Coalitions and Cabinet Government

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COALITIONS AND CABINET GOVERNMENT

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The formal study of coalitions is active in Europe, whereas the formal study of political institutions preoccupies American scholars. We seek to integrate aspects of these two bodies of research. For nearly thirty years models of coalition government have focused more on coalition than on government. Thus, these theories are essentially extensions of the theory of voting in legislatures. Unlike passing a bill or "dividing a dollar," however, forming a government is not the end of politics but the beginning. During the formation process, rational actors must entertain expectations of subsequent government behavior. We provide a model of rational expectations with an emphasis on the credibility of the policy promises of prospective government partners as determined by the allocation of portfolios in the new government. Portfolio allocation becomes the mechanism by which prospective coalitions make credible promises and so inform the expectations of rational agents in the coalition formation process.

Despite the nearly thirty years of work inspired by William Riker's *The Theory of Political Coalitions* (1962), there is still no authoritative theoretical account of coalition government in parliamentary democracies. The reason for this is that government coalitions have been treated as a special type of legislative coalition, and the study of government coalitions has thus been treated as an extension of the theory of voting in legislatures. This has meant that discussions of government coalitions have concentrated almost exclusively on the fact that they are *coalitions* and more or less ignored the fact that they are also *governments*. Little attention has been devoted to what happens *after* a government has been formed or to how rational expectations about what will happen influences the formation process itself. Consequently, theories of coalition formation have operated without a clear conception of what, precisely, is being formed; and theories of payoff distribution have operated without a clear conception of what, precisely, is being distributed. It is our contention that no significant progress can be made without a consideration of rational forecasts of the behavior in office of prospective multiparty governments.

The account we propose is based on the idea that the credibility of proposals for alternatives to the incumbent government is central to coalition bargaining. Our argument is that the notion of credibility depends crucially on the proposed allocation of cabinet portfolios in the new government. This argument forms the basis of our model. We analyze coalition bargaining over credible alternatives, formally treat strategic issues, and apply the main features of our approach to a real

world example of coalition bargaining. Finally, we review some of the outstanding issues in coalition theory upon which we believe our model throws light.

We assume that the actors are trying to move government policy outputs as close as possible to their own preferred policies. This is by no means the only motivational assumption that we could have made. In the argot of coalition theory, ours is, broadly speaking, a model driven by *policy-based*, rather than by *office-based*, preferences (Laver and Schofield 1990). While we intend to explore the impact of different assumptions in later work, we take this to be a reasonable starting point.[1]

Cabinet Portfolios and Credible Proposals for Government

Division of labor within a cabinet means that most ministers are assigned particular policy jurisdictions, or "portfolios." These give a minister the job of initiating and implementing policy within a particular field. The resources commanded by a minister to facilitate this—typically control over a government department—give considerable de facto power over policy outputs in the minister's jurisdiction. It is very difficult to implement policy in the face of active opposition from the relevant minister or even to develop a detailed policy alternative.

The role of the cabinet in the business of parliamentary government is what makes the formation of government coalitions quite different from the formation of legislative coalitions. This is because the allocation of cabinet portfolios is much more than a "mere" payoff to be determined by coalition bargaining. Rather, the cabinet is part of the essential defini-

tion of the government that forms. It is what Bagehot (1936, 68) called "a combining committee—a *hyphen* which joins, a *buckle* which fastens, the legislative part of the State to the executive part of the State." In many respects the group of cabinet ministers, taken as a whole, *is* the government.

This characterization of the workings of the division-of-labor cabinet system should lead actors to forecast that jurisdiction-specific policy outputs will tend toward those preferred by the party of the relevant minister.[2] This means that a proposal that promises to enact the preferred policy position of the person (party) nominated for each relevant portfolio is *credible* in the sense that it depends only on giving ministers the power to do what they expressly want to do. Any proposal promising that a minister with wide-ranging power over the relevant policy jurisdiction will act against expressed preferences is less credible.

Proposals for government, then, are *policed* by the mechanism of portfolio allocation. Restricting analytical attention to credible proposals has a major impact on the modeling of government formation: there is only a finite number of possible portfolio allocations among parties forming a government. The finite number of credible proposals, furthermore, may be quite small if the number of salient policy jurisdictions is low, the number of parties small, and internal party discipline high.[3]

Given these assumptions, the panels of Figure 1 show, as three black dots, the ideal points of three parties in a system in which two dimensions of policy are salient (ignore the indifference curves for the present). Figure 1 also shows the nine credible policy proposals that can be made in this system.[4] Each is labeled with two letters. The first identifies the party controlling the relevant portfolio on the horizontal dimension (x); the second identifies the party controlling the relevant

portfolio on the vertical dimension (y). Thus, point AB in the southwest corner of each panel describes a proposal to enact policy AB, "policed" by giving party A the portfolio controlling the x dimension and party B the portfolio controlling the y dimension. Obviously the ideal point of a party, AA for example, represents a credible proposal; this gives all relevant portfolios to the party in question, allowing it to implement its ideal policies. Since a proposal is credible only if it is policed by the right portfolio allocation, the point AB in Figure 1, for example, represents a credible proposal if *and only if* party A gets portfolio x and party B gets portfolio y. If party C is nominated for one of these portfolios, then the point AB is not a credible proposal; its promise of policy output AB is cheap talk. More significantly, AB is not credible if party A gets portfolio y and B gets portfolio x. In this very important sense, AB and BA represent utterly different coalition governments, even though they involve precisely the same coalition partners.

An approach based on credible proposals is, as we shall see, far more tractable than the conventional spatial model, which is based on the assumption that all possible policy proposals are feasible. The latter approach, ignoring the credibility of proposals, allows for a continuum of potential alternatives to the status quo on each policy dimension. Its account of government coalition formation is in the form of a game of weighted voting in a legislature in which the entire policy space constitutes the set of feasible policy outcomes (McKelvey and Schofield 1987; Schofield 1986). On our account, however, in which the only credible proposals are those policed by portfolio allocations, the lattice of credible proposals is a finite set. Furthermore, proposals for alternative governments are associated in an essential manner with the *specific* actors who are needed to police them.

Figure 1. Ideal Points and Win Sets of Selected Credible Proposals
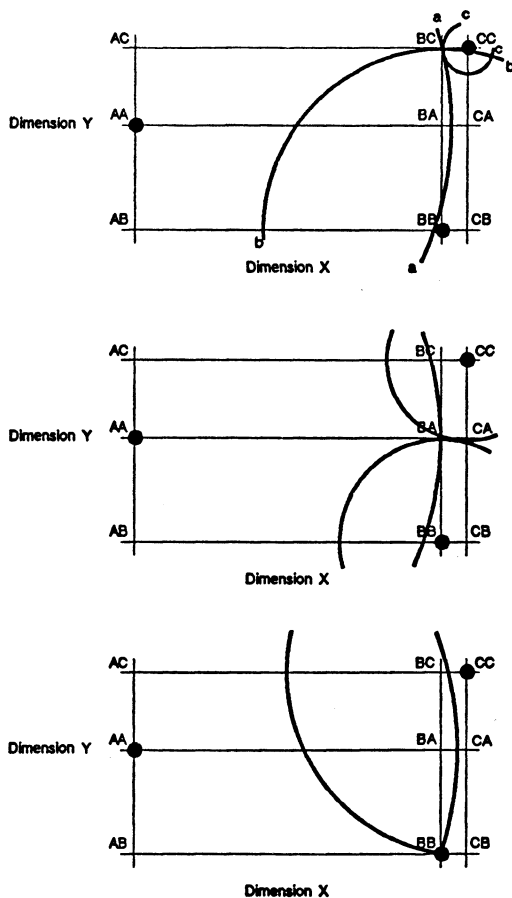
Bargaining over Credible Alternatives to the Status Quo

In this section, we consider what it takes, in strategic terms, to replace an incumbent government in a parliamentary democracy. All strategies must of course operate within a procedural constraint that the executive maintain the confidence of the legislature.[5] While defeated if it loses a legislative confidence vote, a government is not replaced until an alternative wins an (actual or implicit)

investiture vote. Thus, any attempt to replace the incumbent government must ultimately pit a proposed alternative against the status quo in the legislature. Only if the alternative wins at this stage will it replace the status quo. Proposals for alternative governments are not, however, disposed of when they are defeated in the legislature. They may be proposed again at any time (and thus may be distinguished from amendments to a legislative bill which, once defeated, are ordinarily laid to rest). In this sense, and in contrast to parliamentary procedure surrounding the act of legislating, the ordering of an agenda of proposals for the formation of a government is not particularly consequential.[6]

We take a *proposal for a government* to consist of a proposed allocation to particular parties of cabinet portfolios having jurisdiction over salient policy dimensions. A proposal may in practice also involve explicit policy promises, but (as suggested above) these will be discounted by rational actors unless they are consistent with expectations produced by portfolio allocations. Thus, the essence of any proposal is the portfolio allocation it involves. For this reason, we say that what is *credible* about a proposal—and what will be implemented—is the ideal policy of the party nominated for each of the relevant portfolios. Thus, in Figure 1 there are nine credible proposals, {AA, AB, AC, BA, BB, BC, CA, CB, CC}.

We say that the parties nominated for portfolio allocations are *participants* in that proposal. Since a party cannot be forced to accept a portfolio, we say that it must give its *assent* to a portfolio assignment—and hence to a proposal in which it is a designated participant—before that proposal can be considered in the legislature. Any one of the participants, by withholding assent to a portfolio assignment, can prevent a proposal from being considered by the full legislature.

There is always an incumbent government. This is the status quo that will prevail if no alternative government forms. It consists of a set of policy positions and portfolio assignments much like those in any proposed alternative. We call the implicit proposal represented by the existing portfolio allocation of the incumbent government x^0. Since x^0 is the "reversion" point when attempts to form an alternative government fail, it is important to be clear about its meaning.

We treat x^0 like any other proposal, credible only if policed by a particular portfolio distribution. Thus, if party A holds the portfolio governing the first two policy dimensions, B the third, and C the fourth and fifth in an incumbent coalition government, x^0 may be written as $AABCC$, where the projection of A's ideal point determines the first two components, B's determines the third component, and C's the fourth and fifth components. In this interpretation, x^0 is composed of the current ideal point components of existing coalition partners according to the jurisdictions of their respective portfolios. As with any proposal, it is assumed, conservatively, that government parties are unable to promise credibly to do anything other than follow their respective policy positions (as announced, say, in the most recent party manifesto) in the ministries under their control. Under this interpretation x^0 must be one of the nine credible proposals in Figure 1.[7]

An alternative can replace the status quo only if it is credible and is preferred by a legislative majority; otherwise, the status quo is retained. For two credible proposals, x and x', representing either the current or some alternative government, we say that x' *wins* against x if and only if x' is preferred to x by a legislative majority. The set of credible proposals that win against x is the *credible win set of* x, or $W(x)$. We hereafter refer to this simply as the win set of x.[8] Thus, $W(x^0)$ is the set of credible proposals that can win

against the status quo in a legislative vote.

Figure 1 shows the win set for three of the nine credible proposals, assuming that any two parties comprise a decisive legislative coalition. This set is generated by the intersections of three indifference curves, labeled aa, bb, and cc, respectively. The interior of indifference curve aa is the set of all policy points that party A prefers to, say, BC in the top panel. Curves bb and cc have parallel interpretations. The credible win set consists of the credible proposals in the union, over all winning coalitions, of intersections of the interiors of winning coalition members' indifference curves. In the examples, then, the credible proposals in the union of the intersections of the interiors of aa and bb, aa and cc, and bb and cc (where the indifference curves are drawn through z). In the top panel the credible win set of BC, $W(BC)$, contains one credible proposal, BA. In the bottom panel of the figure, $W(BB)$ contains two credible proposals, BC and BA. Finally, in the middle panel, $W(BA)$ contains no credible proposal.

Since every proposal requires the assent of its participants, one proposal cannot defeat another simply by obtaining a majority against it in the legislature. Consider a case where x' can win against x, but at least one of the participants in x' actually prefers x to x'. In this event, some of these participants in x' may not assent to it, thereby preventing it from being considered by the legislature. We say that a proposal x' is considered by its participants to be an *improvement* over x if all of them prefer it to x. Call the set of such Pareto-improving proposals the *improvement set of x*, or $I(x)$. From the bottom panel of Figure 1, we note that proposals BC and BA are in the credible win set of BB but are not in the improvement set of BB, since party B, a participant in each of the proposals, does not prefer them to BB.

For a proposal x, if there are counterproposals that not only win against x in

the legislature but also are seen by their participants as improvements over x, we say that they *contend* against x. The set of such proposals is called the *contender set of x*, $C(x) = W(x) \cap I(x)$. In the top panel of Figure 1, BA both wins against BC and is preferred to BC by both its participants. Thus, BA is a contender against BC.

We should note that not all proposals that contend against x^0 may be serious threats to it. We assume that all actors are endowed with intelligent foresight and thus can anticipate future events. Consequently, actors can anticipate the effects of supporting a proposal that contends against the status quo and is in turn contended against. Imagine, for example, that an alternative x' contends against x^0 but that an alternative x'' contends against x'. The incumbent government may not fall to x' if actors (who otherwise prefer x') fear x' will subsequently fall to an even worse alternative, like x''. Thus, on contemplating the replacement of a government, the actors must anticipate and solve a potentially complex "proposal game."

It is quite possible for three proposals, x, x', and x'' to cycle—with x' contending against x, x'' contending against x', and x contending against x''—in an analogue to voting cycles.[9] Therefore, we adopt a conservative position and regard any status quo that faces contenders as being *vulnerable*. More generally, we say that any proposal x is vulnerable if it would be vulnerable as the incumbent government. However, a status quo that has contenders and thus is vulnerable may nevertheless survive. If, on the other hand, no credible proposal contends against x^0 we say that the status quo is *invulnerable*. More generally, we say that any proposal x is invulnerable if it would be invulnerable as the incumbent government.

The notion of invulnerability provides a link between our approach and the recent model proposed by Austen-Smith and Banks (1990).[10] The "restricted portfolio core" defined by Austen-Smith and

Banks is, in our terms, the set of invulnerable proposals. Put more precisely, the maximal elements of the dominance relation defined by contending are exactly the restricted portfolio core. Austen-Smith and Banks (1990) have shown that a restricted portfolio core always exists with three parties but may not exist with four or more. In our terms, this means that there will always be at least one invulnerable proposal in a three-party system but that there may be no invulnerable proposal in a larger party system.

The vulnerability or invulnerability of proposals for government, including the implicit proposal to retain the current government, is thus the result of the interaction of two processes. The first is the ability of those controlling a legislative majority to replace the status quo. The second is the ability of any participant to withhold assent from any proposal to do this. It is a concern with the interaction of these processes—majoritarian decisiveness and partipant veto power—and with the requirement of credibility that separates our approach (and that of Austen-Smith and Banks) from existing coalition-theoretic accounts of government formation in parliamentary democracies.

It is quite possible for more than one proposal to be invulnerable at the same time. This can readily be seen in Figure 1, where both *BB* and *BA* are invulnerable proposals. The middle panel shows that *BA* is invulnerable, since no credible proposal wins against it in the legislature. The bottom panel shows that *BB* is invulnerable, since the only proposals that win against *BB* do not contend against it (both contain one participant—party *B*—who prefers *BB*). Two proposals x and x' can simultaneously be invulnerable only if x is preferred to x' by a legislative majority but x' is preferred to x by at least one participant in x.[11]

To sum up, the notion of credibility imposes two very significant restrictions on bargaining over the formation of government coalitions. In the first place, only some proposed alternatives to the status quo are credible. In the second place, the credibility of these proposals is not a general property but depends on the participation of certain actors. Thus, only those credible proposals that are preferred to the status quo by their participants are taken seriously in coalition bargaining. The need for credibility thereby empowers veto groups.

Proposal Games

As we have argued, the permanent political question before most parliamentary democracies is whether the incumbent government will continue to govern. In this section we describe, in terms of the circumstances that confront an existing government, the possible strategic interactions produced by this question. In our taxonomy, which we call *proposal games*, there are three circumstances: (1) x^0 is invulnerable; (2) x^0 is vulnerable to invulnerable proposals; and (3) x^0 is vulnerable only to proposals that are themselves vulnerable.

An Invulnerable Status Quo

Game 1. The win set of the status quo contains no credible proposal. Consider again the middle panel of Figure 1. If *BA* is the status quo, no credible proposal can win against it in the legislature. Its credible win set is empty and *BA* cannot be replaced. Put as a proposition, *If no credible proposal wins against the status quo, the incumbent government continues in office.*

This follows directly from the assumption that only credible proposals can be considered as replacements for the status quo and that only proposals that can win against the status quo in the legislature can replace it. This proposition encapsu-

lates the real departure of our account of coalition formation from conventional spatial analyses. While the conventional win set of the status quo in multidimensional policy spaces is generally non-empty, there will often be situations in which this set contains no *credible* proposal, particularly if the incumbent government occupies a central position in the policy space. Indeed, as any reader who plays around with a few examples will quickly see, the conventional win sets of some incumbent governments can be quite "large" and yet contain no *credible* alternative. It should be remarked, moreover, that this proposition does not depend on the number of parties, the dimensionality of the space, or the unidimensionality of portfolio jurisdictions.

Game 2. The status quo is invulnerable; that is, the status quo faces no contender. By definition, the status quo is invulnerable when its contender set, $C(x^0) = W(x^0) \cap I(x^0)$, is empty. Game 1 illustrates one way in which this may happen, that is to say, $W(x^0) = \varnothing$. However, this is not the only way. (Thus game 1 is a special instance of game 2.) Even if the win set of the status quo contains credible proposals, these may not be preferred to the status quo by all of their participants. An example of a status quo invulnerable in this sense is given in the bottom panel of Figure 1. A status quo of *BB* is not vulnerable to *BA* or *BC* despite the fact that these are credible proposals that win against it in the legislature. This occurs because party *B* can refuse to assent to any proposal in which it participates. Stated as a second proposition, *If the status quo is invulnerble, the incumbent government continues in office even if there are credible proposals that win against it.*

Each of the above games concerns circumstances in which the status quo is invulnerable to proposals and the situation is relatively clear cut. We should

stress once more than even these two very simple games imply a lot more stability in political bargaining than is implied by the conventional spatial model. As we shall see in the application to follow, real world governments that would be diagnosed as unstable by conventional spatial analysis are diagnosed as stable under our model, quite simply because nothing contends against them.

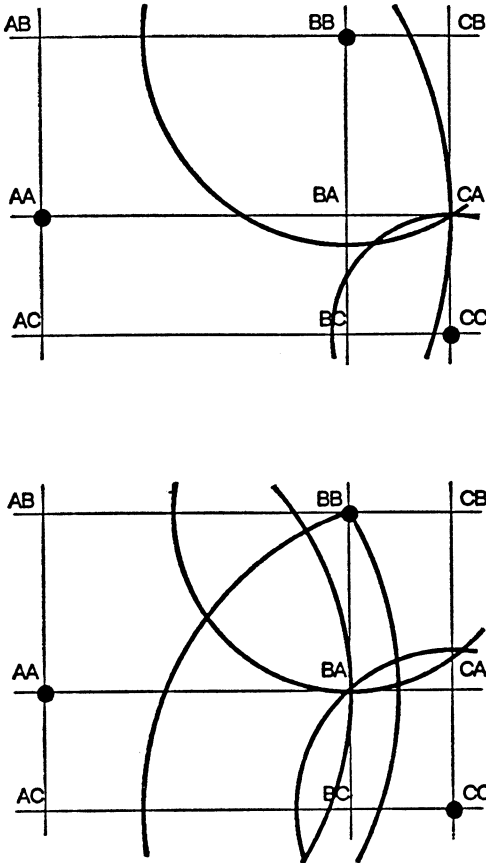## A Status Quo Vulnerable to Invulnerable Contenders

Game 3. The incumbent government faces a single invulnerable contender. This possibility is described in the top panel of Figure 1. If the incumbent government is *BC*, this faces a single contender, *BA*. The middle panel shows that if *BA* becomes the status quo, it is invulnerable. Given this, it is difficult to see how a proposal for *BA* can fail against *BC*. Parties *B* and *A* both prefer *BA* to *BC*, and they control the legislative majority to implement this. No other proposal has this property.

More generally, let the unique invulnerable proposal that contends against the status quo be x^*. This means that x^* wins against the status quo and is preferred to the status quo by its participants (i.e., x^0 is vulnerable to x^*), that no credible x' contends against x^* (i.e., x^* is invulnerable), and that no other proposal shares these properties (i.e., x^* is the unique invulnerable contender against x^0). From the invulnerability of x^* it follows that it will be stable as the new status quo if it replaces x^0 This means that those who prefer x^* to x^0 need not fear that x^* will subsequently be replaced by something that they like less than x^0. They thus have no reason not to vote for x^*. Consequently, *If the incumbent government faces a single invulnerable contender, this contender will replace the status quo.*

Game 4. The incumbent government faces two invulnerable contenders. We

Figure 2. A Mexican Standoff

status quo, prefer another contender to it, we say that x' is *flawed*. Note that one of the two invulnerable proposals is always flawed and that the flawed proposal wins against the unflawed proposal in the legislature.[12]

When a flawed and an unflawed proposal contend against the status quo, two types of conflict of interest are generated. First, there is a direct conflict of interest among the participants in the flawed proposal, of whom some prefer the unflawed proposal to it and some do not. Second, there is a conflict between the participants in the flawed proposal who prefer the unflawed proposal and a legislative majority that prefers the flawed proposal. The latter conflict can be thought of as a Mexican standoff.

An example of a Mexican standoff is illustrated in Figure 2. Two invulnerable proposals, *BA* and *BB*, contend against the status quo, *CA*. Both are preferred by legislative majorities to *CA*, and both are preferred to *CA* by their participants (see upper panel). Proposal *BA* beats *BB* in the legislature but is flawed in the sense that party *B*, one of its participants, prefers *BB* (see lower panel, where $BA \in W(BB)$). While party *B* can announce that it will never assent to *BA*, it cannot credibly commit to this strategy. Thus, *BA* remains an active possibility. Party *A* can announce that it will only vote for *BA*, which it prefers to *BB*, and will always vote against *BB*. Of course, it cannot credibly commit to this strategy either, and *BB* remains an active possibility. If party *A* holds out for *BA*, refusing to vote for *BB*, while party *B* holds out for *BB*, refusing to assent to *BA*, the status quo, *CA*, continues. In this event, both *A* and *B* lose out, since they both prefer either *BB* or *BA* to *CA* but there is a direct conflict of interest between them over which to select. All that we can say, without knowing the specific circumstances of the case, is that either *BB* or *BA* will replace *CA* or neither will and *CA* will remain in

consider the case in which there are exactly two invulnerable contenders to x^0. The general case is given in the Appendix. Two proposals can be simultaneously invulnerable. If there are two invulnerable proposals, x and x', one (say, x') must be preferred to the other by a legislative majority (we ignore ties throughout). This means that at least one participant in x' must prefer x. (If no participant in x' preferred x and x' is preferred to x by a legislative majority, x' would contend against x and the latter thus would not be invulnerable, contrary to hypothesis.) Whenever some of the participants in x', where x' is one of the contenders against the

force. In short, we have a classic conflict of interest in a bargaining context that, without further explicit modeling, remains indeterminate. This argument, as established in the Appendix, generalizes to any number of contenders.[13]

A Status Quo Vulnerable Only to Vulnerable Contenders

In the first class of proposal games above, the status quo government was vulnerable to *no* proposals. In the second class, it was vulnerable to *invulnerable* proposals. In each case the game "ends" with an invulnerable status quo (sometimes the original one) or with some generalization of a standoff. If the latter, the status quo persists until the deadlock is broken, after which we are again at equilibrium with an invulnerable status quo. In each of these situations, the actors can employ their perfect foresight (looking down the game tree, so to speak) and engage in backward induction. In the last class of proposal games to be considered, the only proposals to contend against the status quo are themselves vulnerable. Looking down the game tree in this instance, the actors see only contenders against the status quo that are themselves vulnerable to counterproposals.

Game 5. The status quo is vulnerable only to vulnerable contenders, and there is no invulnerable proposal. In assuming that there is no invulnerable proposal, we note that it is necessarily the case that there are *contender cycles*, since every proposal loses in the legislature to some alternative that is preferred by its participants. In short, when there is no invulnerable proposal, the dominance relation described by contending has no maximal element. This is precisely the case in which the Austen-Smith and Banks restricted portfolio core is empty. This class of proposal games is also the closest ana-logue in our taxonomy to the "chaos" found in the conventional majority-rule spatial model, as portrayed in the theorems of McKelvey and Schofield (McKelvey 1976, 1979; McKelvey and Schofield 1987; and Schofield 1983).

Our model of coalition behavior, like these others, has little to say about how the chaos is resolved. In principle, contextual factors—institutional structure and procedure—will provide some of the answer; so, too, will behavioral norms. But no proposed government is stable in the sense that it faces no contenders. With the vulnerability of all potential governments apparent, the life of governments may be short and elections frequent.[14]

Game 6. The status quo is vulnerable only to vulnerable proposals, but an invulnerable proposal exists. This case is to be distinguished from its predecessor, because here there is an invulnerable proposal, x^* (a maximal element of the contending relation, that is, an element of the restricted portfolio core); however, this does *not* contend against x^0, that is, $x^* \notin W(x^0) \cap I(x^0)$. There are two cases to consider, each with a different consequence depending on the manner in which x^* fails to contend against the status quo.[15]

Suppose, first, that the invulnerable proposal beats the status quo, $x^* \in W(x^0)$. Because it does not contend against x^0, it must then be the case that at least one participant in x^* prefers x^0, i.e., $x^* \notin I(x^0)$. The issue is, Can x^* be blocked? We provide one instance in which the answer is *no*. We know that x^0 is vulnerable (say, to x') and that x' is, in turn, vulnerable. To simplify the example, suppose x' is vulnerable to x^*. A majority, by assumption, would like to replace x^0 with x^*. If all the participants in x' are part of this majority, preferring x^* to x^0, and if the participants in x^* prefer it to x', then x' can serve as a threat; that is, at the first stage the majority wanting x^* supports x', to which the participants of x'

assent (since they, too, want x^*). At the second stage this same majority backs x^*, which is again assented to since its participants prefer it to x'. In effect, a majority can credibly threaten to replace x^0 with x', which forces the participants in x^* to put the latter forward. The threat, given perfect foresight, need not even be carried out.

In this special case, in which the status quo is only vulnerable to vulnerable contenders, we see that an invulnerable proposal that does not contend against the status quo may be capable of replacing it. While some participants in x^* prefer x^0, they cannot prevent x^* even if they look down the game tree in a sophisticated manner. This is because they are not participants in the proposal, x', that contends against x^0. Thus, they cannot block x' and, once x' replaces x^0, they will be forced to accept the need to assent to x^*. This is a good example of the strategic complexity in government formation games that is generated by the improvement relation.

Suppose, however (and this is our second case) that the invulnerable proposal x^* does not win against the status quo, that is, $x^* \notin W(x^0)$. In this case a sophisticated majority can anticipate the consequence of voting for proposals on an equilibrium path to x^* and defeat them. This means that x^* is strategically irrelevant and that the logic of game 5 applies.

For game 6, then, we draw the following conclusion: *When there is an invulnerable proposal that does not contend against the status quo, its impact on the course of play is nevertheless predictable. If a majority prefers it to the status quo, there may be paths by which to reach it that cannot be blocked by veto groups. If a majority does not prefer it to the status quo, x^* is strategically irrelevant. In this latter event x^0 may or may not be retained according to the logic of game 5.*

As the analysis of these simple examples has hinted, proposal games can gen-

erate complex strategic problems and th number of potential cases and subcases i huge. Lest we lose sight of the forest fo the trees, it is worth restating our genera line of argument. The reason our ap proach can do what the conventiona spatial model cannot do is that it takes a its fundamental premise that the endpoin of the process is the formation of a gov ernment rather than merely a legislativ coalition. In this regard we have under scored the vital significance of credibility participation, and assent to emphasize th various forms of veto power that exist in so-called majority-rule parliaments. Th dominance relation generated by th notions of the credible win set and th improvement set can be used to specif proposal games that model the process c government formation and maintenance Our approach thus predicts equilibriur where the conventional spatial mode does not; but it by no means rules out th possibility of instability.

In order to illustrate the difference tha all of this makes in the analysis of rea world coalition bargaining, we turn no\ to a particular example. It shows how a analyst who wishes to apply the approac that we suggest can explore real worl coalition bargaining in a relativel straightforward manner.

## Application:
A Mexican Standoff in Iceland

Coalition politics in Iceland in 1967 an 1971 provides good illustration of th processes we describe. Iceland, on mo: accounts, has two salient dimensions c policy, the conventional left-right dimer sion on economic matters and a foreig policy dimension related to Iceland membership in NATO and the U.S. ba: at Keflavik (Grimsson 1982; Laver an Schofield 1990). The two key dimensior are policed by two key cabinet portfolio Finance and Foreign Affairs. Four partic won seats in the Althingi (legislature) i

Figure 3. Ideal Points and Credible Policy Proposals in Iceland, 1967
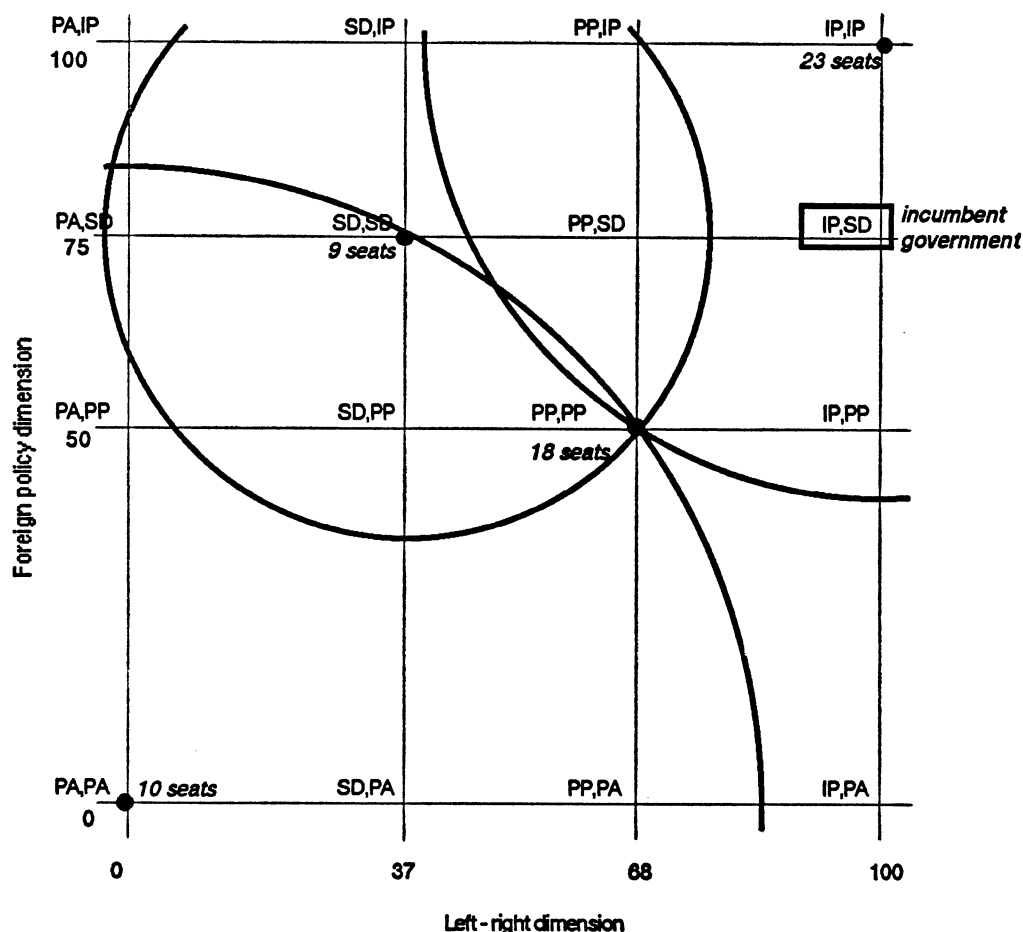
1967, the People's Alliance (*PA*), the Progressive party (*PP*), the Social Democratic party (*SD*), and the Independence party (*IP*). They were joined by a fifth in 1971, the Union of Liberals and Leftists (*UL*). Party policy positions and the number of seats won by the parties in 1967 and 1971 are given in Figures 3 and 4, respectively, which also indicate all credible proposals available.[16]

In 1967 the incumbent government was (*IP*, *SD*), a coalition between *IP*, controlling Finance, and *SD*, controlling Foreign Affairs. As Figure 3 shows, four credible proposals contended against this: (*PP*, *SD*), (*SD*, *PP*), (*SD*, *SD*), (*PP*, *PP*).[17] Two of these proposals are invulnerable: (*PP*, *SD*) and (*PP*, *PP*).[18] Of the two invulnerable proposals, (*PP*, *SD*) is flawed since *PP* prefers (*PP*, *PP*) (obviously); yet (*PP*, *SD*) is in the win set of (*PP*, *PP*), being preferred to it by the winning coalition of *SD* and *IP* (this win set is displayed in Figure 3).

There is thus a Mexican standoff proposal game if *PP* holds out for (*PP*, *PP*)

Figure 4. Ideal Points and Credible Policy Positions in Iceland, 1971

* Left - right dimension
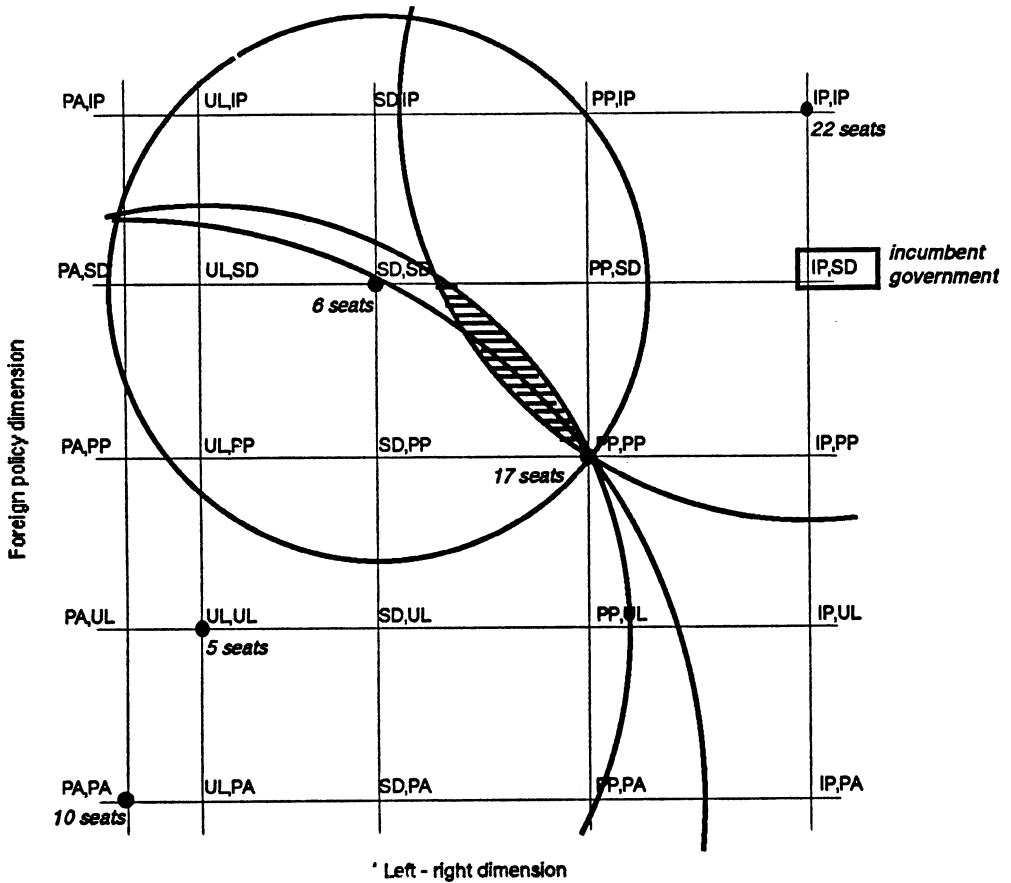
while *SD* holds out for (*PP*, *SD*). In this event, *SD* should be supported by *IP*. If *PP* refuses to assent to (*PP*, *SD*), while *SD* refuses to vote for (*PP*, *PP*), the status quo, (*IP*, *SD*), continues. This is in fact what happened. Note that *PP* can do better by assenting to (*PP*, *SD*) and *SD* can do better by voting for (*PP*, *PP*), but there is a direct conflict of interest between them over who should give in.

In 1971, as Figure 4 shows, a new party, *UL*, entered the system, changing the set of winning legislative coalitions and increasing the number of credible proposals from 16 to 25. As we have just seen, the

status quo was (*IP*, *SD*).[19] After the 1971 election, six proposals contended against this: (*PP*, *SD*), (*SD*, *PP*), (*PP*, *PP*), (*SD*, *SD*), (*PP*, *UL*), (*SD*, *UL*). We note that the last of these contenders is generated by the "surplus" majority coalition (*PP*, *IP*, *SD*, *UL*); *SD* or *UL* may be surplus to the *legislative* majority of this coalition but are clearly necessary for the credibility of its policy position. There is a single invulnerable proposal, (*PP*, *PP*). Moreover, (*PP*, *PP*) contends against all other proposals—it now contends against (*PP*, *SD*) because of the emergence of the decisive coalition (*PP*, *UL*, *PA*). It is very

difficult, therefore, to see how a proposal for (*PP, PP*) can be resisted. This is in fact the proposal that prevailed. While the full executive coalition that took office comprised (*PP, UL, PA*), it was the Progressive party that controlled the two key portfolios.

Discussion:
Taking Credibility Seriously

Having laid out the broad structure of our approach and provided an example of its application, we now discuss some of the general ways in which it might add to our understanding of the politics of government coalitions. For the most part we confine ourselves to discussing salient substantive consequences of taking credibility seriously. We conclude, however, by pointing to how the broad structure may be developed.

Minority and Surplus Majority Governments

As we hinted above, our approach casts the analysis of minority and surplus majority government in a completely new light. For a proposal to be able to replace the status quo, as we have seen, it must be a credible contender. While a proposal can contend against the status quo only if it is preferred by a legislative majority, this in no sense requires that the participants in the proposal themselves constitute a legislative majority. On this account, we treat minority governments, which we formally define as "governments whose participants do not constitute a legislative majority," in exactly the same way as any other government. In no sense should they be treated as exceptional cases, idiosyncracies, or pathologies. Indeed, our approach can identify circumstances in which minority governments are more likely to form. When a single invulnerable proposal contends against the status quo, the participants

may not themselves constitute a legislative majority. Nonetheless, nothing can contend against a minority government comprising only these participants.

Just as our approach can accommodate minority governments, it can also accommodate surplus majority governments. A party may be vital to the *credibility* of a proposal for a government even if it is "surplus" to its legislative majority. A party is redundant only if removing it from a proposal affects neither the proposal's credibility nor its vulnerability. This means that the well-established notion of the "minimal winning" coalition must be reconsidered when applied to *government* coalitions.[20]

Entry and Exit

Another matter illuminated by taking credibility seriously is the birth and death of political parties. The entry of a new party into the system generates many new credible proposals, while the exit of a party removes credible proposals from consideration. Since there are n^m credible proposals in a system of n parties and m portfolios, the number of credible proposals is very sensitive to entry and exit. For a new party to have an impact within our general approach, however, it must be capable of adding credibility to a proposal for a government. Its policy preferences must be known and it must contain politicians of the calibre to be cabinet ministers. Neither condition may be fulfilled by a new, small party immediately on formation. A significant split within an established party, however, may instantly transform coalitional politics if it takes place on the basis of a well-documented policy dispute involving politicians with clear cabinet potential.

Cabinet Reshuffles

A third important consequence of taking credibility seriously is the fact that

credible proposals are not anonymous. Depending as it does upon specific portfolio allocations, the fundamental basis of a government is altered by reallocations of portfolios, or "cabinet reshuffles" (as they are usually known). Returning to Figure 1, we see that *AB* and *BA* represent *quite* different credible proposals, being almost as far apart as any two proposals in the space even though they involve the same two participants. If a government *BA* forms, reversing the allocation of portfolios is, in our terms, tantamount to changing the government, as the new government holds out the promise of quite different policy outputs. Furthermore, there is no reason to believe that a reshuffled government will be stable just because its predecessor was. In our example, *BA* is an invulnerable status quo; but *AB* faces a wide range of credible contenders.

Extensions

Our approach to the analysis of coalition government here is based on a series of simplifying assumptions. These simplifications raise many interesting issues, which we can do no more than allude to now and take up in later work. They can be grouped into several broad categories.

First, there are the motivational assumptions of the model. The approach here is based on an assumption of policy-seeking behavior by politicians. Our approach could, however, be extended to incorporate office-seeking motivations, which may well serve to explain why parties seek portfolios other than those that control key policy dimensions. If parties value both office and policy payoffs, those losing out in the policy-setting game may be paid off with "minor" portfolios. Once we incorporate office-seeking motivations and broaden our horizon to look at the interaction of electoral competition and coalition bargaining (as in Austen-Smith and Banks 1988 and Laver

1989), this approach offers potentially rich possibilities for analyzing the behavior of parties that modify policy positions for strategic reasons so as to put credible contenders in the win set of a hitherto invulnerable government. We could thereby develop a theory of coalition government that provided an account of strategic behavior by opposition parties.[21]

Perhaps the weakest theoretical feature of our model is the presumed inability of parties in government to "cooperate." A second set of potential extensions of our approach has to do with stipulating alternative sources of credibility. We have thus far conceived of credibility as attaching to proposals for government in a fixed, exogenous fashion. The possibility of some endogenous development of credibility constitutes an important next step in the extension of our approach. We might, for example, consider the development of trust between government parties as they attempt to move away from the credible (and coalitionally inefficient) proposal that forms the original basis of their coalition toward a (more efficient) policy position closer to their contract curve. And if this is possible, we must allow for its anticipation in government formation negotiations.

Third, note that we have talked of parties as if they were unitary actors. This approach, however, can be modified to take account of the effects of intraparty politics (Laver and Shepsle 1990). For example, there may be several credible policy positions that could be generated by a given party, each policed by a prominent party politician. We could then explore the potential impact of intraparty politics on coalition bargaining and, indeed, of coalition bargaining on intraparty politics.

Finally, there is a set of potential extensions to this approach that entail additional institutional assumptions. These might, for example, take account of the special agenda-setting role of the prime

minister; the constraints imposed by the Finance Ministry, cabinet committees, and doctrine of cabinet responsibility on the discretion of other ministers; the role of party leaders in determining the allocation of portfolios within parties; the endogeneity of ministries and their jurisdictions; and the impact of constitutional provisions for government formation and dissolution on reversion points in coalition bargaining. Most importantly, perhaps, a proper modeling of institutional features will cause us to relax the strong assumption of policy dictatorship by ministers in the direction of some weaker form of agenda power. This, in turn, will require incorporating a temporal dimension, and hence subsequent elections, repeat play, and reputations.

This list could be extended almost indefinitely. The central point, however, is that dealing with governments rather than merely with legislative coalitions gives us the freedom to consider a range of issues that are central to the operation of coalition government. Existing approaches to the analysis of coalition government cannot do this since they do not take seriously the fact that once a government coalition assumes office, it becomes a government with the power to do more or less what it wants on a surprisingly large range of issues.

Appendix

In this appendix we establish the general case in which an incumbent government faces k invulnerable contenders. It is established for $k = 3$, but the argument holds for any k.

Game 4'. The incumbent government faces k invulnerable contenders. For $k = 3$ suppose $x, y, z \in C(x^0)$. By the assumption of invulnerability we have three conditions: (1) x invulnerable $\rightarrow y \notin W(x) \cap I(x)$ and $z \notin W(x) \cap I(x)$, (2) y invulnerable $\rightarrow x \notin W(y) \cap I(y)$ and $z \notin W(y) \cap$ $I(y)$, and (3) z invulnerable $\rightarrow x \notin W(z)$ $\cap I(z)$ and $y \notin W(z) \cap I(z)$. With conditions 1–3 we consider two cases, depending upon whether or not x, y, and z are in a win set cycle.

Case 1. Suppose there is no win set cycle involving x, y, and z; then $x \in$ $W(y)$, $y \in W(z)$, and $x \in W(z)$. Combining this with our assumption of invulnerability implies that $x \notin I(y)$ (from condition 2), $x \notin I(z)$ (condition 3), and $y \notin$ $I(z)$ (condition 3); that is, whenever one of these alternatives beats another, it cannot also be an improvement over the other for all its participants. What we have is a generalization of the Mexican standoff in which various actors face off against one another. For any pair of these proposals, on the one side stands a majority favoring one over the other, while on the other side stands at least one participant in the winning proposal who prefers the other to it. In this otherwise unstructured bargaining setting, almost anything can happen. Should assent for any of the contenders be forthcoming for some reason or another, the status quo is replaced and the game ends with this new alternative as the (invulnerable) status quo government. If, on the other hand, consent is not granted, the status quo may remain in place.

Case 2. Suppose there is a win set cycle among x, y, and z; then $x \in W(y)$, $y \in$ $W(z)$, and $z \in W(x)$. Sparing the details, we simply state the consequences of coupling this profile with the invulnerability conditions above. If x, y, and z are invulnerable, it must be the case that the relation generated by the improvement sets cycles in the opposite direction to the relation generated by the win sets, that is to say, $x \notin I(y)$, $y \notin I(z)$, and $z \notin I(x)$; and once again, as a slightly different kind of generalization of the Mexican standoff (one that could not happen with fewer than three invulnerable contenders), the final result is indeterminate.

Nevertheless, both of these cases permit us to make a nonobvious assertion: with

two or more invulnerable contenders to the incumbent government, it is entirely possible for the incumbent government to survive. This outcome is not necessary, but it is certainly possible. To settle the indeterminacy of these proposal games, an explicit bargaining theory must be employed. That the status quo *might* survive, however, is yet another indication of the sort of stability that comes from taking credibility seriously.

Notes

1. There is a variety of rationales for policy-based preferences. Party politicians may prefer particular policies intrinsically or instrumentally and, if the latter, for current or future electoral reasons.

2. In effect, we are assuming that cabinet ministers are policy dictators in their respective jurisdictions. This assumption is actually defensible in some polities, whereas in others a weaker form of agenda control is the more appropriate assumption. In making the dictatorship assumption, ours is a highly stylized model, surely not the last word. The thrust of many of our conclusions will require modification under weaker assumptions about ministerial power, a point we discuss in the concluding section. In passing, we note the familial resemblance of our approach to models of legislatures in the "new institutionalism" tradition that place a premium on structural features as explanatory elements. We treat cabinet portfolios much like committees in the U.S. legislative context. See Shepsle 1979 and Shepsle and Weingast 1981, 1984.

3. In order to make the presentation of our approach more straightforward, we do indeed begin with these assumptions. For the same reason, we employ examples and illustrations that assume that each jurisdiction is one-dimensional; no novel complications develop if we relax this assumption.

4. We assume Euclidean preferences throughout, so that preferences are measured by the Euclidean distance from an actor's ideal point. This is a crucial assumption, departures from which are discussed in

Austen-Smith and Banks 1990.

5. Whether or not this is demonstrated during a formal investiture process, it is always demonstrated by a legislative vote of confidence (or no confidence) in the government. A government is liable to face such a vote any time the legislature is in session. Thus, there is always at least an implicit investiture vote whenever the government is exposed to the possibility of a confidence motion (Laver and Schofield 1990, chap. 4).

6. In their very insightful model of government formation, Austen-Smith and Banks (1988) assume that after an election the head of state selects the largest party as *formateur*, allowing it to try to form a government. If it fails, the second largest party becomes the *formateur*. If all parties (in order of legislative weight) have failed at forming a government, a "caretaker" is appointed until new elections can be scheduled. The modeling advantage of assuming this exogenously defined sequence of proposals is that agents may condition their actions on well-grounded expectations about future developments; consequently, the dynamic programming algorithm of backward induction may be employed. The disadvantage of such an assumption is that it is arbitrary and unrealistic. It is often not the case that a potential government can be dismissed simply because, at some point, it does not command a legislative majority. In Israel in December 1988, for example, the participants repeatedly and categorically "ruled out" a coalition between Likud and Labor. Nevertheless, it continually reemerged in negotiations and was, in the end, the government that actually formed.

7. Alternative interpretations of x^0 are plausible. We mention them in passing but do not employ them further in this study. In general, there are policies that all of the coalition partners of a government would prefer to x^0 (as defined in the text). Party A, for instance, might be able to make concessions to B on dimensions 1 and 2, B might concede to C on dimension 3, and C might concede to A on dimensions 4 and 5 in a manner preferred by all of the parties to x^0. While *promises* to make such concessions are merely cheap talk, members of a long-lived incumbent government may have evolved various credible means of cooperation. Hence, the policy position of the existing government may be taken as credible, whatever it is, simply because it exists. On this latter interpretation x^0 may, in principle, be any point in the Pareto set of the incumbent coalition. This interpretation of the status quo relies on an unmodeled "evolution" of cooperation; the alternative in the text, on the other hand, is at the other extreme, assuming *no* subsequent cooperation. The possibility of cooperation evolving between government parties strikes us as an attractive interpretation and is an obvious place for more work. However, if cooperation among government partners may occur, it is necessary to incorporate rational expectations of

this prospect into the bargaining in the initial government formation process. It is also necessary to model clearly the self-enforcement properties of any "evolved" cooperation, that is, the punishment strategies that maintain it. These are standard requirements in modern noncooperative game theory.

Another possible interpretation of x^0 focuses on what happens if the incumbent government were to be brought down but then could not be replaced. In most parliamentary democracies the resignation of the *prime minister* does not take effect until a new government is installed, though all other ministers are free to resign their portfolios, in effect "turning in their badges." If the government falls and all other parties pull out, the incumbent prime minister's party, holding all the "badges," continues in office. On this third interpretation the reversion point, x^0, is the ideal point of the prime minister's party. In Figure 1, x^0 must be one of the three party ideal points. As in the other interpretation in this note, the game theoretics must be carefully modeled. For example, in "giving up a badge," a government partner must correctly and rationally anticipate the possibility of the prime minister's ideal prevailing in the absence of a new government yet nevertheless see it in its interest to do so.

8. The win set of x, as conventionally used in spatial models, contains *any* point that commands a legislative majority against x. In contrast, the credible win set contains only *credible* points that win against x.

9. Examples are available from the authors.

10. The argument by Austen-Smith and Banks (1990), based on theoretical assumptions nearly identical to our own, was developed simultaneously and independently. As they note, our analysis focuses on contending as a dominance relation, while theirs aims to characterize equilibrium formally. They should be seen as complementary undertakings.

11. Notwithstanding the fact that more than one policy proposal can be invulnerable, no more than one *party ideal point* can be invulnerable. Consider two ideal points, x and x'. Ignoring ties, one ideal point (say, x) must beat the other in the legislature. Each ideal point is, obviously, considered by its (sole) participant to be an improvement over anything else. Thus x beats x' in the legislature and is seen as an improvement over x' by its participant. In other words, x contends against x', and x' therefore cannot be invulnerable. Note that this argument does not imply that some party ideal point is always invulnerable but rather that two or more party ideal points cannot simultaneously be invulnerable.

12. To repeat, if the unflawed proposal were to win against the flawed proposal, it contends against the flawed proposal, and the latter cannot, therefore, be invulnerable.

13. As a final observation, we note that Austen-Smith and Banks (1990) would identify all the invul-

nerable contenders as elements in the restricted portfolio core. They would identify all such points as equilibria of this particular game. Our analysis differs on this point inasmuch as we suggest that it is also possible for the status quo to survive in this instance. Indeed, our analysis reminds us that the core is "retentive" but need not be "attractive." Hence, even though a restricted portfolio core exists in the case of multiple invulnerable contenders, it need not correctly identify the equilibrium of the government formation process without an additional bargaining theory because of Mexican standoff-like situations. In sum, a possible "falling out among thieves" (the participants in the various invulnerable contenders) may give an otherwise vulnerable status quo government renewed, if tenuous, life.

14. Frequency of elections in this instance is not strictly implied. Indeed, it is institutionally contingent inasmuch as regimes that depart from the Westminster model may find themselves with an "unstable" government forced to serve out its term critically wounded or to reorganize constantly, without the opportunity to call for new elections.

15. Note that contending is an asymmetric relation: $x \in C(x') \rightarrow x' \notin C(x)$. But it is not complete, so that it is entirely possible to have both $x \notin C(x')$ and $x' \notin C(x)$. In the case at hand x^* is invulnerable —that is, $C(x^*) = \varnothing$—but $x^* \notin C(x^0)$.

16. In Iceland the upper chamber contains 20 members, with 11 constituting a majority, whereas the lower chamber contains 40 members, with 21 a majority. For finance bills and parliamentary motions (including confidence votes), the chambers are pooled and a joint division is taken. For this reason Grimsson (1982, 156) argues that 32 seats are needed for a working majority in the pooled chamber. This is the figure that we use, though our results are unchanged if the number is reduced to 31. It is conceivable (though we have not examined the prospect in detail) that some of the winning coalitions we identify would not be winning if a potential need for separate working majorities in both chambers were taken into account. In the figures, party foreign policy positions are taken directly from estimates by Grimsson (1982, 149); we are aware of no other published estimates of these. Left-right economic positions are the means of three sets of estimates, each rescaled to range from 0 to 100 (Dodd 1976; Grimsson 1982; Hardarson and Kristensen 1987).

17. The winning legislative coalition (PP, SD, PA) prefers each of these to (IP, SD), and each is also an improvement for its participants.

18. (PP, PP) contends against (SD, SD), while (PP, PP) and (SD, SD) contend against (SD, PP). To see the former, note that $(PP, PP) \in I(SD, SD)$ (since party PP prefers it) and $(PP, PP) \in W(SD, SD)$, preferred by the forty-one-seat winning coalition of PP and IP. The other claims follow by similar arguments.

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19. It is worth pointing out again that the fact that (*IP*, *SD*) survived in 1967 despite facing invulnerable contenders distinguishes our approach from Austen-Smith and Banks 1990. (*IP*, *SD*) is *not* a maximal element of the contending relation but survived because of the Mexican standoff. Even more incredible, it survived for four years.

20. This should be taken as elaborating rather than contradicting Riker's (1962) seminal insights. For Riker, members of a winning coalition must be necessary and sufficient to its winning. In a pure majority-rule legislature (that is, no agenda control by cabinets, committees, etc.), his size principle describes these necessary and sufficient members. In an institutionally more elaborate legislature, however, a *government* may be smaller than the legislative majority necessary to sustain it (as we have argued). At other times its supporting legislative coalition may contain parties unnecessary to its *legislative majority* but absolutely essential to its credibility.

21. We should emphasize that even in a model with office-seeking motivations, it is important not to *attenuate* the connection between officeholding and policy making. In Austen-Smith and Banks 1988, for example, parties have both policy preferences and office preferences, but they combine additively with the former unaffected by the latter. Portfolios, in their model, are a kind of currency in which parties may be compensated for disappointments in policy and have nothing to do with policy per se. In our view (and in Austen-Smith and Banks 1990), in contrast, portfolio assignments are intimately connected to policy and cannot be regarded merely as sources of compensation.

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