen bill, all proceed until $\sum_{b \in A} t(b)$ $= T$. The number of bills on the agenda ranges from $T/2$, if obstruction is rampant in equilibrium, to T, if the setter selects exclusively from B_1.

w, x, y, and z. Suppose $t(z) = 2$, $t(w) = t(x) = t(y) = 1$, and $T = 3$. Finally, suppose $u^s(w) = 3$, $u^s(x) = 2$, $u^s(y) = 1$, and $u^s(z) = 4$. The optimal agenda is obviously to pass w and z. But the first step will compare the pair (w, x) to z. If both w and x were added to the agenda (instead of just w), the algorithm would get stuck with only one period remaining and squander the last period passing y.

[15] We break ties by selection of the two alternatives from B_1 with the reasoning that, other things equal, Congress would like to appear productive (recent arguments to the contrary notwithstanding).

2.2.2 The obstructer's algorithm

Finally, we analyze the first move of the game. The obstructer, as first mover, knows precisely what we have shown in the previous section: how the agenda setter selects an agenda given a partition of the bills into those that will be allowed to pass in one period and those that will require two periods to pass. The obstructer's objective now is to partition the set of all bills B into non-intersecting subsets B_1 and B_2 in a way that maximizes his payoff after the setter responds optimally.

The obstructer's algorithm has two parts. First, he must determine which agendas from the many possible agendas are *politically feasible*. An agenda is politically feasible if it is the agenda setter's best response to some schedule of obstruction. Formally, agenda A is politically feasible if there exists some t for which $a^*(B,t) = A$. Once he determines which agendas are politically feasible, the agenda setter identifies which politically feasible agenda provides him with the highest utility and selects a schedule of obstruction that induces the agenda setter to pass his chosen agenda.

Suppose, for simplicity, that T is even.[16] Consider the problem of identifying all of the politically feasible agendas that involve passing exactly $\frac{T}{2}+1$ bills. Mechanically, this requires that there are two bills on the agenda that require one period each and the remaining $\frac{T}{2}-1$ bills require two periods each. Political feasibility imposes two more requirements. First, the agenda setter must prefer every two-period bill that is on the agenda to every bill that is not included on the agenda. Otherwise, the agenda setter would swap out one of the two-period bills on the agenda for the bill that she prefers, which would contradict political feasibility. Second, the agenda setter must prefer the pair of one-period bills in the agenda to every two period bill that is not included on the agenda (Condition $2 \succeq 1$ must be satisfied against every bill that is not included on the agenda). Otherwise, the agenda setter would swap out the two one period bills for a bill that is not on the agenda, even if that bill requires two

[16]Making T odd is a trivial extension, and is detailed in the appendix.

periods to pass. Accordingly, the obstructer can identify the politically feasible length $\frac{T}{2}+1$ agendas by considering every bill subset of length $\frac{T}{2}+1$, then considering each partition of each subset into two one period bills and $\frac{T}{2}-1$ two-period bills, and asking whether the two conditions for political feasibility are met.

Identifying the politically feasible agendas that involve passing exactly $\frac{T}{2}+2$ bills follows the same logic. Any such agenda must have four bills passed in one period each and the remaining $\frac{T}{2}-2$ bills passed in two periods each. Political feasibility requires that the agenda setter prefer each two period bill on the agenda to every bill that doesn't make it onto the agenda, as before. However, in this case, the agenda setter must prefer *every possible pair* of one period bills to every bill that doesn't make it onto the agenda, because the agenda setter always has the opportunity to swap out the weakest pair (from her perspective) for any bill not on the agenda.

By iteratively repeating this logic for all lengths from $\frac{T}{2}$ to T, the obstructer is able to identify the full set of politically feasible agendas. This is analogous to constructing the compromise set, $\mathcal{C}$, in the two-period game. Once the obstructer has constructed this set, it is clear that his best strategy is to induce the agenda setter to pass the politically feasible agenda that yields the highest utility for the obstructer. He achieves this by setting $t(b)=1$ for all bills that must pass in one period for the chosen agenda and $t(b)=2$ for all other bills. The definition of political feasibility guarantees that this will be sufficient to induce the agenda setter to choose the anticipated agenda.

2.2.3 Equilibrium

Proposition 2. *The subgame perfect Nash equilibrium of the $T > 2$-period obstruction game is:*

$$\begin{aligned} t^*(b) = &\ \textit{the assignment of bills into the partition } C^*(i) = \{B_1, B_2\} \\ &\ \textit{which is computed by Algorithm B, and according to which} \\ &\ t = 1\ \forall b \in B_1 \textit{ and } t = 2\ \forall b \in B_2 \\ a^*(B,t) = &\ \textit{a set } A \textit{ of bills, } \{b_1, b_2, ..\} \textit{ constructed by Algorithm A.} \end{aligned}$$

The behavioral intuition underlying the proposition is consistent with that of Proposition 1, but lifting the cap on agenda length makes optimal obstruction more complicated and somewhat more volatile.

For any given partition that has equilibrium structural properties, several interactive motives and behavioral forces are at work. Other things equal, as we would expect, the obstructer wants to keep the agenda vacant by dissuading the setter from using valuable time on the setter's pet projects. This intuitive strategy often has major downsides, however. First, delaying a setter's favorite bill may not bump it of the agenda entirely; it may only cause it to absorb more time that necessary, there by imposing an opportunity cost on obstructer and setter alike. Another possibility is that the setter's pet bill is only mildly opposed by the obstructer but not as vehemently opposed as is the next alternative in the queue during the partitioning process. The problem, in other words, is that the premise of the contemplated strategy almost invariably fails: other things are *not* equal. Consequently, the obstructer not only must simultaneously take into account the extreme likes and dislikes of his own and of the agenda setter but also must carefully tend to proposals with moderate levels of support, tapping into mutually advantageous bills to the extent that they exist and as agenda space permits, and resisting the impulse for dilatory tactics that hurt everyone relative to what alternative strategies might achieve.

In spite of these complex interactive effects, the strategic essence of the game is the same as in the two-period game. The agenda setter's preferences play an important role in determining which agendas are politically feasible. However, while only the agenda setter's most preferred bill played a role in the two-period game, the agenda setter's $\frac{T}{2}$ most preferred bills all affect political feasibility in the general case.[17] Likewise, the obstructer's power draws from the ability to select which of the potentially many politically feasible agendas will be available to the agenda setter. In the two-period game, the obstructer chooses from all of the politically feasible agendas of length 2. In the generalized game, the obstructer has the added degree of freedom of choosing from many different agenda lengths as well.

2.3 Failure to adopt streamlining reforms

Our model rationalizes the variation in the floor time required to pass bills. Obstructers deliberately create this variation in order to induce the agenda setter to select an agenda that is more to their liking.[18]

This leaves the second puzzle: Given that the Senate can change its own rules, why does a coalition large enough to pass legislation over a filibuster allow obstructers the right to slow the passage of legislation? Why doesn't the Senate replace Senate Rule XXII and all of the precedents that refine it with a simple 60-vote requirement for Senate bills.[19] In the terms of the model, and assuming no other dilatory tactics are available, such a reform would remove the first step of the game and set $t(b) = 1$ for every bill. The reformed model would properly be called monopoly agenda setting without limited obstruction.

If there is only one agenda setter and one obstructer, then the agenda setter is unambiguously worse off and the obstructer is unambiguously better off under the rules that allow

[17] $\frac{T-1}{2}$, if T is odd.

[18] We do not mean to suggest that other issues, particularly bill complexity and the desire to have a sincere debate with opportunities for amendments, are altogether unrelated to this variation. Rather, our model shows that variation in the time required for a bill to pass would still exist even in the absence of these factors or when holding these factors constant.

[19] To avoid substantive changes to the required vote thresholds, this reform would have to be restricted to motions that are currently eligible to be filibustered.

for obstruction than under the rules that forbid obstruction. With obstruction allowed, the agenda setter will at best be able to pass his two most preferred bills, which is what he would have been able to do if obstruction were not permitted. In general, he will have to settle for some compromise agenda and therefore will be worse off. By contrast, when obstruction is allowed, the obstructer always has the option to set $t(b) = 1$ for every bill, so obstruction in general makes the obstructer no worse off and often strictly better off. If the agenda setter cannot change the rules without the obstructer's consent, then the agenda setter will be unable to adopt streamlining reforms. Therefore, although the model does not account for variation, it is broadly consistent with the empirical regularity of a historically robust Senate Rule XXII even in the face of periodic attempts to reform it.

The analysis is more interesting in the presence of three players and a slightly modified game form. Suppose that there is a liberal agenda setter, s, a conservative obstructer, o, and a moderate m. Suppose that s requires m's support in order to pass bills (that is, it is only possible to pass bills for which both $u^s(b) > 0$ and $u^m(b) > 0$), but that both m and o have the ability to obstruct. Further suppose that s needs the support of either o or m in order to change the rules. To make the example concrete, suppose there are only three bills with preferences given by 2.

Table 2: Preferences for a simple three-player obstruction game.

	s	m	o
X	5	5	-6
Y	4	1	-3
Z	2	3	2

Since $u^m(b) > 0$ for every $b \in B$, this game is identical to our two-period game with multiple obstructers. Note that s and m have quite similar preferences. Their most preferred bill is X and they both assign a positive utility to passing every bill in the set. o, on the other hand, dislikes X and Y and only likes Z. In equilibrium, (X, Z) will be the agenda, because this is the only agenda that all three players prefer to X alone, i.e. it is the only pair in $\mathcal{C}$. The key feature of this example is that m and o agree that (X, Z) is preferable to (X, Y), which is what the agenda setter s would pass if filibuster were eliminated. Neither will support eliminating the filibuster because doing so would leave them worse off.

This example falls short of a full-fledged theory of endogenous institutional choice, but it offers a helpful lead as to how the filibuster *could* survive. Moreover, the configuration of preferences in the example is intuitively plausible. In this example, the bill most preferred by both the agenda setter and the moderate passes even though obstruction is permitted. However, the availability of obstruction drops the agenda setter's second priority (which the obstructer dislikes and which the moderate finds only slightly appealing) for a bill that appeals to all players. In stylized terms, a liberal agenda setter would enact universal healthcare and create a cap-and-trade system in an obstruction-less Senate. Because of obstruction, the liberal agenda setter must settle for enacting universal healthcare and reforming the financial system. This is to the advantage of conservatives and moderates, both of whom prefer reforming the financial system to cap-and-trade, so the conservative and moderate will band together to prevent any changes of the rules. Critically, this does not require the moderate liberals to actively obstruct the agenda of their own party. Recall that there is an equilibrium in which the first obstructer (whom we suppose is the conservative) is the one who actually sets t, and in doing so he anticipates the preferences of the other obstructers. The conservatives can (and happily will) do all of the actual obstructing, secure in their knowledge that the moderates will support them if the extreme liberal agenda setter attempts to eliminate the filibuster.

3 Discussion

Our model rationalizes the variation in time required to pass legislation and the persistence of the filibuster over a simpler and speedier 60-vote rule. Happily, it is consistent with the insights of a great deal of work that came before it. Floor time is indeed scarce, as Cox and McCubbins (2011) have noted, and this scarcity has important consequences for legislative outcomes. As Sinclair (2013) has posited, this coupled with the minority's ability to obstruct requires the majority to take the minority's preferences into account. For some values of the parameters, the obstructer will obstruct every bill in order to reduce the majority's productivity, as Koger (2013) posited. Would-be obstructers indeed exercise a degree of restraint, as in Wawro and Schickler (2006)'s model, but this restraint arises from strategic calculations about how to optimally influence the agenda rather than Senate norms. Our model is also consistent with Ainsworth and Flathman (1995)'s insight that bargaining over UCAs opens a channel of communication between the agenda setter and potential obstructers; in our model, the obstructers are communicating the time costs they intend to impose on each bill.

3.1 The lame duck session of the 111th Congress

While our model merely rationalizes behavior throughout the 111th Congress, it also provides the most analytic leverage in explaining much of the otherwise puzzling behavior of the Republicans during the lame duck session. Recall that the Republicans had shown the ability to drag floor debates out for many weeks, as they did with the Affordable Care Act and the Dodd-Frank Act. Yet the Democrats were able to ratify the New START and repeal Don't Ask, Don't Tell during the lame duck session over the objections of the majority of the Republican caucus. Why didn't the Republicans use obstruction to run out the clock and prevent the Democrats from passing at least one of these two bills?

Our model provides an appealing explanation. The majority of Republicans opposed the ratification of the New START and the repeal of Don't Ask, Don't Tell, but by refraining from wholesale obstruction on these measures, they were able to lure the Democrats away from the more odious bills that they had probed earlier in the session. The Democrats had attempted to bring the Public Safety Employer-Employee Cooperation Act (to provide more generous collective bargaining rights for state and local public safety officers), the DISCLOSE Act (campaign finance reform), and the Removal Clarification Act (which included the DREAM Act) to the Senate floor. All of these efforts failed (some by very narrow margins), but so too had the first three attempts to bring the Dodd-Frank Act to the floor. The Democrats had demonstrated their ability to overcome initial setbacks before.

The New START gave the Republicans an opportunity to extract concessions on the modernization of America's nuclear arsenal, and Secretary of Defense Robert Gates released a survey that showed that most servicemen believed that repealing Don't Ask, Don't Tell would not seriously undermine military preparedness. While these were not enough to make most Republicans support either of these measures, they were certainly preferable to laws that would have seriously undermined the national competitiveness of the Republican party. The Republicans set $t(b) = 1$ for these bills because they satisfied *Condition* $2 \succeq 1$ with respect to the aforementioned bills. This desire to avoid pushing the Democrats to more harmful bills also explains why the Republicans did not subject most of the Democrats' bills to the same antics that the Republicans had employed for the Affordable Care Act and the Dodd-Frank Act; if they had subjected, say, the Lily Ledbetter Fair Pay Act or the Omnibus Pulic Land Management Act of 2009 to this kind of treatment, the Democrats might have foregone consideration of those bills to make time for more harmful (for Republicans) legislation like campaign finance reform or cap-and-trade.

3.2 Limitations

A significant limitation of our theory is that it is exceedingly difficult to systematically test with large samples. Sharp empirical predictions could be tested only with a data set that included B, the set of bills that could have passed with sufficient time. Identifying B is quite difficult, because it is difficult to know if bills failed to pass because there they could not attract 60 supporters or because there was not enough time in a given session. If B is somehow gathered, the analyst must still discover the utility each legislator attaches to passing each bill in B. Additionally, the obstructer's behavior is hard to observe, because t can only be observed for bills which the agenda setter attempts to bring to the floor.

It is possible that a clever future researcher will find a way to extract a readily testable prediction from our model. A more promising avenue for success would be adding more institutional detail. Because our analytic approach is unique, we purposely constructed a very parsimonious model. We do not assume any structure on the utility functions. We model all obstruction as a modification in the amount of time that a bill requires to pass, and do not explicitly model the intricacies of the different procedures that might be used to manipulate these costs. By building a more Senate-specific model atop the base model that we have developed here, future researchers may be able to generate sharp, readily testable hypotheses.

One promising approach would be to impute ideal points for every bill using cosponsorship data. These ideal points would imply whether a bill could attract 60 votes and the utility that each senator would accrue if it did. Such a study could then test for the presence of pairs of bills that did not pass which would have yielded a greater utility for all obstructers and the agenda setter than individual bills that took a great deal of time to pass. The absence of such pairs would provide strong support for the model.

3.3 Non-Senate applications

The same parsimonious assumptions underlying the model that make large sample testing difficult make the model applicable to other contexts. Our model requires only that there is a monopoly agenda setter, that time is scarce, and that some actor besides the agenda setter has the ability to influence the time costs associated with various courses of action. This is certainly true of some other legislatures, but it is also endemic to a wide class of principal-agent problems.

As Heclo (2011) observed, the American civil service is characterized by the interaction of short-lived political appointees and careerist bureaucrats who will far outlast them. This setting squares nicely with the assumptions of our model. Appointees usually occupy the highest positions within the hierarchy and thus have the legal authority to command subordinate careerists. In this sense, they are monopoly agenda setters. However, appointees enjoy a comparatively short tenure, so time is scarce. Moreover, the careerists have important private information about how long administrative decisions will take to implement. They can in part control these time costs in both directions; the can slow them down by dragging their feet and wading slowly through red tape or speed them up by working hard and helping the appointee navigate the complicated bureaucratic milieu.

Consistent with the predictions of the model, Heclo finds that the most successful appointees prefer to get buy-in from the careerists. He quotes one appointee as saying, "[A careerist subordinate] was a great civil servant, not because he did what you told him to, but because he would tell you how to solve problems, what you couldn't do and why. With him I could get the changes through in one year instead of it dragging on until I'm out of the picture."

In both the Senate and the civil service, time is ultimately scarce because the agenda setter will lose office at some point in the future. However, the core intuition of the model also applies when time is scarce due to the necessity for quick action. The American public's growing demand for an armed response to the September 11th terrorist attacks played a crucial role in shaping the plans for the invasion of Afghanistan. General Tommy Franks insisted it would take months to develop plans and deploy forces for a major military assault on Afghanistan. Secretary of Defense Rumsfeld feared that such a delay would dampen the American people's resolve for decisive action, and this contributed heavily to the Bush Administration's decision to launch an offensive using the CIA, Special Forces, and Afghani irregulars (Woodward, 2002). This can be cast as a game in which the Bush Administration plays the agenda setter, the military plays the obstructer, and the agenda is the strategy for the War on Terror.

Of course, this is not to say that the military deliberately exaggerated the amount of time it would take to prepare for an invasion of Afghanistan so that the CIA would have to do it. Rather, this example illustrates that the military exercises some influence over the kinds of missions for which it is likely to be deployed when it decides which potential conflicts merit careful advance planning. The military was well prepared for an invasion of Iraq, so much so that Donald Rumsfeld floated the idea of responding to the September 11th attacks by invading Iraq as well as taking action of al-Qaeda so that at least one operation was guaranteed to make good progress (Woodward, 2002). That the military had not developed plans for a rapid incursion into Afghanistan decreased the likelihood that it would be deployed there in a crisis situation. It would be unfair to call this obstruction, but like obstruction it influences the time cost associated with a particular policy choice and thereby influenced Bush Administration's decision.

Serious theories of any of these setting would call for the imposition of additional structure beyond that provided by our model. Nevertheless, our model provides a simple and flexible framework upon which these more specialized models can be built. It provides a clear expectation about the shape that the conflict between actors can take, and puts future theorists in the position to demonstrate how the idiosyncratic features of their particular institutions cause the conflict to develop differently.

4 Conclusion

Dilatory tactics have a bad reputation. Academics and lay observers alike have emphasized their role in impeding the flow of policy responses to pressing public problems. Our analysis, predicated on a simple but remarkably rich model of obstruction and policymaking, concludes that this perspective is unduly one-sided. The ability to delay but not veto policy proposals gives all of the relevant actors in the organization a credible mechanism for discovering compromises and ensuring that they survive the inevitable winnowing process that is the defining characteristic of agenda setting. Furthermore, minimal rights of obstruction have the equilibrium effect of favoring such compromises by bumping more lopsided policies off the active agenda. The survival of these tactics even in political organizations that have the ability to eliminate them is a testament to their usefulness in this capacity.

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A Proof of equilibrium when T is arbitrary but known

Here, we rigorously define optimal strategies for both the agenda setter and the obstructer in a game with an arbitrary but known number of periods, T. In doing so, it is convenient to define the equilibrium strategies algorithmically. We use the variable assignment operator common in computer science. For instance, $A \leftarrow A \cup \{b\}$ can be informally read as "add b to the agenda, A." Formally, the value of set A is being updated to the union of whatever A was before and the singleton set $\{b\}$. With this notation, it will be possible to specify a set of rules for constructing A even though it is difficult to write down A in closed form.

Throughout the arguments below, we assume that neither player is indifferent between two bills, between two pairs of bills, or between one bill and a different pair of bills:

- $u^s(b) \neq u^s(b') \ \forall \ b, b' \in B$
- $u^o(b) \neq u^o(b') \ \forall \ b, b' \in B$
- $u^s(b) + u^s(b') \neq u^s(b'') + u^s(b''') \ \forall \ b, b', b'', b''' \in B$
- $u^o(b) + u^s(b') \neq u^s(b'') + u^s(b''') \ \forall \ b, b', b'', b''' \in B$
- $u^s(b) + u^s(b') \neq u^s(b'') \ \forall \ b, b', b'', b''' \in B$
- $u^o(b) + u^s(b') \neq u^s(b'') \ \forall \ b, b', b'', b''' \in B$

(b, b', b'', and b''' must of course be distinct).

Although the characterization of optimal solutions would be identical if ties were allowed, this set of assumptions implies a unique optimal agenda and thereby greatly simplifies the proofs.

A.1 Agenda Setter's Strategy

Let A be the agenda, τ be the number of periods in the session that will remain after passing all of the bills in A, B_1 be the set of bills that could be passed in one period that are not already on the agenda, and B_2 be the set of bills that could be passed in two periods that are not already on the agenda.

Initialize $B_1 = \{b \in B : \ t(b) = 1\}$, $B_2 = \{b \in B : \ t(b) = 2\}$, $A = \emptyset$, and $\tau = T$.

1. If $\tau = 1$, $A \leftarrow A \cup \{\bar{b}_1^s\}$ and $B_1 \leftarrow B_1 \setminus \{\bar{b}_1^s\}$, then terminate. Otherwise, proceed to Step 2.

2. If $u^s(\bar{b}_1^s) + u^s(\bar{\bar{b}}_1^s) > u^s(\bar{b}_2^s)$, then $A \leftarrow A \cup \{\bar{b}_1^s\}$, $B_1 \leftarrow B_1 \setminus \{\bar{b}_1^s\}$, and $\tau \leftarrow \tau - 1$. Otherwise, $A \leftarrow A \cup \{\bar{b}_2^s\}$, $B_2 \leftarrow B_2 \setminus \{\bar{b}_2^s\}$, and $\tau \leftarrow \tau - 2$. In both cases, return to Step 1.

At termination, A will be the optimal agenda.

A.2 Proof of optimality of agenda setter's strategy

Lemma A.1 (Decomposition Lemma). *Suppose A^* is the optimal agenda when $T = \tau$ and A^{**} is the optimal agenda when $T = \tau + 2$. Then $A^* \subset A^{**}$.*

Proof. Suppose $A^* \not\subset A^{**}$. Then $\exists\, b \in A^* \setminus A^{**}$. There are two cases to consider:

1. Suppose $t(b) = 2$. If $\exists\, b' \in A^{**} \setminus A^*$ such that $t(b') = 2$, then by construction of Step 2, $u^s(b) > u^s(b')$. If not, then $\exists\, b', b'' \in A^{**} \setminus A^*$ such that $t(b') = t(b'') = 1$ (because A^{**} must consume two more periods than A^*). By construction of Step 2, $u^s(b) > u^s(b') + u^s(b'')$.

2. Suppose $t(b) = 1$. If $\exists\, b' \in A^{**} \setminus A^*$ such that $t(b') = 1$, then by construction of Steps 1 and 2, $u^s(b) > u^s(b')$. Otherwise, $\exists\, b' \in A^{**} \setminus A^*$ such that $t(b') = 2$ (because A^{**} must consume two more periods than A^*) and $\exists\, \hat{b} \in A^* \setminus A^{**}$ such that $t(\hat{b}) = 1$ (because A^* and A^{**} are either both odd or both even, and all periods must be consumed). By construction of Step 2, $u^s(b) + u^s(\hat{b}) > u^s(b')$.

In both cases, there is a profitable improvement available to A^{**} which contradicts its optimality. Thus, $A^* \subset A^{**}$. □

This implies that any problem of session length $T = \tau + 2$ can be decomposed into two subproblems: the problem of constructing an optimal agenda for a session of length τ and the problem of constructing an optimal agenda for length 2 after removing the bills used in the first agenda. From the analysis in the main body of the paper, we already know how to solve the second subproblem.

The algorithm obviously obtains an optimal solution for $T = 1$ and $T = 2$. Assume the algorithm obtains an optimal solution for $T = \tau$. By construction, running the algorithm for a session of length $\tau + 2$ is equivalent to running the algorithm for a session of length τ and then constructing the optimal agenda for a session of length 2 from the remaining bills. If the algorithm obtains the optimal agenda for a session length of τ, then the decomposition lemma implies that it will also obtain the optimal agenda for a session of length $\tau + 2$. By induction, the algorithm always obtains the optimal agenda.

A.3 Obstructer's strategy

For each $i = 0, 1, \ldots, \frac{T}{2}$, let $\mathcal{C}(i)$ be the set of partitions that satisfy the following properties:

1. Each $C \in \mathcal{C}(i)$ partitions B into two subsets, $B_1(C)$ and $B_2(C)$, such that $|B_1(C)| = 2i$ if T is even and $|B_1(C)| = 2i + 1$ if T is odd.

2. Let $b_{x,(y)}$ be the yth largest element of set B_x, where the elements are ordered by $u^s(b)$. Then for each $C \in \mathcal{C}(i)$, $u^s(b_{1,(|B_1(C)|-1)}) + u^s(b_{1,(|B_1(C)|)}) > u^s(b_{2,\left(\frac{T-|B_1(C)|}{2}+1\right)})$.

Any partition satisfying these properties can be interpreted as follows: if the obstructer sets $t(b) = 1$ for all $b \in B_1(C)$ and $t(b) = 2$ for all $b \in B_2(C)$, then the agenda setter will pass all of the bills from $B_1(C)$ and will use whatever time she has leftover to pass bills from $B_2(C)$. This is because the worst pair of bills from $B_1(C)$ (from the perspective of the agenda setter) will still be preferable to the best bill in $B_2(C)$ which was not passed by the agenda setter.

Let $U^o(C) = \sum_{j=1}^{|B_1(C)|} u^o(b_{1,(j)}) + \sum_{j=1}^{\frac{T-|B_1(C)|}{2}} u^o(b_{2,(j)})$. By the construction of Step 2, the agenda setter's best response to $t(b) = 1$ for $b \in B_1(C)$ and $t(b) = 2$ for $b \in B_2(C)$ is

$B_1(C) \cup \{b_{2,(j)}\}_{j=1}^{\frac{T-|B_1(c)|}{2}}$, so $U^o(C)$ gives the utility to o for the agenda induced by C.

Define $C(i) = \underset{C \in \mathcal{C}(i)}{\text{argmax}}\ U^o(C)$, and $C^* = \underset{i=0,\ldots,\frac{T}{2}}{\text{argmax}}\ U^o(C(i))$. Then setting $t(b) = 1$ for $b \in B_1(C^*)$ and $t(b) = 2$ for $b \in B_2(C^*)$ yields the optimal obstruction schedule.

A.4 Proof of optimality of the obstructer's strategy

First, a definition: An agenda A is politically feasible if A is the agenda setter's best response to some obstruction schedule t.

Suppose $C \in \mathcal{C}(i)$ for some i. The agenda, A, is induced by C if A is the best response agenda for the agenda setter to $t(b) = 1$ for $b \in B_1(C)$ and $t(b) = 2$ for $b \in B_2(C)$.

Lemma A.2 (Minimal Acquiescence Lemma)**.** *Suppose there exists an obstruction schedule t such that A is the agenda setter's best response to t. Then there is an obstruction schedule t' such that A is the agenda setter's best response to t' and $t'(b) = 2\ \forall\ b \in B \setminus A$.*

Proof. Suppose $t(b') = 1$ for some $b' \in B \setminus A$. Step 2 of the agenda setter's strategy implies that $u^s(b') < u^s(b)$ for all $b \in A$. Thus, a t' such that $t'(b) = t(b)$ for all $b \neq b'$ and $t'(b') = 2$ would yield the same agenda. This can be applied repeatedly until $t(b) = 2\ \forall\ b \in B \setminus A$. $\square$

Lemma A.3 (Exhaustiveness Lemma)**.** *If A is politically feasible, then there is some element of $\cup_{i=0}^{\frac{T}{2}} C(i)$ that induces A.*

Proof. Suppose A is politically feasible. Let t be an obstruction schedule that induces A as the agenda setter's best response with the property that $t(b) = 2\ \forall\ b \in B \setminus A$. The minimal acquiescence lemma guarantees the existence of such a t.

Let C be a partition with $B_1(C) = \{b \in A : t(b) = 1\}$ and $B_2(C) = B \setminus B_1(C)$. Then $\sum_{b \in A} t(b) = T$ and $t(b) \in \{1, 2\}\ \forall\ b \in B \implies |B_1(C)|$ is odd if T is odd and even if T is even. Additionally, $|B_1(C)| \leq T$. Thus, C satisfies the first condition for $i = \frac{|B_1(C)|}{2}$ if T is even and for $i = \frac{|B_1(C)|-1}{2}$ if T is odd.

Additionally, by construction of Steps 1 and 2, $u^s(b') + u^s(b'') > u^s(b_{2,(\frac{T-|B_1(C)|}{2})})$, because the last two bills from $B_1(C)$ to enter A must have a payoff for s that exceeds all remaining bills in $B_2(C) \setminus A$. Thus, C satisfies the second condition, $C \in \mathcal{C}(i)$, and A is induced by C. $\square$

Thus, every politically feasible agenda is induced by some $C \in \cup_{i=0}^{\frac{T}{2}} C(i)$. C^* yields the largest payoff for the obstructer in $\cup_{i=0}^{\frac{T}{2}} C(i)$, so it is the obstructer's most preferred agenda from the subset of agendas that are politically feasible.