Estimating Proposal and Status Quo Locations Using Voting and Cosponsorship Data

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Theories of lawmaking generate predictions for the policy outcome as a function of the status quo. These theories are difficult to test because the widely applied ideal point estimation techniques do not recover the locations of proposals or status quos. Instead, such techniques only recover cutpoints. This limitation has meant that most existing tests of theories of lawmaking have been indirect in nature. I propose a method of directly measuring ideal points, proposal locations, and status quo locations on the same scale, by employing a combination of voting data, bill and amendment cosponsorship data, and the congressional record. My approach works as follows. First, we can identify the locations of legislative proposals (bills and amendments) on the same scale as voter ideal points by jointly scaling voting and cosponsorship data. Next, we can identify the location of the final form of the bill using the location of the last successful amendment (which we already know). If the bill was not amended, then the final form is simply the original bill location. Finally, we can identify the status quo point by employing the cutpoint we get from scaling the final passage vote. To implement this procedure, I automatically coded data on the congressional record available from www.thomas.gov. I apply this approach to recent sessions of the U.S. Senate and use it to test the implications of competing theories of lawmaking.

Theories of lawmaking generate predictions for the policy outcome as a function of the status quo. These theories generate different predictions from different assumed institutional structures—in particular, which actors enjoy positive and negative agenda-setting power. These theories are difficult to test because widely applied ideal point estimation techniques—such as *Nominate* (Poole and Rosenthal 1997) and *ideal* (Clinton, Jackman, and Rivers 2004)—do not recover the locations of proposals or status quos. Instead, such techniques only recover cutpoints. This limitation has meant that most existing tests of theories of lawmaking have been indirect in nature—these tests either have limited power or require additional restrictive assumptions (such as uniformly distributed status quo points). Existing tests often lead to inconsistent results and arguably lead us to reject all the contending theories, without telling us precisely what their respective shortcomings are.[1]

These limitations mean that it would be desirable to develop a method to recover the spatial locations of legislative proposals and status quos, on the same scale as the legislators' ideal points. In this article, I propose a method to accomplish this. My method employs a combination of voting data, cosponsorship data, and information on the legislative record. Using these three types of data, I show that ideal points, proposal locations, and status quo locations can be recovered under reasonable assumptions.

My method first recovers the locations of ideal points, bill locations, and amendment locations by jointly scaling voting and bill and amendment cosponsorship data. In order to investigate theories of lawmaking, two additional quantities are necessary—the final form of the bill and the status quo. The bill and amendment locations, in conjunction with the legislative record, are then used to recover the locations of proposal and status quo points. To obtain the location of the final form of the bill, I identify the last amendment that passed for that particular bill. This location can be ascertained using the methodology that I have already described. If no amendment passed for that particular bill, then the original location of the bill is also the final location. To recover the location of

[1]Replication data and code will be made available at http://www.rochester.edu/College/faculty/Status_Quos_Data.zip no later than June 31, 2013 The online appendix is available at http://journals.cambridge.org/jop and at http://www.rochester.edu/College/faculty/mperess/Status_Quos_Appendix.pdf.

The Journal of Politics, Page 1 of 19, 2013 doi:10.1017/S0022381613000571
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ISSN 0022-3816

the status quo, I use the fact that the cutpoint for a final passage vote (which can be estimated from voting data) is equal to the average of the final bill location and the status quo. This formula allows me to back out the status quo whenever a recorded final passage vote is observed.

I apply my approach to recent sessions of the U.S. Senate. I obtained data on cosponsorship and the congressional record from www.thomas.gov. My findings suggest that recorded votes and cosponsorship can be simultaneously scaled using a one-dimensional spatial model. I then apply my methodology to test competing theories of lawmaking. My results are consistent with a Filibuster Pivot gridlock interval—we do not observe successful legislation when the status quo is located between the 41st and 60th most conservative Senators in the chamber. My results are also consistent with a majority party Gatekeeping censored interval—we do not observe legislative action on issues where the status quo is located on the majority party's side of the political spectrum unless the status quo is extreme. Finally, my results suggest that the majority party retains significant positive agenda-setting power except in cases where the majority party holds a very slim majority.

Theories of Lawmaking

I assume that policy is characterized by the one-dimensional spatial model. I let s denote the status quo. I let α_n denote the ideal point of legislator n. I let $\alpha = (\alpha_1, \ldots, \alpha_N)$ denote the vector of ideal points. I denote the policy outcome by x. A theory of lawmaking is then a function $x(s; \alpha)$ that assigns a policy outcome for each status quo location and preference configuration of the legislators.[2]

Many spatial theories of lawmaking exist. One dimensional spatial theories are developed in Black (1958), Romer and Rosenthal (1978), Denzau and Mackay (1983), Cox and McCubbins (1993, 2005), Krehbiel (1998), Chiou and Rothenberg (2003), and elsewhere. Multidimensional theories of lawmaking are developed in Baron and Ferejohn (1989), Banks and Duggan (2000), and elsewhere. Theories of lawmaking may incorporate blame-game politics (Groseclose and McCarty 2000), binding time constraints in a given session (Cox and McCubbins 1993, 2005), and bicameralism (Tsebelis and Money 1997).

Although my technique can be applied to multidimensional theories, I will focus on one-dimensional theories of lawmaking because the empirical evidence suggests that recent sessions of congress can be scaled using a one-dimensional spatial model (Poole and Rosenthal 1997). Moreover, although my approach can potentially distinguish between a wider array of theories, in this article, I will focus for simplicity on six benchmark theories.

Benchmark Theories

In many theories of lawmaking, one political actor is assigned as the proposer while a number of other political actors are given veto rights (either a priori or ex post). The six benchmark theories I consider are the Majoritarian model, the Filibuster Pivot model, the Gatekeeping model, the Setter model, the Gatekeeping-Filibuster Pivot model, and the Setter-Filibuster Pivot model. The first four theories are simplified versions of existing theories. The last two theories are hybrid theories that assign an agenda-setting role to the majority party and allow the filibuster pivots to veto legislation. Because closely related theories have been studied extensively in the literature and their setup is widely understood, I do not include detailed derivations here. The functional form of $x(s; \alpha)$ for each of the six theories is given in online Appendix A.

Under the Majoritarian model, the proposer is the median legislator (with ideal point α_m), and no political actors are specified to have veto power. Figure 1 plots the policy outcome against the status quo for the Majoritarian model (as well as the other benchmark models). For the Majoritarian model, the policy outcome is simply the median legislator's position.

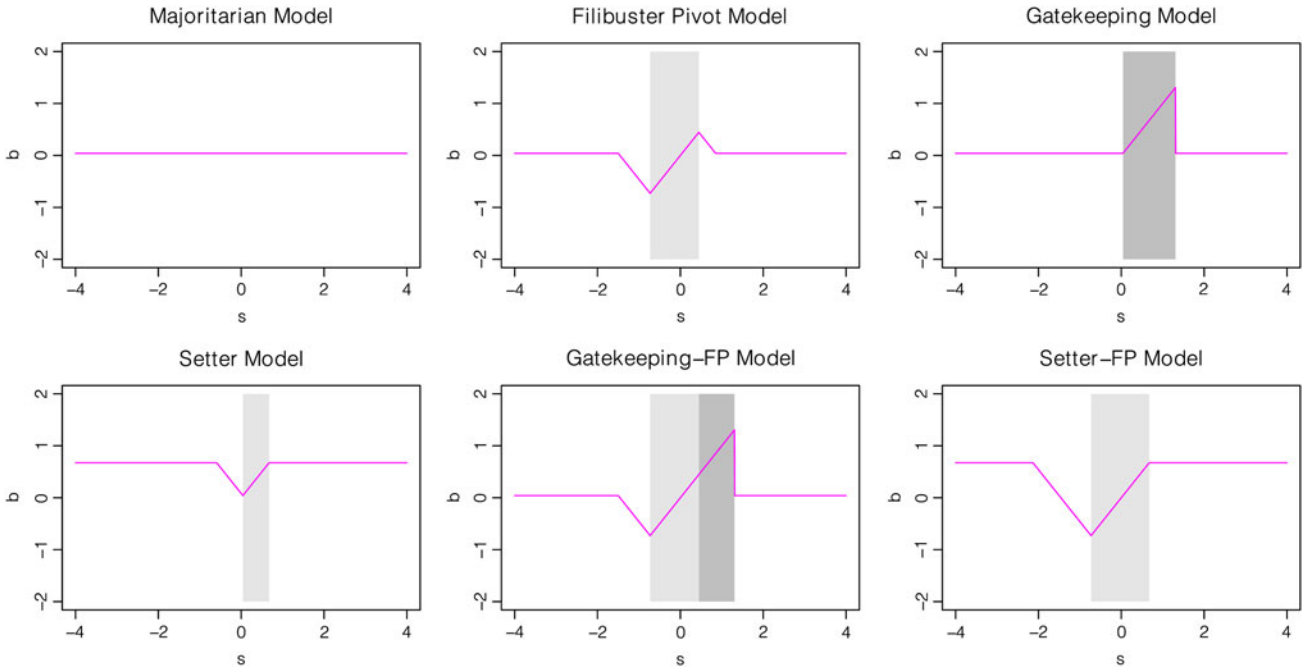
In the Filibuster Pivot model, the proposer is the median legislator, and the lower and upper filibuster pivots are assigned an ex post veto.[3] I denote the lower and upper filibuster pivots by α_l and α_u, where $\alpha_l < \alpha_m < \alpha_u$. The theory predicts a ''gridlock interval'' of $[\alpha_l, \alpha_u]$, where the status quo will be unaltered.

Under the Gatekeeping model, the proposer is the median legislator, but the majority party has a

[2]According to theories of lawmaking that assign agenda-setting power to the majority party, the policy outcome will also depend on the agenda setter's ideal point, which is not explicitly incorporated into the notation here.

[3]See Krehbiel (1998) for the details of a similar model. Krehbiel also assigns veto power to the median legislator in the other chamber and the President and considers the possibility that the presidential veto may be overridden. See also Chiou and Rothenberg (2003).

FIGURE 1 Theories of Lawmaking



Note: The line plots the proposed bill as a function of the status quo for each of the six benchmark models. The gridlock interval is highlighted in light gray and the censored interval is highlighted in dark gray. The figure is based on a typical Senate in the period of study, with a Republican majority, $\alpha_m = 0.01$, $\alpha_l = -0.77$, $\alpha_u = 0.41$, and $\alpha_R = 0.67$.

priori veto power.[4] That is, the majority party has the option of killing legislation before it is considered on the chamber floor. I let α_D denote the ideal point of the Democratic party, and I let α_R denote the ideal point of the Republican party.[5] I further assume that $\alpha_D < \alpha_m < \alpha_R$. Under this theory, we have a "censored interval" of $[2\alpha_D - \alpha_m, \alpha_m]$ when the Democratic party controls the chamber and $[\alpha_m, 2\alpha_R - \alpha_m]$ when the Republican party controls the chamber. I define the censored interval to be the set of status quo points such that one of the a priori veto players prefers the status quo to the floor outcome. The censored interval differs from the gridlock interval in that we should not observe legislative action (consideration on the Senate floor) for status quos in the censored interval. For the gridlock interval, we may observe unsuccessful legislative action (consideration on the Senate floor, but no successful final passage vote).

The distinction in terminology between gridlock and censored intervals is not used elsewhere in the literature, but is important here. To be clear, the Filibuster Pivot model has a gridlock interval because the upper and lower filibuster pivots may exercise their veto power during floor consideration. The Gatekeeping model has a censored interval because it is assumed that the agenda setter's veto power comes from his ability to prevent floor consideration. According to the theory, we should not observe floor votes when the agenda setter exercises his veto power. The Gatekeeping theory therefore predicts that we should not observe status quo points in our data that would lead to the agenda setter exercising his veto power (the status quos are censored).

Under the Setter model, the majority party is the proposer, and the median legislator is given an ex post veto.[6] Once again, we have a gridlock interval, which is $[\alpha_D, \alpha_m]$ when the Democratic party controls the chamber and $[\alpha_m, \alpha_R]$ when the Republican party controls the chamber.

The final two models are hybrid models. The Gatekeeping-Filibuster Pivot model specifies that the median legislator is the proposer, the majority party has an a priori veto, and the filibuster pivots have an ex post veto. This theory has both a censored interval

[4]See Denzau and Mackay (1983) and Cox and McCubbins (1993, 2005) for the details of a similar model.

[5]In practice, α_D and α_R may be measured using the position of the party leader (Kiewiet and McCubbins 1991) or the median member of the party (Cox and McCubbins 1993, 2005).

[6]See Romer and Rosenthal (1978) for the details of a similar model.

and a gridlock interval. The Setter-Filibuster Pivot model specifies that the majority party is the proposer and that the floor median and filibuster pivots have an ex post veto. This theory has a gridlock interval.

This is, of course, not an exhaustive list of theories of lawmaking, but these theories collectively capture the most important features of existing theories of lawmaking. The theories disagree over which actor is assigned proposal power, which actors are given the power to veto legislation, and what form these vetoes take (a priori or ex post). The goal of testing theories of lawmaking is to correctly assign actors to these various roles.

Existing Tests

Three important tests of theories of lawmaking have been examined in the literature. These tests are all indirect in nature given the unavailability of data on the locations of legislative proposals and status quos.[7] Krehbiel, Meirowitz, and Woon (2005) use estimated cutpoints to test the Filibuster Pivot and Gatekeeping models.[8] The cutpoint is defined as $c = \frac{1}{2}(b(s;\alpha) + s)$, where $b(s;\ \alpha)$ is the final form of the bill predicted by the theory of lawmaking. If we know the form of $b(s;\ \alpha)$, then we can derive the support of the distribution of c under the assumption that s has full support. Krehbiel, Meirowitz, and Woon test both theories by computing the fraction of estimated cutpoints that are inconsistent with each of these theories. They find that there are fewer inconsistent cutpoints for the Gatekeeping model, but they also argue that the Gatekeeping model has a lower exposure to being falsified.

Cox and McCubbins (2005) test the Gatekeeping model using the majority party roll rate. The majority party roll rate is the fraction of final passage votes where a majority of the majority party is on the loosing side of the vote. Cox and McCubbins argue that if the majority party has negative agenda-setting power, this fraction should be zero. They also argue that such a result would not be expected under "partyless model." As they find relatively low majority roll rates, they argue that the Gatekeeping model is validated.

Lawrence, Maltzman, and Smith (2006) test four theories of lawmaking using the predicted win rates as a function of legislator ideology. Two of their theories are analogous to the Majoritarian model and the Gatekeeping model. Their findings suggest that the Gatekeeping model and a "Veto Preference" model are most supported by the data. The test employed by Lawrence, Maltzman, and Smith assumes that status quo points are uniformly distributed.[9] Wand (2006) considers a more general framework that does not restrict the distribution of status quo points. Within this framework, the competing theories of lawmaking impose shape restrictions on the distribution of cutpoints. Wand finds support for the Gatekeeping model.

What We Can Learn Through Direct Measurement

Each type of test described above has some value at distinguishing between the theories. The tests, taken as a whole, do not point in a clear direction, however. Each of the three existing tests has drawbacks. Krehbiel, Meirowitz, and Woon (2005) cannot reject the Majoritarian model[10] and cannot distinguish between the Gatekeeping, Setter, and hybrid models. Krehbiel, Meirowitz, and Woon also argue that the Gatekeeping model has little exposure to being falsified under this test. Cox and McCubbins (2005) cannot distinguish between the Gatekeeping, Setter, and hybrid models. Lawrence, Maltzman, and Smith (2006) rely on a strong assumption—uniformly distributed status quos. Wand (2006) relaxes this assumption but does not consider the Setter and hybrid models.

At best, the existing tests allow us to identify the veto players in the legislature. They do not allow us to identify who has proposal power in the legislature. They do not allow us to distinguish between a priori and ex post veto power. They lose their power to distinguish between theories once hybrid theories are allowed. I argue that direct measurement of the location of the final bill and the status quo can improve our understanding of theories of lawmaking.

My framework allows for a number of areas of improvement. First, since we can directly measure the distribution status quo points, we can determine the intervals in which the status quo distribution is

[7]See also Krehbiel (1998) and Chiou and Rothenberg (2003), who test individual theories of lawmaking based on the relationship between legislative accomplishment and gridlock intervals.

[8]The Pivotal Politics theory is roughly analogous to the Filibuster Pivot theory and the Cartel theory is roughly analogous to the Gatekeeping theory.

[9]Lawrence, Maltzman, and Smith (2006) claim that it is only necessary to assume that the status quo points are distributed symmetrically around the median legislator, although Wand (2006) shows that assuming a uniform distribution of status quo points is indeed necessary for their result.

[10]Under the Majoritarian model, the set of admissible cutpoints corresponds to the entire policy space.

censored (no legislative action is taken). Second, we can determine which status quos result in gridlock (no *successful* legislative action is taken). Third, extreme status quos allow us to identify the proposer, as all theories of lawmaking suggest that the proposer will select his ideal point when the status quo is extreme enough.

I summarize the censored interval, the gridlock interval, and the extreme status quo outcomes for the six benchmark theories in Table 1. The table indicates that no two theories are observationally equivalent if we observe the status quo and the final bill location. The table also indicates that there is a direct map between the roles of the actors (a priori veto, ex post veto, and proposer) and the censored interval, the gridlock interval, and the extreme outcome, respectively. This in turn means that we can test the individual assumptions that make up these theories without direct reference to the theories. My approach offers an alternative method for evaluating theories of lawmaking, which will provide greater power to distinguish between alternative theories without imposing additional assumptions on the distribution of status quo points.

Estimation

The stochastic spatial model supposes that legislators make their voting decisions based on their relative proximity to the proposal and the status quo (or their sophisticated equivalents). Voting is an instrumental activity because a bill cannot pass (or an amendment cannot be enacted) unless it receives the requisite number of votes. Because voting for a bill is instrumental in nature, it is natural to assume that legislators consider not only the location of the bill in making their decision, but also the status quo.

Cosponsorship is a fundamentally different type of decision. Cosponsorship is not instrumental in nature—there is no minimum threshold of cosponsors before a bill can be considered, and a large number of cosponsors does not ensure that the bill will become law. Instead, cosponsorship provides legislators with a useful opportunity to signal their preferences—to their constituents or to potential donors (Koger 2003; Mayhew 1974; Woon 2008). Thus, while voting may serve both instrumental and signaling functions, cosponsorship should be used purely as a signal.

TABLE 1 Theories of Lawmaking

Model	Proposer	A Priori Veto	Ex Post Veto	Censored Interval	Gridlock Interval	Extreme Status Quo
Majoritarian	Median					α_m
Filibuster Pivot (FP)	Median		40% and 60%		$[\alpha_l, \alpha_u]$	α_m
Gatekeeping (Democratic majority)	Median	Democratic party		$[2\alpha_D - \alpha_m, \alpha_m]$		α_m
Gatekeeping (Republican majority)	Median	Republican party		$[\alpha_m, 2\alpha_R - \alpha_m]$		α_m
Setter (Democratic majority)	Democratic party		Median		$[\alpha_D, \alpha_m]$	α_D
Setter (Republican majority)	Republican party		Median		$[\alpha_m, \alpha_R]$	α_R
Gatekeeping-FP (Democratic majority)	Median	Democratic party	40% and 60%	$[2\alpha_D - \alpha_m, \alpha_l]$	$[\alpha_l, \alpha_u]$	α_m
Gatekeeping-FP (Republican majority)	Median	Republican party	40% and 60%	$[\alpha_u, 2\alpha_R - \alpha_m]$	$[\alpha_l, \alpha_u]$	α_m
Setter-FP (Democratic majority)	Democratic party		40% and 60%		$[\alpha_D, \alpha_u]$	α_D
Setter-FP (Republican majority)	Republican party		40% and 60%		$[\alpha_l, \alpha_R]$	α_R

Note: The censored interval is the set of status quo points such that the a priori veto players weakly prefer the status quo to the floor outcome. The gridlock interval is the set of status quo points such that the ex post veto players weakly prefer the status quo to the floor outcome.

To the extent that cosponsorship is a form of signaling, legislators should strive to send their signals as transparently as possible. Specifically, I argue that cosponsorship decisions should depend on the distance between the legislators' ideal points and the location of the proposal. If legislators were to signal their preferences for the proposal relative to the status quo, this would require the receiver of the signal to have knowledge of both the proposal's location and the status quo. Contrarily, if legislators instead signal their preferences for the proposal, the receivers would only need to have knowledge of the proposal's location. Since the latter—signaling one's ideal point by cosponsoring bills close to one's ideal point—does not require the receiver to collect additional information in order to interpret the signal, it should be the predominant form of signaling through cosponsorship.

The preceding argument suggests that we scale cosponsorship decisions in a different way than we scale voting decisions. In particular, I propose to scale cosponsorship decisions using a utility threshold model (Peress and Spirling 2010).[11] Because cosponsorship decisions depend on the location of the proposal, but not the status quo, we do not encounter the same problems that occur when attempting to recover the spatial locations of proposals from voting data. It is this fact that will serve as the basis of my identification strategy. I note that this assumption is partially testable—later and in online Appendix B, I report results that suggest that legislators' cosponsorship decisions depend on their proximity to the proposal (and not on their relative proximity to the proposal and the status quo).

Statistical Model

I assume that there are N legislators who make T_v voting decisions and T_c cosponsorship decisions, where $T = T_v + T_c$. I let T_v denote the set of indices corresponding to voting decisions and I let T_c denote the set indices corresponding to cosponsorship decisions, where these sets are assumed to be disjoint.

Each proposal p_t is pitted against a status quo s_t. Legislator n receives utility $u^p_{n,t} = -(p_t - \alpha_n)^2 + \varepsilon^p_{n,t}$ from voting yea on proposal t and receives utility $u^s_{n,t} = -(s_t - \alpha_n)^2 + \varepsilon^s_{n,t}$ from voting nay on proposal t. The votes may concern the passage of a bill, the adoption of an amendment, the adoption of a motion to table, etc. The proposal and status quo locations represent the sophisticated equivalents of voting "yea" and "nay", respectively. For a final passage vote, the sophisticated equivalent of voting "yea" will be the current form of the bill, and the sophisticated equivalent of voting "nay" will be the status quo. For other types of votes (e.g., a motion to table an amendment or a motion to adopt a second degree amendment), this may not be the case.

For each vote, let $y_{n,t} = 1$ denote a "yea" vote and let $y_{n,t} = 0$ denote a "nay" vote. Assume that the legislator votes "yea" if and only if $u^p_{n,t} \geq u^s_{n,t}$. We can show the probability that a legislator votes yea on proposal t is given by $\Pr(y_{n,t} = 1; \alpha, \gamma, \beta) = F(\gamma_t + \beta_t \alpha_n)$ where $\gamma_t = \frac{p_t^2 - s_t^2}{\sigma_t}$, $\beta_t = \frac{-2(p_t - s_t)}{\sigma_t}$, σ_t is the standard deviation of $\varepsilon^p_{n,t} - \varepsilon^s_{n,t}$, and F is the cumulative distribution function (cdf) of the error term.[12]

Each legislator also faces the choice of whether to cosponsor proposal p_t. I assume that legislator n will choose to cosponsor proposal t if the utility $u^c_{n,t}$ is greater than some threshold, $\bar{u}_{n,t}$. I assume that the utility function is quadratic, $u^c_{n,t} = -(p_t - \alpha_n)^2$. I assume that the threshold is random but that the mean varies by legislator and by proposal. Specifically, I assume that $\bar{u}_{n,t} = \theta' x_n + q_t + \varepsilon^c_{n,t}$ where $\varepsilon^c_{n,t}$ has cdf $F(\varepsilon/\delta_t)$. Here, x_n is a vector of legislator-specific covariates and q_t is a bill-specific fixed effect. I allow for q_t in the model in order to allow bills to vary in their salience, which modifies the likelihood that legislators will cosponsor a bill. This parameter is necessary to capture vast differences in the number of cosponsors across proposals.[13] Within this framework, it can be shown that proposal and status quo points can be recovered from a combination of voting and cosponsorship data (see online Appendix C for the details). The likelihood function for the data can be derived to be,

$$
\begin{aligned}
&l(\alpha, \gamma, \beta, p, q, \delta, \theta) \\
&\quad = \sum_{n=1}^{N} \Big\{ \textstyle\sum_{t \in \mathcal{T}_v} y_{n,t} \log F(\gamma_t + \beta_t \alpha_n) \\
&\qquad + (1 - y_{n,t}) \log(1 - F(\gamma_t + \beta_t \alpha_n)) \Big\} \\
&\qquad + \sum_{n=1}^{N} \left\{ \sum_{t \in \mathcal{T}_c} y_{n,t} \log F\left(\frac{-(p_t - \alpha_n)^2 - \theta' x_n - q_t}{\delta_t} \right) \right. \\
&\qquad \left. + (1 - y_{n,t}) \log\left(1 - F\left(\frac{-(p_t - \alpha_n)^2 - \theta' x_n - q_t}{\delta_t} \right) \right) \right\}.
\end{aligned}
$$

[11] See Talbert and Potoski (2002), Crisp, Desposato, and Kanthak (2007), and Aleman et al. (2009), for alternative approaches to analyzing cosponsorship data. My approach is most closely related to that used by Woon (2008) in his study of bill sponsorship.

[12] See Poole (2005) for a derivation.

[13] This is particularly important because we cannot separate a nay vote from a missing value, as is the case with voting data. See Crisp, Desposato, and Kanthak (2007) for a related argument.

Here, I assume that the error terms are normally distributed, setting $F = \Phi$.

In order to estimate the parameters of the model, a number of issues must be dealt with. The model is globally identified, but we have to deal with finite sample-identification problems and the computational complexity of optimizing a function over thousands of parameters.

For the related problem of estimating legislator ideal points from voting data, Poole and Rosenthal (1997) identify two finite-sample identification problems that may occur. In the event of a perfect ideological legislator (a legislator that votes on the liberal side on every vote), the maximum likelihood estimate of α_n will not be well defined. Similarly, in the event of a perfect ideological vote, the estimates of γ_t and β_t will not be well defined. Similar finite sample-identification problems arise in my application, though in greater variety. Poole and Rosenthal deal with these problems by imposing inequality constraints on the parameters space. They force the ideal points to lie within the unit hypersphere and require the cutting lines to intersect with the unit hypersphere.

Alternatively, Bayesian approaches deal with the finite sample-identification problems by employing informative priors (Clinton, Jackman, and Rivers 2004). My approach follows the Bayesian approach more closely. I employ penalized maximum likelihood to estimate the parameters of the models (Firth 1993). This approach is equivalent to maximizing a posterior distribution from a Bayesian estimator that employs independent normal priors for (α, γ, β, p, q), independent inverse gamma priors for δ, and a uniform (improper) prior for θ. Adding the penalty terms ensures that the objective function attains a maximum on the interior of the parameter space.

My approach for optimizing the penalized likelihood function follows Poole and Rosenthal's 1997) zigzag algorithm. At each iteration, I first optimize over the common parameters, θ. Second, I optimize over the legislator specific parameters for each legislator, α_n. Third, I optimize over the vote/proposal-specific parameters for each vote/proposal, (γ_t, β_t, p_t, q_t, δ_t). This process is repeated until convergence.

My approach is therefore a hybrid of Nominate and Bayesian approaches to ideal point estimation. I follow the Bayesian approach for dealing with finite sample-identification problems but retain the computational speed advantage of Poole and Rosenthal's approach. This is important because I have found estimating these models to be extremely computationally costly.

Discussion

The main limitations of my approach are as follows. First, in order to obtain reasonably precise estimates of a proposal's location, we need to observe at least a handful of cosponsors. This is quite likely for important pieces of legislation, but less likely for amendments (even important ones).[14] We cannot obtain spatial locations for amendments in the U.S. House using my approach because amendments cannot be cosponsored.

The second important limitation is that we can only identify status quo locations if we observe a recorded final passage vote. At first, this may seem particularly troublesome because many pieces of legislation are killed on the House or Senate floor without receiving a final passage vote. I argue that we can expand the definition of final passage votes to include all votes where the sophisticated equivalents of voting yea or nay are the final form of the bill and the status quo. This allows me to use cloture votes (and in potential applications to the U.S. House, previous question motions) as final passage votes. Once I expand the definition in this way, I find that most important pieces of legislation that were debated on the chamber floor receive a recorded final passage vote.

My results complement existing approaches for estimating proposal and status quo locations. My approach is most closely related to Woon (2008), who estimates the initial locations of bills using a proximity framework for cosponsorship. My approach builds on Woon's approach by establishing conditions under which the bill locations are identified and by developing an approach for estimating final bill locations and status quo locations.

A second approach (Richman 2011) estimates the location of the status quo for spending in a particular policy area relative to legislator ideal points. Richman's approach makes use of survey items from the National Political Awareness Test where legislators indicate whether they would like spending to increase, decrease, or stay the same across a number of policy areas. His technique has the advantage of tracking the movement of the status quo in a policy area over multiple sessions of congress. My approach has the advantage of producing estimates of proposal and status quo locations for individual bills rather than broad policy areas.

[14]Even for bills or amendments with very few cosponsors, it is possible to impute the proposal location using the ideal point of the sponsor. I replicated all the analysis using this imputation technique and found substantively similar results.

A third approach, developed in Clinton and Meirowitz (2001), estimates both ideal points and proposal and status quo locations, using the agenda to impose structure on a series of related votes. Jeong, Miller, and Sened (2009) demonstrate that one can identify proposal and status quo locations in one dimension from voting data alone if one observes an uninterrupted sequence of votes on a single piece of legislation and one assumes that the amendments vary the spatial location, but they do not change the variance of the error term. This approach has been applied to analyze legislative activity for a number of bills or policy areas (Clinton, N.d. Clinton and Meirowitz 2004; Jeong, Miller, and Sened 2009). This approach has the advantage of allowing the recovery of proposal and status quo locations from voting and agenda data alone, while the method I propose requires data on cosponsorship as well. The disadvantage is that many amendments will not receive recorded votes. My method, by contrast, only requires the final passage vote to be recorded and is therefore more widely applicable when cosponsorship data is in fact observed.

To date, applications of the Clinton-Meirowitz methodology have each considered a single bill or policy area, demonstrating the difficulty of coding the legislative agenda in the way required for applying the Clinton-Meirowitz methodology. The coding of the agenda necessary to apply my method can be more easily automated, which allows me to apply my method to the universe of bills for which the final passage vote was recorded and for which the last successful amendment satisfied a minimum threshold of cosponsorship. Rather than viewing my methodology and the Clinton-Meirowitz methodology as competitors, these methods should be viewed as complementary. Beyond allowing for the estimation of proposal and status quo locations, the Clinton-Meirowitz methodology can be used to study the mechanisms of agenda control by tracking the progress of legislation. The chief difficulty in applying the Clinton-Meirowitz methodology more widely is that many successful amendments will not receive recorded votes. It is here where my method could aid in the study of the legislative agenda because my method would allow estimation of the spatial location of amendments for which a recorded vote was not available, if these amendments meet a threshold of cosponsorship.

Data

In order to apply my empirical strategy, three types of data are necessary. First, cosponsorship information for every bill and amendment introduced in the chamber is required. Cosponsorship of amendments is possible in the Senate, but not the House of Representatives. Hence, my analysis in this article focuses primarily on the Senate. The cosponsorship data was obtained from www.thomas.gov. Second, recorded votes are required. This information was obtained from www.voteview.com. Third, information on the legislative agenda is required. This information was collected from www.thomas.gov. For each legislative proposal, the website contained a list of actions taken on the proposal. This list of actions was automatically coded to provide the information necessary for the analysis.

My data includes all Senate bills and amendments proposed in the 103rd through 109th congresses. In these congresses the number of bills ranged from 2,199 to 4,122, and the number of amendments ranged from 2,655 to 5,439. The number of roll-call votes ranged from 612 to 919. The roll-call votes concerned final passage, cloture, quorum calls, procedural motions, etc. For testing theories of lawmaking, the relevant roll-call votes are final passage votes and, as I argued earlier, cloture roll-call votes that result in the defeat of legislation. The number of such roll calls ranged from 21 to 41. For some such votes, status quos could not be estimated because the final amendment had too few cosponsors. The number of estimable status quos ranged from 4 to 19 in the congresses I studied.

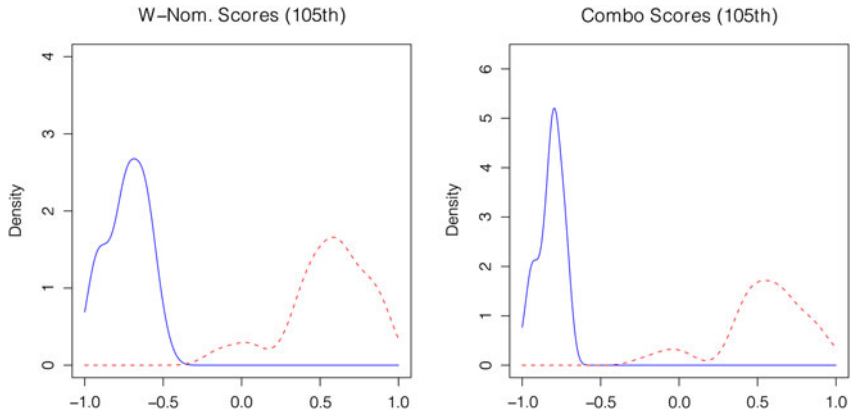
A final concern is the specification of the utility thresholds. Much of the existing literature on cosponsorship has sought to explain the variation in the number of bills cosponsored across legislators (Campbell 1982; Koger 2003). Kessler and Krehbiel (1996) explain the timing of cosponsorship decisions at the individual level. Gross (2008) seeks to explain cosponsorship at the individual level. The existing literature suggests that ideology, party, and committee leadership status are important determinants of cosponsorship behavior. Ideology is incorporated directly into my framework because legislators cosponsor based on proximity to the proposal location. I control for party, majority committee leadership, and minority committee leadership by allowing these variables to alter the cosponsorship thresholds (i.e., I include these variables in x_n).

Empirical Results

Ideal Point Estimates

My procedure assumes that legislator voting behavior and cosponsorship behavior are governed by the same

FIGURE 2 Legislator Ideal Points



Note: Kernel density plots for W-Nominate scores and estimated ideal points for the 105th congress. The solid curve denotes Democratic Senators and the dashed curve denotes Republican Senators.

ideal points. It also assumes that voting decisions depend on the proposal relative to the status quo and that cosponsorship decisions depend on the location of the proposal (but not the status quo). These assumptions are partially testable—if the cosponsorship ideal points are a linear transformation of the voting ideal points, then we would expect the coordinates produced by my procedure to correlate highly with ideal point estimates based on cosponsorship data. For each session, I compared the estimated ideal points to the W-Nominate scores for that session. The results indicated that the two sets of estimates are highly correlated. The correlations ranged from 96% to 99%. This result suggests that voting and cosponsorship ideal points are very similar, if not identical. Moreover, when I applied a conventional item-response model to the cosponsorship data, the correlations were not nearly as high, indicating that a utility threshold model is more appropriate for cosponsorship data than a conventional item-response model.[15]

In Figure 2, I report kernel density plots of the estimated ideal points and W-Nominate scores for the 105th congress. There are two qualitative differences between my estimates and traditional estimates. My estimates suggest that the Democratic party is more cohesive. In addition, my estimates indicate a slightly more pronounced mode of moderate Republicans (this mode consists of Olympia Snowe, Susan Collins, Arlen Specter, and John Chafee). Nonetheless, the 99% correlation between the votes-only W-nominate estimates and the votes and cosponsorship estimates indicates that recorded voting and cosponsorship decisions are governed by essentially the same spatial considerations. Because this correlation is much higher than the correlation with conventional ideal point estimators applied to cosponsorship data (which assume that legislators cosponsor based on relative proximity), the results further suggests that a model that assumes that legislators cosponsor based on proximity to the proposal is most appropriate.

Bill and Amendment Locations

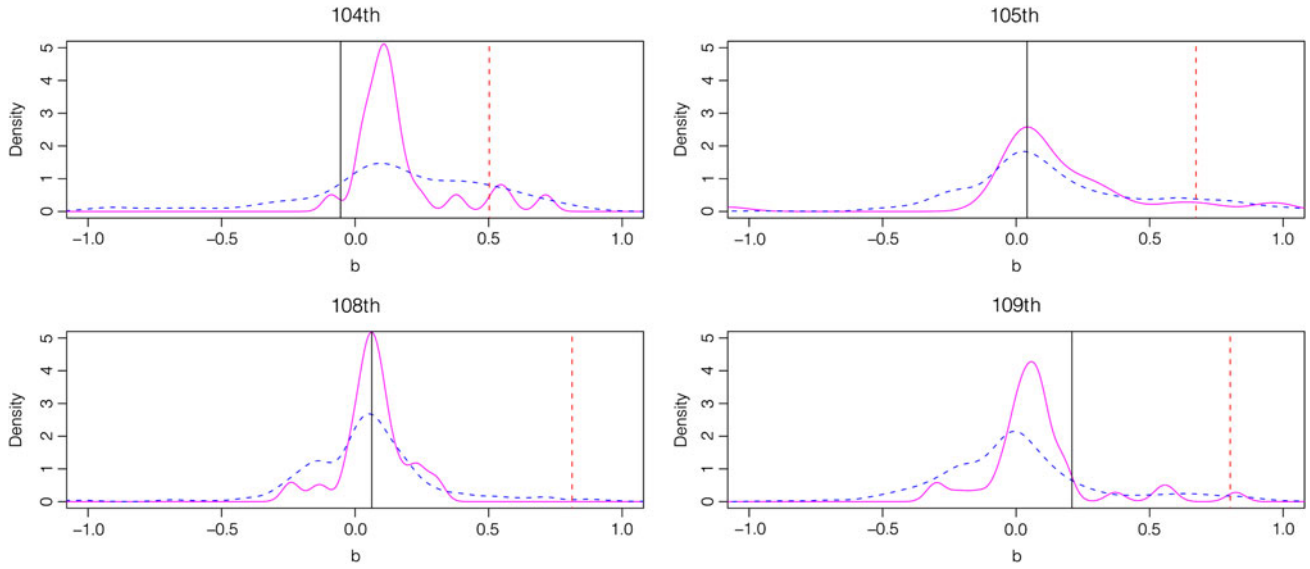
Next, I illustrate the bill and amendment locations.[16] I let b_0 and a_0 denote the locations of the bills and amendments in their original form. Many bills are, of course, amended. I denote the final form of the bill by b.[17] In Figure 3, I report the final locations of bills introduced in the U.S. Senate (b). I differentiate between bills that became law and bills that did not become law. Bills that did not become law were fairly evenly distributed across the policy space. Bills that become law are more sharply peaked near the center of the policy space. Figure 4 produces a similar plot for amendments that were introduced in the U.S. Senate (a_0). Successful amendments are also centrally

[15]In online Appendix B, I provide additional evidence in favor of the proximity model of cosponsorship.

[16]Technically, I can produce an estimate of bill and amendment locations if they have at least one cosponsor. In practice, these estimates are not likely to be reliable when there are very few cosponsors. Instead, I restrict attention to bills and amendments that were cosponsored by at least three individuals.

[17]Amendments can themselves be amended by second degree amendments. There are, however, very few successful second degree amendments, so I do not separately analyze the final form of the amendments.

FIGURE 3 Final Form of Bills

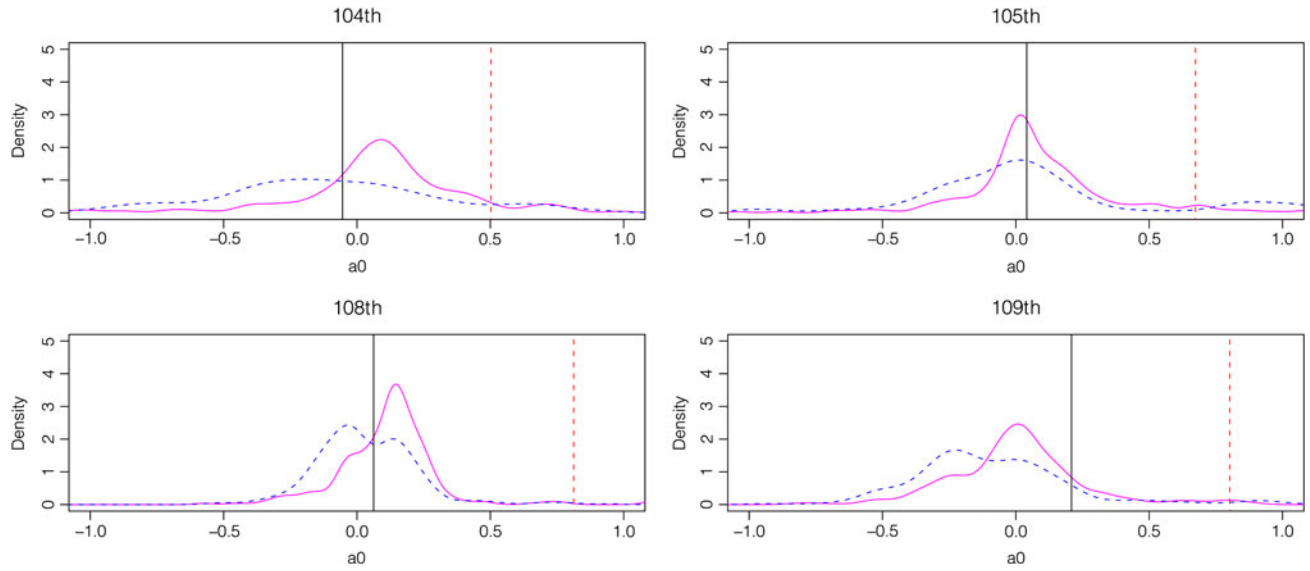


Note: Kernel density plots for estimated final form of bills. The solid curve denotes bills that became law, and the dashed curve denotes bills that failed to become law. The solid line denotes the Senate median's position, and the dashed line denotes the Republican Senate Majority Leader's position.

located in the policy space. The results therefore support one component of the spatial model—proposals are most likely to be implemented if they are located in the center of the policy space.

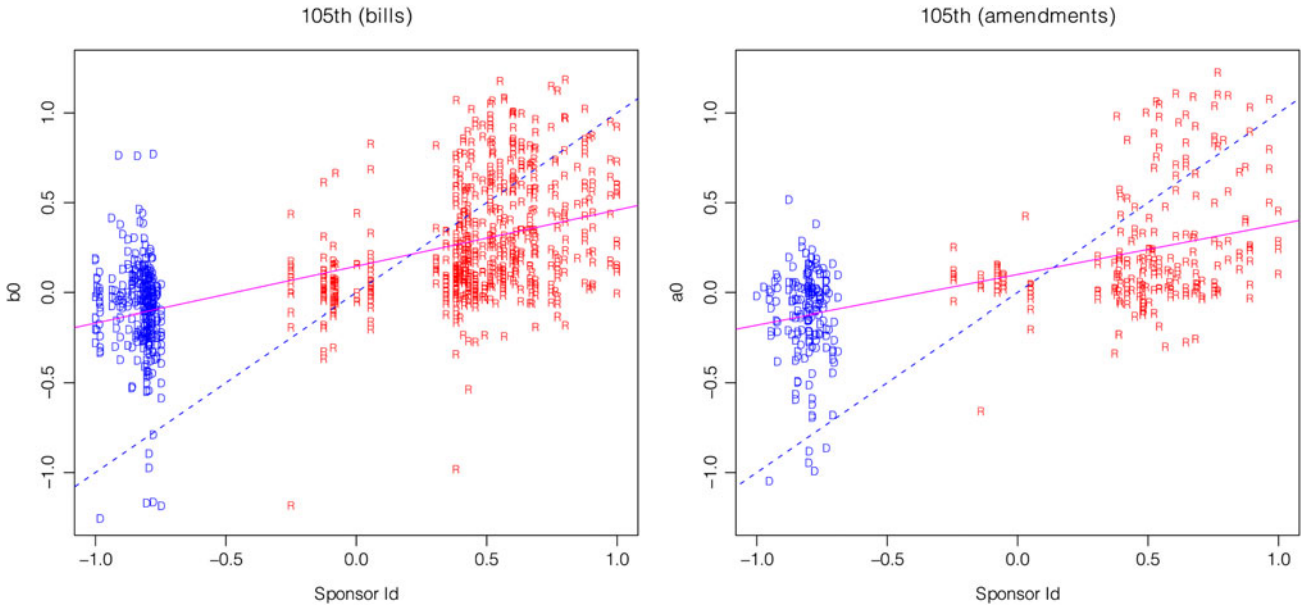
In Figure 5, I report the original locations of bills (b_0) and amendments (a_0) against the sponsor's ideal point. One potential shortcut to inferring the location of a bill or amendment is to presume that the sponsor proposes his ideal point. My results indicate (unfortunately) that this is likely to produce inaccurate results. Liberal Senators tend to make liberal proposals, but the relationship is weak. For example,

FIGURE 4 Original Form of Amendments



Note: Kernel density plots for estimated original form of amendments. The solid curve denotes amendments that passed, and the dashed curve denotes amendments that did not pass. The solid line denotes the Senate median's position, and the dashed line denotes the Republican Senate Majority Leader's position.

FIGURE 5 Original Form of Bills and Amendments Versus Sponsor Ideology



Note: Scatter plot of the original form of the bill ($b0$) or amendment ($a0$) versus the sponsor's ideology for the 105th congress. The solid line indicates a linear regression line and the dashed line indicates a 45-degree line passing through the origin. If legislators proposed their own ideal point on average, the linear regression would line up with the 45-degree line.

in the 105th congress, the most liberal Senator is expected to propose a bill at -0.15 while the most conservative Senator is expected to propose a bill at 0.4. The weak relationship between proposals and cosponsor ideology is quite consistent with theoretical expectations. Woon (2008) develops a model where an agenda setter makes a proposal that is considered with some probability and must be approved by a pivotal legislator to become law. His model suggests that—depending on his ideal point and the location of the status quo—the agenda setter may moderate his proposal. The results of Figure 5 are consistent with this prediction.

Gridlocked and Censored Status Quo Points

A priori and ex post veto rights can be identified using the gridlock and censored intervals. In Figure 6, I report the locations of status quo points (along with their standard errors), the Gatekeeping censored intervals, and the Filibuster gridlock intervals. In the sample, there were 77 observed status quo points. Some of these status quo points were estimated to be extreme (40)—less than -4 or greater than 4. The nonextreme status quos are reported in Figure 6, and the remaining extreme status quos are considered in the next subsection. The figure reports a 95% confidence interval for each estimated status quo point and whether the relevant bill failed to pass the Senate, passed the Senate but did not become law, or became law.

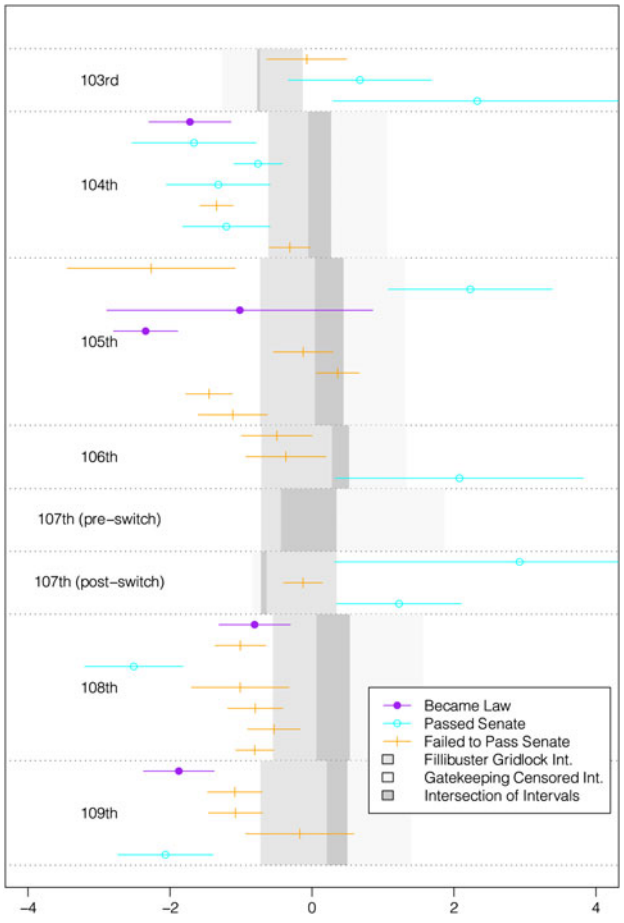
It may be initially surprising that we observe so few status quo points. Recall that in order to estimate the status quo, we require a recorded final passage or cloture vote in the Senate. There are few of these to begin with. For example, we have 41 such instances in the 105th congress and 22 such instances in the 103rd congress. Many of these votes were not contentious and therefore suggest an extreme status quo point—in the 105th congress, only 15 such votes had at least five nays, and in the 103rd congress, only 14 such votes had at least five nays. Among these, we lose some additional observations because the final amendments for some of these bills had very few cosponsors.

If the Gatekeeping theory is correct, then we should not observe any status quo points within the Gatekeeping censored interval—given as $[2\alpha_D - \alpha_m, \alpha_m]$ when there is a Democratic majority and $[\alpha_m, 2\alpha_R - \alpha_m]$ when there is a Republican majority. Under the Gatekeeping theory, the majority party has the power to kill legislation before it reaches the floor, but if cannot prevent moderating amendments once the legislation reaches the floor. Because of this, for status quos in the censored interval, the majority party must exercise its'

veto power by killing legislation before it reaches the floor, and consequently we should not observe status quos in this region.

The results in Figure 6 are largely consistent with the predictions of the Gatekeeping theory. Of the dozens of status quos I estimated using 18 years of data, only one status quo is located within the Gatekeeping censored interval. The one exception is S. 1663 considered in the 105th congress. The bill, referred to as the Paycheck Protection Act, involved the financing of political campaigns and was introduced by Trent Lott. There was an attempt to use S. 1663 as a vehicle for consideration of the McCain Feingold Campaign Finance Reform Act (which eventually passed during the 107th congress). The bill died on the Senate floor due to a series of failed cloture votes and was assigned to the Senate Rules committee along with a series of amendments, but it was not considered further. It is also worth noting that even for S. 1663, the left edge of the confidence interval for the status quo falls just outside the Gatekeeping censored interval, indicating that this seeming violation of the Gatekeeping theory could be explained by sampling error alone.

FIGURE 6 Status Quo Points, Gatekeeping Censored Intervals, and Filibuster Gridlock Intervals



Note: Each point represents a single estimated status quo point, and the corresponding line represents the associated 95% confidence interval. The shape of each point represents whether it became law, passed the Senate but failed to become law, or failed to pass the Senate. The Gatekeeping censored interval, the Filibuster gridlock interval, and the intersection of these intervals are highlighted. The gridlock interval for the Setter model can be eye-balled because it is half the Gatekeeping censored interval.

Consider alternatively the Filibuster Pivot theory. If this theory is correct, then we should not observe successful legislation when the status quo is located within the Filibuster Gridlock Interval. Under the Filibuster Pivot theory, the 41st and 60th most conservative Senators have the power to kill legislation under consideration. The 41st and 60th most conservative Senators will kill legislation located in the gridlock interval because they prefer the status quo to the floor outcome. In the seven congresses I analyze, there is no status quo in the Filibuster Pivot gridlock interval corresponding to successful legislation.

The number of violations for each of the theories is listed in Table 2. We can see that the Gatekeeping-Filibuster Pivot theory has no violations. The one bill which violated the predictions of the Gatekeeping theory is not located in the Censored interval for the Gatekeeping-Filibuster Pivot theory. The Setter and the Setter-Filibuster Pivot theories have no violations as well.

The various theories presented here make point predictions and are thus highly falsifiable. The fact that these theories have no violations that cannot be explained by measurement error provide strong evidence if favor of the theories. Nonetheless, it should be noted that the gridlock interval for the Setter model is quite small, so it is possible that the

TABLE 2 Violations of Predictions of Censored Interval and Gridlock Interval

	Violations	N	*p*-Value
Majoritarian model	0	77	1.000
Gatekeeping model	1	77	0.004***
Setter model	0	53	0.279
Filibuster Pivot (FP) model	0	53	0.089*
Gatekeeping-FP model	0	77	0.004***
Setter FP-model	0	53	0.051*

Note: The table reports the number of violations of the predictions for the censored and gridlock intervals for each theory, the total number of observations, and a *p*-value for the null hypothesis that we would observe as few violations if the data were in fact drawn from a truncated normal distribution. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

lack of violations for this model is due to chance alone. To investigate this further, I considered the following experiment. Suppose that the status quos are drawn independently from a distribution with full support consistent with the observed data. What is the probability that none of the status quo points fall within the Censored interval and none of the status quo points corresponding to successful legislation fall within the Gridlock interval? Based on the observed status quos, I estimated the parameters of a truncated normal distribution for the status quo points, truncated from below at -4 and from above at 4, to account for the fact that very large and very small status quo cannot be accurately estimated. I used this to compute a p-value for the null hypothesis that the status quos are drawn independently from a truncated normal distribution. I report the results of this experiment in Table 2.

For the Majoritarian model, we have 0 violations with a p-value of 1.000. The Majoritarian model has neither Censored or Gridlocked regions, so this particular test has no power to reject the Majoritarian model. For the Gatekeeping model, we observe a p-value of 0.004, indicating that it is extremely unlikely that we would observed only one out of 77 violations of the prediction of the Gatekeeping theory if the status quos were being drawn from a distribution with full support. We find similar evidence in favor of the Gatekeeping-Filibuster Pivot theory. For the Setter model, which has a small gridlock interval, we find a p-value of 0.279, indicating that it is possible that the seeming success of the Setter theory here is due to chance alone. We have more marginal evidence in favor of the Filibuster Pivot and Setter-Filibuster Pivot theories—in both cases, we observe 0 violations and find a p-value that is significant at the 10% level, in the second case coming very close to conventional statistical significance. Overall, the results are consistent with a theory that endows both the majority party and the filibuster pivots with negative agenda control.

Extreme Status Quo Points

We can identify actors with proposal power by focusing on extreme status quo points. When the status quo is extreme enough, all of the benchmark theories predict that the proposer will propose his ideal point (see Table 1 and Figure 1). Based on the four benchmark models, this region is given by $(-\infty, 2\alpha_D - \alpha_m] \cup [2\alpha_R - \alpha_m, \infty)$, assuming that $\alpha_D < \alpha_l < \alpha_u < \alpha_R$.

In Figure 7, I report the locations of bills for extreme status quo points—status quo points that are in the region where all the benchmark theories predict that the proposer will propose his ideal point. I find that the bill proposals are most frequently located between the median legislator and the majority party's position. In the 105th Congress, the points are more likely to be close to the majority party's position, particularly for successful legislation. In the 108th congress (where the Republicans held only a bare majority of the seats), the points are more likely to be close to the median legislator's position. Overall, these results suggest that the majority party retains some positive agenda control in addition to negative agenda control, except in situations where the majority party holds a bare majority of seats.

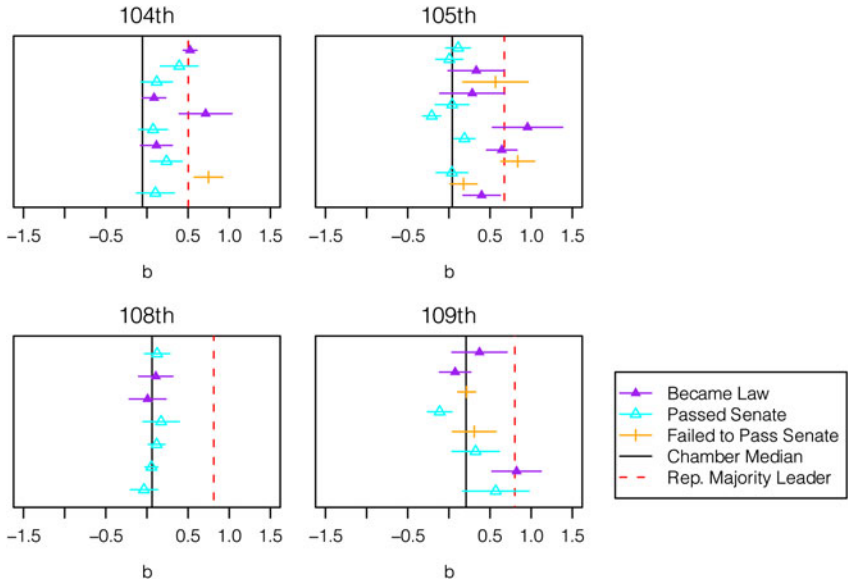
The results in Figure 7 do not lend support to the nonpartisan theories (the Majoritarian and Filibuster Pivot theories), but they also do not lend support to the weak-party theories (the Gatekeeping model)—the majority party seems to possess some positive agenda-setting power, though not to the extreme degree assumed by the Setter model. The final form of the bill is typically located between the chamber median and the majority party median. In a number of cases, we observe final bills that are statistically distinguishable from the median legislator's position.

Overall Fit of Predictions

We have already investigated the fit of each model in the regions where the models predict censored outcomes or gridlock and the regions where the status quo is extreme. In addition, each model predicts a region where status quo points are not gridlocked, censored, or extreme. In Figure 8, I report a scatter plot of final bill locations versus status quo points, along with the predictions of four of the benchmark theories. The results do not perfectly correspond to any one of the benchmark theories (even after measurement error is accounted for). One interpretation of the results is that the best description of lawmaking in the U.S. Senate contains aspects of three of the benchmark theories—the Filibuster Pivot theory, the Gatekeeping theory, and the Setter theory.

The results of Figure 8 (and the results presented elsewhere in this section) largely explain why existing indirect tests of theories have led to inconsistent and ambiguous results. The indirect tests have rested on extracting precise predictions from each one of the theories and testing the theories comparatively. This approach is unlikely to produce unambiguous results when some aspect of each of the candidate theories is necessary to explain patterns observed in the data. To this end, direct measurement is necessary for theory testing when there are many candidate theories with none precisely correct.

FIGURE 7 **Bills Locations for Extreme Status Quo Points**



Note: Each point represents a single estimated bill location, and the corresponding line represents the associated 95% confidence interval. The shape of each point represents whether it became law, passed the Senate but failed to become law, or failed to pass the Senate. The solid line denotes the Senate median's position, and the dashed line denotes the Republican Senate Majority Leader's position. If the Majoritarian, Filibuster Pivot (FP), Gatekeeping, or Gatekeeping-FP models are correct, then the bill positions should be located around the median legislator. If the Setter or Setter-FP models are correct, then the bill positions should be located around the majority party's position.

Nevertheless, we can consider which of the six benchmark theories provides the best fit in the following way. For each model, we can calculate the average squared deviation between the model prediction and the estimated outcome location.[18] I report these results in Table 3. The Filibuster Pivot and the Gatekeeping-FP models are the best fitting overall. In Table 4, I report whether the differences in model fit are statistically significant. From the table, we can determine that (1) all models beat the Setter model, (2) no models beat the Filibuster Pivot, the Gatekeeping-FP, and the Setter-FP models, and (3) the Filibuster Pivot model beats all models except the Gatekeeping-FP and Setter-FP models. These results indicate that the Filibuster Pivot, Gatekeeping-FP, and Setter-FP models are the top set of models and that these models cannot be distinguished from each other statistically.

Overall, the results of the previous three subsections suggest that while no single model clearly outperforms the others, we find strong evidence for negative agenda control by the majority party and the pivotal Senators. We also find evidence for a degree of positive agenda-setting power by the majority party.

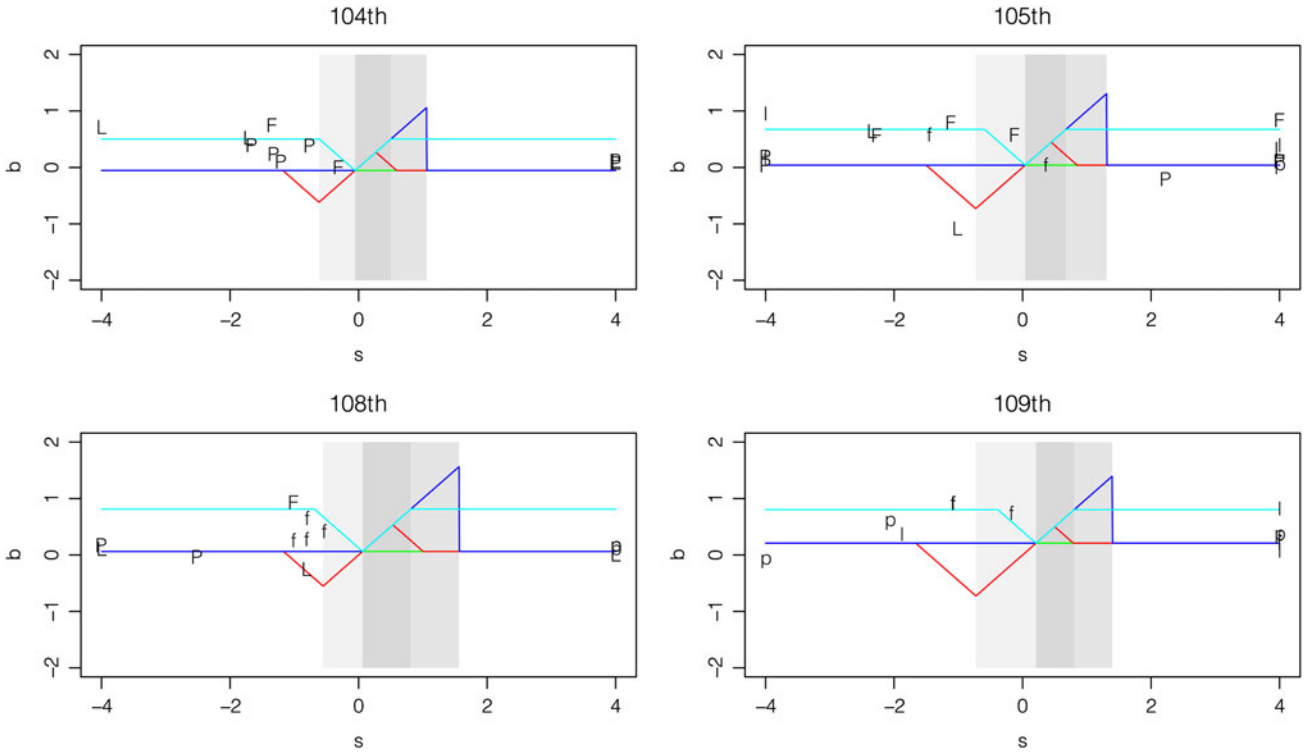
Implications for Representation

In addition to testing theories of lawmaking, my results can address representation in the U.S. Congress. One can argue that theories of lawmaking are of interest precisely because we would like to know whether electoral and legislative institutions successfully aggregate public opinion into policy outcomes.

Bafumi and Herron (2010) investigate the first step in this process. Specifically, they compare the distribution of preferences in the U.S. Congress to the distribution of preferences in the American electorate. They find that following the 2006 Midterm elections, while the median legislator in both the House and Senate corresponds well with the median voter in the electorate, the distribution of preferences in the legislature exhibits more extremity and more polarization (bimodality) than the distribution of preferences in the American electorate. If one theory of lawmaking is correct—the Majoritarian theory—then these differences are not relevant. Preferences will be aggregated

[18]I considered the average absolute deviation between the model prediction and the estimated outcome as well and found similar results.

FIGURE 8 Final Bill Locations Versus Status Quo Points



Note: Color figure online. Scatter plot of final bill locations versus status quo points. Large letters signify "important" pieces of legislation. The labels "L" and "l" refer to bills that became law, the labels "P" and "p" refer to bills that passed the Senate, and the letters "F" and "f" refer to bills that failed to pass the Senate. The green line denotes the Majoritarian model, the red line denotes the Filibuster Pivot model, the blue line denotes the Gatekeeping model, and the cyan line denotes the Setter model. The light gray region denotes the Filibuster gridlock interval, the dark gray denotes the Setter gridlock interval, and the dark and median grey regions denote the Gatekeeping censored interval.

correctly because the legislative median determines policy outcomes.

In Figure 9, I report the final location of bills that became law, passed the Senate but did not become law, and failed to pass the Senate. The results do not directly reflect on the validity of the benchmark theories because the predictions of the benchmark theories depend on the estimate of the status quo. These plots are informative about whether the type of legislation that it enacted corresponds with the preferences of the median legislator. In this figure, we observe a larger number of bills because we are not required to observe the status quo here. Looking at the top left panel, we find that the bills that become law are located between the median legislator's position and the majority party's position. Many bills considered in congress, however, are not particularly important. In the bottom-left panel, I consider "important" pieces of legislation—which are defined operationally as bills that were mentioned in Congressional Quarterly, as coded by the Policy Agendas Project. Among important bills, we see more outcomes near the majority party's position, but we still find that bills near the median legislator's position are more likely. Bills that failed to pass the Senate—as seen in the top-right panel—have a more spread-out distribution, though important bills

TABLE 3 Model Fit for Various Benchmark Models

Majoritarian	Filibuster Pivot (FP)	Gatekeeping	Setter	Gatekeeping-FP	Setter-FP
1.46	1.36	1.46	1.97	1.37	1.57

Note: Measure the average squared deviation between the prediction of the model and the estimated policy outcome.

TABLE 4 Statistical Significance of Differences in Model Fit

	Majoritarian	Filibuster Pivot (FP)	Gatekeeping	Setter	Gatekeeping-FP
Filibuster Pivot (FP)	0.001***				
Gatekeeping	0.320	0.001***			
Setter	0.003***	0.001***	0.003***		
Gatekeeping-FP	0.004***	0.320	0.007***	0.001***	
Setter-FP	0.495	0.182	0.391	0.001***	0.204

Note: Numbers in the table are *p*-values from tests of a difference in fit for the six theories of lawmaking. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

that failed are concentrated on the majority party's side of the political spectrum.

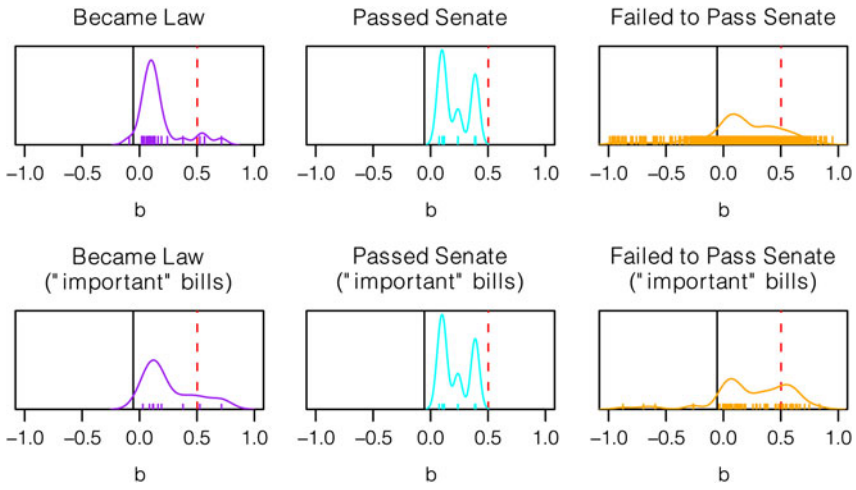
My results indicate that preference aggregation is not entirely successful. This goes beyond simply observing gridlock. The majority party is often able to win the legislative game, despite the fact that the majority party is not representative of the American electorate. The results suggest that representation is harmed when one of the major parties holds a comfortable majority in the chamber.

Conclusions

Widely applied ideal point estimation techniques only recover ideal points and cutpoints. The limitation of these techniques is that they do not allow for direct tests of theories of lawmaking which posit a relationship between the status quo and the final form of the bill. In this article, I proposed an approach for estimating proposal and status quo locations using a combination of voting data and cosponsorship data.

I applied this approach to test theories of lawmaking. I focused on three aspects of political power in the U.S. Senate—who has proposal power, who has ex post veto power, and who has a priori veto power. First, my results support a filibuster gridlock interval—when the status quo is located between the 41st and 60th most conservative Senators, we do not observe successful legislative action. Second, my results support negative agenda control by the majority party—when the status quo is located on the majority party's side of the political spectrum, we do not

FIGURE 9 Kernel Density and Rug Plots for Bill Locations



Note: Each curve represents the kernel density estimate of bill locations, and each short line in the rug plot represents a single estimated bill location. The top three panels consider all legislation, and the bottom three panels consider "important" legislation. The panels also indicate the fate of the legislation—whether the bill became law, passed the Senate but failed to become law, or failed to pass the Senate. The solid line denotes the Senate median's position, and the dashed line denotes the Republican Senate Majority Leader's position.

observe any legislative action. Third, both the median legislator and the majority party enjoy a degree of positive agenda-setting power. The Gatekeeping-Filibuster Pivot theory is arguably the single best fitting theory among the six benchmark theories—a result also found by (Richman 2011). However, the majority party is not entirely limited to negative agenda-setting power. The majority party enjoys some degree of positive agenda-setting power, particularly when the majority party holds more than a bare majority of seats.

Overall, the results suggest that even if electoral institutions are successful in electing a median legislator who shares the preferences of the median voter in the electorate, policy outcomes will be substantially biased in the majority party's direction. This bias derives from the fact that the majority party holds both positive and negative agenda-setting powers, though the presence of the filibuster provides a counterweight to majority party agenda control (Peress 2009).

Mechanisms and Future Work

While my results suggest that the majority party enjoys both positive and negative agenda control in the Senate, my results do not directly suggest a mechanism. In particular, some mechanisms that have been proposed to explain majority party agenda control in the House, particularly those that rely on the majority party's control of the Rules committee (Cox and McCubbins 2005), cannot explain majority power agenda-setting in the Senate. Having estimates of spatial locations for bills, amendments, and status quo points should prove valuable in studying the mechanisms—see work by Clinton and Meirowitz (2004), Jeong, Miller, and Sened (2009), and Clinton (N.d.), for example—but I briefly speculate on potential mechanisms here.

Cohesive voting on procedure. The majority party may be able to exercise agenda-setting power, both positive or negative, through cohesive voting on procedural votes. The majority party may prevent certain legislation from being considered or may propose a relatively extreme bill and protect it from moderating amendments, through clever use of procedural votes. The majority party may employ such tactics as the motion to table and filling the amendment tree to accomplish this (Crespin and Monroe 2005). If voters are less attentive to procedural votes, the majority party may be able to maintain a level of cohesion that they would not be able to maintain on a nonprocedural vote. Using such tactics, the majority party may be able to exercise a degree of positive or negative agenda control, while avoiding responsibility for opposing popular legislation. The case against majority party agenda control in the Senate has relied on the argument that members of the minority party can force consideration of an issue by proposing a nongermane amendment (Crombez, Groseclose, and Krehbiel 2006). A procedural kill may be particularly effective in this case because the majority party is unlikely to face repercussions from voters when the minority party's tactic can be viewed as obstructionist.

Conference committees. Suppose that the majority party in the Senate was not successful in using procedural votes to protect an extreme bill from moderating amendments. A conference committee is often used to resolve differences between the chambers. The majority party may appoint conferees that are extreme relative to the chamber median. Even if extreme members are not appointed, the members may behave differently in conference than they would on the floor because they are not being directly monitored by their constituents—only the final product of the conference committee is publicly reported. The conference committee therefore gives the majority party another attempt to make the Senate bill more extreme, especially when the House has already passed a more extreme bill. The result of a conference report could potentially be further modified through amendment on the Senate floor, but in practice, defeating a bill after conference would likely kill the bill. Due to this, the majority party may effectively have the ability to present a take-it-or-leave-it offer, implying positive agenda-setting power. In the event that no agreement is reached in conference, the legislation is likely to die, meaning that the majority party can effectively kill a bill in conference without having to take an unpopular position in a public vote. This allows for negative agenda-setting power.

The House's effect on the Senate. The House and Senate are not independent institutions—bills must pass both chambers to become law. Consider a situation where a single party controls both chambers. Suppose that neither of the above mechanisms are sufficient to allow the majority party to defeat an unwanted bill in the Senate. The majority party can still kill a bill in the House using the mechanisms it has to achieve negative agenda-setting power in that chamber (via control of the Rules committee and the speaker's scheduling power). Knowledge of this may encourage the majority party in the Senate to devote their efforts to legislation that is more likely to pass the House.

Future work could examine these mechanisms directly. Determining whether legislators vote more cohesively on procedural votes could be accomplished

by developing ideal point estimation techniques that produce comparable estimates of ideal points for final passage and procedural votes. Developing *comparable* estimates would require identifying bridge voters or bridge votes. My approach for estimating bill locations from cosponsorship data may provide one way of identifying bridge votes. The conference committee mechanism could be tested by collecting data on the composition of conference committees. The composition of conference committees is typically reported in conference reports. Finding evidence that conference committee delegations are more extreme than the Senate median would support this mechanism. The third mechanism—the House's effect on the Senate—could be analyzed by considering periods of divided government. If the majority party's power in the Senate comes from the threat that the majority party will prevent consideration of the legislation in the other chamber, then majority party influence in the Senate should be eliminated during periods of divided control of congress. It is unfortunate that we do not observe divided control of congress in my study (with the exception of the exceptional period of the 107th congress). Additional data collection may make it possible to study divided control during the 97th, 98th, 99th, and 112th congresses.

Acknowledgments

I would like to thank Michael Bailey, Ernesto Dal Bo, David Epstein, Sean Gailmard, Rob Van Houweling, Greg Huber, Simon Jackman, Jeff Lewis, Keith Poole, Ken Shepsle, Arthur Spirling, Jonathan Wand, and participants of seminars at Harvard, UC-Berkeley, UNC-Chappell Hill, the 2008 Political Methodology conference, the 2009 Midwest Political Science Association meetings, and the 2009 American Political Science Association meetings, for helpful comments and suggestions. I would like to thank Joshua Pawlicki for his excellent research assistance. I would like to thank Michelle Wolfe at the Policy Agendas project for providing some of the data used in this analysis.

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