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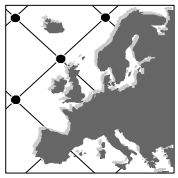

New Issues and the Dynamics of Political Choice

Melvin J. Hinich, Michael C. Munger

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Redaktionelle Notiz:

Melvin J. Hinich war im Mai 1997 Gastprofessor am Mannheimer Zentrum für Euro-päische Sozialforschung. Er beriet am Arbeitsbereich II die Leiter und Mitarbeiter von Projekten, die räumliche Modelle der Parteienkonkurrenz und der kollektiven Entschei-dung verwenden. Der hier vorgelegte, erstmals veröffentlichte Aufsatz behandelt Veränderungen der Wählerverteilungen auf den einem Parteiensystem zugrunde-liegenden ideologischen Dimensionen bzw. Änderungen der Dimensionen selbst als Folge des Auftretens neuer Issues. Frühere Versionen des Aufsatzes wurden in Vorträgen vor der Public Choice Society und an der George Washington University vorgestellt (s.u.).

Michael C. Munger ist Professor für Politische Wissenschaften an der Duke University, Durham. Er ist z. Zt. Präsident der Public Choice Society. Zusammen mit Melvin J. Hinich ist er Autor der folgenden zwei neueren Bücher: "Ideology and the Theory of Political Choice" (Ann Arbor 1994) und "Analytical Politics" (Cambridge 1997).

Editorial Note:

Melvin J. Hinich was guest professor at the MZES in May 1997 and consultant for projects in which spatial modelling techniques are applied. This paper, which is published by the MZES for the first time, presents a model and an empirical example for analysing the change of voter ideal points on the ideological dimensions underlying a party system and the change of the dimensions themselves as a consequence of new issues. Earlier versions of the paper were presented at George Washington University, January 1997, and at the annual meetings of the Public Choice Society, April 12-14, 1996, Houston, TX. Scott de Marchi helped writing this paper, especially in the Quebec sovereignty section. The authors also acknowledge the comments of John Aldrich, John Brehm, Dennis Coates, Paul Gronke, William Keech, Mark Peffley, George Rabinowitz, Genia and Mark Toma, and Peter VanDoren. Errors are not theirs, however.

Michael C. Munger is Professor of Political Science, Duke University, Durham. He is the current president of the Public Choice Society. Together with Melvin J. Hinich he is author of the following two latest publications: "Ideology and the Theory of Political Choice" (Ann Arbor 1994) and "Analytical Politics" (Cambridge 1997).

Contents

Abstract

Is any part of citizens' political "preferences" fixed? Is any part changeable? In this paper we argue that some kinds of "preferences" (basic issues and values) are relatively fixed, and that other kinds (ideological or party affiliation) are potentially fluid and malleable. We demonstrate this by adapting the theoretical spatial model of ideology to account for the introduction of a "new" issue. Basic parameters that influence the change in the voter's induced ideal point along the ideological dimension are derived. These include the difference between the status quo and the voter's ideal point on the new policy, the weight given the new policy in the voter's utility function, and size of the mapping between the policy and the prevailing ideology. The implications for political strategies are discussed, including a distinction that has not been made in previous work: issues accounted for by the existing ideological split change *positions* of candidates, while issues outside the prevailing ideology change the *policy space* itself.

Changing Minds: New Issues and Political Choice

Where does change come from in politics? Do citizens routinely change their minds, or are preferences generally fixed, with change coming exogenously? Most formal theories of political competition have finessed change, focusing instead on equilibrium. This may be because equilibrium itself is elusive, even in a static setting where preferences and issues are fixed. Nonetheless, a realistic theory of politics must explain the turning points of societies over time, and somehow relate these turning points to human agency.

The thesis of this paper is that it is possible to generate realistic predictions about change, and changing minds, even if voters' preferences about specific issues are relatively fixed. Specifically, we will examine the role of new issues, imbedded in a formal model of ideology, in explaining political change. There is no claim that new issues are the only source of dynamic changes in political systems. We do hope to persuade the reader, however, that new issues are an important, and plausible, focus for campaign strategy and political debate.

The notion that the dynamics of party competition can be described by the introduction of new issues, or by the realignment of coalitions around issues in particular elections is, of course, a venerable one (Aldrich, 1983a; 1983b; Burnham, 1970; Key, 1955; Riker, 1986; Sartori, 1976; Sundquist, 1973). Of these, only Riker's model, and Aldrich's extensions relying on party activists, explicitly assume that change comes from professional politicians.[1] The older view is that changes in the preferences of the mass electorate transform the basic „rationale" of political debate (e.g., Sundquist, 1973; p. 37).

More recently, several scholars have rethought the relations between political agendas and models of politics. Riker (1990) raised a fundamental challenge:

> What are the moving parts in the spatial model of politics? ...As far as I know, the candidates (or parties) and their platforms or, alternatively, the motions, are all that anyone has proposed as moving parts. But nothing inherent in the model prevents other parts from moving . . . [P]articipants (either candidates or voters) might change the space itself, distorting it by adding or subtracting dimensions or by expanding dimensions as if they were elastic or elastic in certain distances . . . *[I]n two dimensions [this] can easily affect the relative location of the center of the distribution* . . . Riker (1990, p. 46; emphasis added).

Pursuing Riker's insights into the importance of the agenda, Baumgartner and Jones (1993) note that the consequences of „new" issues depend on the preconditions in the political system where the change takes place.

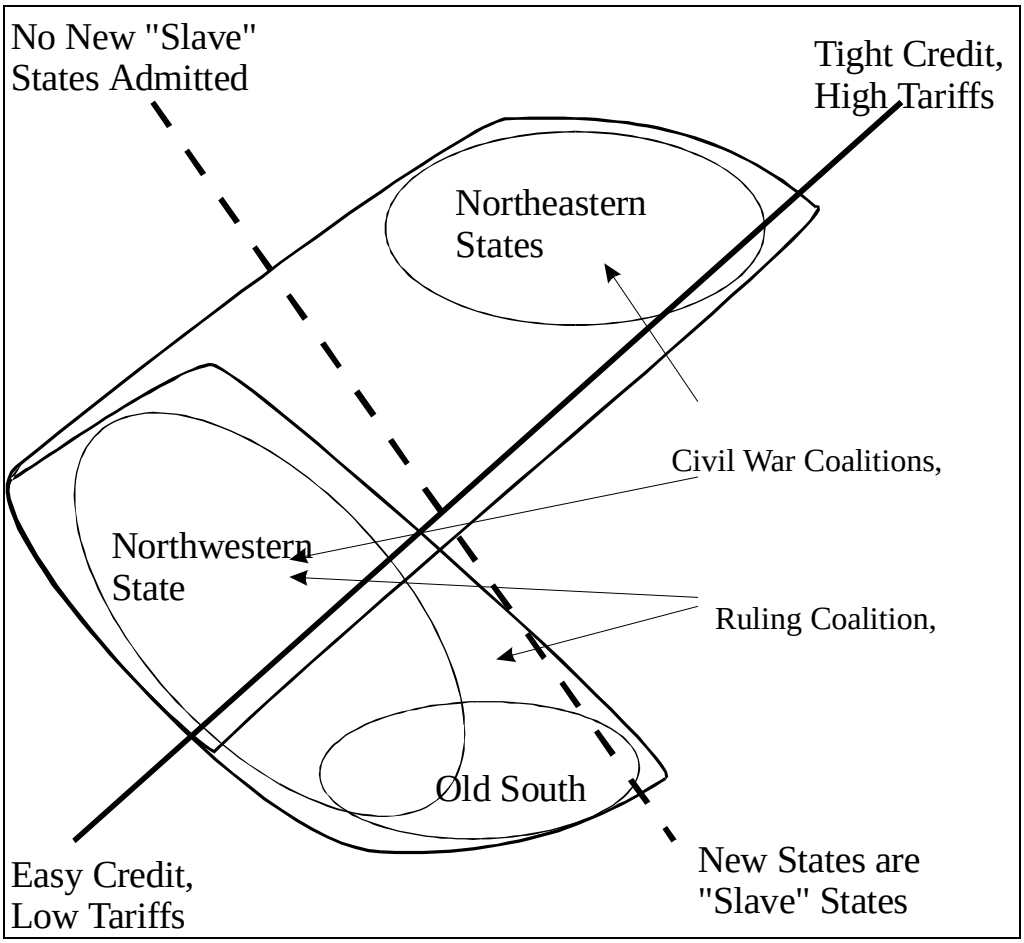
> When an issue is defined electorally, it normally gets articulated to fit past frames of reference that the parties convey to the voters. As a consequence, partisan conflict is often stable and repetitive . . . Partisan politics are also occasionally subject to major agenda shifts and positive feedback. Students of elections have recognized this and have searched for so-called critical or realigning elections--periods when parties adopt new issues to appeal to new constituencies, resulting in a fundamental shift in the social bases of support for the parties . . . [*P*]*artisan conflict is about ideas as much as it is about clashing interests of social groups*. (Baumgartner and Jones, 1993; p. 22, emphasis added).

This insight is fundamental, and provides our point of departure: The impact of new issues depends on the context of ideological conflict. Some new issues disappear without a sound; some „fit past frames of reference" well, and become part of normal political conflict; and some new issues wreck, and then realign, the political system.

To arrive at a theory of which of these happen, we need to understand both the ideological „frame of reference," and the characteristics of the new issue. Because of the structure our notion of ideology imposes on political competition,[2] it is possible to derive specific results on the introduction of new issues. Issues for which prevailing ideologies have clear implications simply change the relative positions of candidates in the existing space of political strategy. For truly „new" issues, existing ideologies afford no guide.

Riker himself (Riker, 1986, 1990) offered the classic example of how the strategic introduction of an issue can change the political world. Between the election of 1828, and the accession of Andrew Jackson, until the realignment of the mid-1850's, the issues that organized political debate were clear: Northeastern states favored high tariffs and tight credit, Southern and Western states favored low tariffs and relatively easy credit. As the issue of slavery, or (more accurately) extension of slavery to the western territories became more important, it divided the previously unbeatable coalition of South and West, leading to a political victory by the Northeast (and leading to the U.S. Civil War). The change can be understood best in a simple diagram, which we have drawn simply to illustrate the outlines of the contest.

FIGURE 1: A New Issue Splits the Coalition fo Northwestern and Southern States



Because the spatial model of ideology is quite different from the classical spatial model Riker (1990) referred to, it is useful first to review the form of the model and its assumptions. Most important, the work builds on the empirical work on the shape of political space (Enelow and Hinich, 1984, 1989, 1991; Laver and Schofield, 1990; and Poole and Rosenthal, 1984, 1991, 1993). The basic empirical result, that political debate is largely one-dimensional, seems preposterous. Nonetheless, it turns out that there are good theoretical reasons why such „ideologies“ exist, and why human political choices depend on ideologies. Next, we consider issues that are well accounted for by the prevailing ideological division, and show that such new issues have predictable and intuitive effects on the political system.

Finally, we discuss briefly truly „new“ issues, issues that tear the political system apart and realign it. Such issues, by definition, do not fit well into the ideological systems that people have used to understand, and decide, other issues of the day. Nonetheless, the theory of ideology can be used to understand what sorts of issues can cause realignments, and when a party system is ripe for such a change.

I. Literature Review and Background on Ideology

The nature and origin of issues are really outside the scope of the present paper.[3] The introduction of new issues may be a strategy available to elites. Alternately, change can come from technological innovation or changes in tastes and preferences of the electorate. Our goal is simply to explore the *implications* of new issues for change in a political system organized around an ideology. Poole and Rosenthal (1991, 1993) have advanced a view very close to ours, but base their work on the empirical regularities (and changes) they find in ideological dimensions recovered from a multidimensional scaling algorithm. We will take the Poole and Rosenthal work on measuring the effects of new issues as a starting point, and consider a theory that links new issues to ideologies, and predict changes in otherwise stable political systems.

Ideology

The reasons a model based on ideology is useful are both theoretical and empirical. While it is impossible to make the full argument for the importance of ideology as an analytical concept here, it is worth reviewing briefly the implications of ideology for the spatial model. "*Ideology*" may be defined either as (a) a set of ideas with implications for "good" policy, or (b) a widely shared belief system.[4] Neither of these notions requires internal consistency among ideas or beliefs. Instead, an ideology provides a means to organize political thinking, and to let people understand each other. The key evidence that ideology is important is the now-established empirical regularity (Poole, 1981; Poole and Rosenthal, 1984; 1991; 1993; Enelow and Hinich, 1984; 1989; Laver and Schofield, 1990) that the space of political competition is of much lower dimensionality than the number of „issues.“[5]

Issue positions cluster: if I know what you think on defense policy, abortion rights, and environmental policy, I can guess (with some error) what you think of school lunch subsidies. Further, this clustering phenomenon is not purely atomistic, so that ideological positions such as "liberal" and "conservative" have similar meanings to different people.[6] If the understanding of clusters of issues is shared, we will call this clustering phenomenon „ideology.“ If platforms are ideological in this sense, the strategies of candidates (and hence the choices for voters) in the policy space are highly constrained.

Is such an idea useful, or even accurate? One apparent difficulty with this formulation is the usage of ideology to mean „constraint“ or even sophistication in voters' belief systems. After all, Converse (1964) pointed out organized ideologies, in the sense that the preferences voters express are „constrained,“ seem to be largely absent from the American political system. We can concede the point, as Converse made it, but would still argue that ideology is a useful concept. Ideologies are shared understandings of political alternatives, not constraints on individual belief schema. As Popkin (1994) points out,

> Ideology is not the mark of sophistication and education, but of uncertainty and lack of ability to connect policies with benefits. . . . Parties use ideologies to highlight critical differences between themselves, and to remind voters of their past successes. They do this because voters do not perceive all the differences, cannot remember all the past performances, and cannot relate all future policies to their own benefits. But unavailability of data is not the only reason voters revert to default values. They do this when they are so satisfied with their past choices that they see no reason to collect any data. (Pp. 51-52)

The key to understanding ideologies is not the constraint they impose on voter *preferences*, but rather the constraint prevailing ideological divisions impose on voter *choices*. To put it another way, ideologies do not organize voter preferences; ideologies organize political systems.

We will consider three theoretical justifications for this claim: *communication*, *commitment*, and *budgets*. The justifications are not mutually exclusive, and share one essential element: they imply the empirically demonstrable linkages across issues, so that the relevant space of political debate is of low dimensionality.

- **Communication**: To provide voters with a message they can understand and use to make choices, parties must simplify their message. Because only broad statements of principles can be used in advertising and position-taking, the latitude for more subtle distinctions and differences is highly circumscribed. Ideologies are a means of solving problems of uncertainty and lack of information.
- **Commitment**: To be able to persuade voters that they can trust the party to do as promised after the election, parties must give reasons and explanations rather than just take positions. But explanations require some sort of overarching system of justifications, and the advancement of values that can be applied to a variety of issues. Parties trade on reputations, but reputations are meaningful only if they provide coherent (that is, separating) signals. If parties act on their ideologies when such actions do not appear self-interested, reputations gain value.[7]
- **Budgets**: Increasing spending in one area forces decreases elsewhere in the budget, or else forces increased present or future taxes. Thus, any change from the status quo forces a linkage to other issues, if only in terms of taxes or opportunity cost.

Regardless of how one accounts for the empirical regularity, all that is required is to recognize that the linkage across issues, and the consequent reduction in the effective dimensionality of the space of political debate, has been empirically established.

Issues and Ideology: The Simple Model

Voters have preferences over „issues," a n-dimensional space. Each voter i, with ideal point x_i in the policy space Ω, chooses between two candidates (Alpha and Beta) based on their imputed platforms $\{\omega_\alpha, \omega_\beta\}$ in Ω.[8] We will assume that the choice is based on a quadratic utility function, and for notation use [] to mean simple Euclidean Distance calculated from vector differences:

$$U(\boldsymbol{\omega_\alpha}) = - [x_i - \boldsymbol{\omega_\alpha}]^2 \qquad \textbf{(1a)}$$

$$U(\boldsymbol{\omega_\beta}) = - [x_i - \boldsymbol{\omega_\beta}]^2 \qquad \textbf{(1b)}$$

But the imputed platforms ω_α and ω_β have to come from somewhere. What is the source of voters' belief that these positions represent the likely policies of Alpha and Beta if elected?

Our claim is that, though voters may have *preferences* defined over the n-dimensional policy space Ω, political *competition* takes place in the p-dimensional ideological space Π, where p«n. Consequently, the choices offered the voter (at least, the choices voters can identify, and candidates can commit to) are constrained by ideology.[9] The correspondence, or mapping, from the ideological to policy spaces can be expressed as a linear function[10] of the various ideological dimensions. Though the model can handle multiple dimensions (see Hinich and Munger, 1994), assume p=1 for simplicity.[11] The imputed platform (for Alpha, for example) can then be written as follows:

$$\boldsymbol{\omega_\alpha} = \mathbf{b} + \mathbf{v}\pi_\alpha \qquad \textbf{(2)}$$

The (nx1) **b** vector is the set of status quo policies. The (nx1) **v** vector is the set of mappings from the ideological space to the policy space. The ideological position of each candidate is drawn from the set of feasible positions (that is, $\pi_j \varepsilon \Pi$, where in this case π_j is scalar).[12]

The elements of **v** reflect the beliefs of voters that the prevailing ideology has implications for policies. For example, if v_k is large (in either a positive or negative direction), the voter believes abstract ideological statements are highly meaningful for policy k. Conversely, if v_k is near zero in absolute value, the issue is not accounted for by the ideology of the prevailing party system. This does *not* mean voters don't care about the issue. Instead, if $v_k=0$, issue k is outside the issues voters associate with the orthodox political debate they hear from parties and candidates.

An example will clarify the status quo (**b**) and mapping (**v**) vectors. Consider two policies: T and S. „T" is spending on tanks for the military, primarily a policy espoused by the party on the right (call it party Alpha, which advocates ideological position π_α). „S" represents spending on schools for the education of children, advocated by party Beta, which runs on a leftist position π_β. We can depict the relation between ideological position on Π and policy position on each of the two issues (tanks, T, and schools, S) graphically, as shown in Figure 2. Panel A presents a mapping from a left-right ideology on the horizontal axis to tanks on the vertical axis: movements to the right represent increased military spending in voters' minds, so the slope of the linear relation is *positive*. Panel B depicts the analogous mapping for S, with the difference that, since rightists favor less school spending, the slope of the linear relation is *negative*.

The implied linkage between tanks and school lunches could have any of the origins discussed above, or some combination. Budget laws may require offsetting cuts to finance spending increases, parties may focus on their image as „tough" on foreign policy or „strongly supportive" of social programs, and so on. Provided this linkage across issues exists, and that the understanding of the linkage is shared by many people, ideology is a useful conception of political competition.[13]

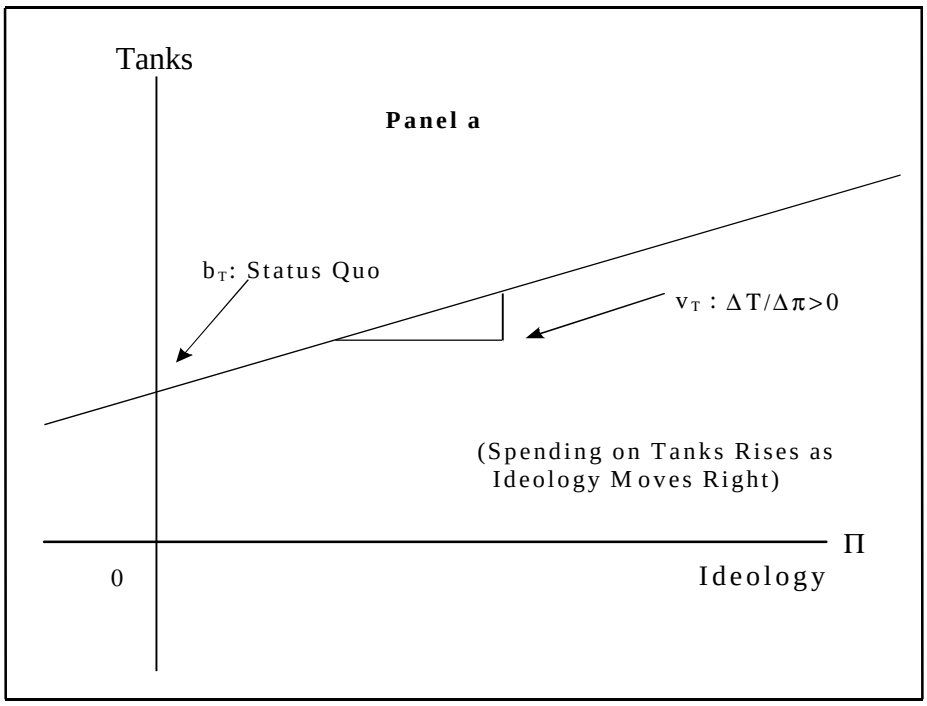
The ideological model depicts the induced utility function for a voter, given that one candidate (here, candidate Alpha) will win, as:

$$U(\boldsymbol{\omega}_\alpha)=U(\mathbf{b}+\mathbf{v}\pi_\alpha)= - [\mathbf{x}_i-(\mathbf{b}-\mathbf{v}\pi_\alpha)]^2 \qquad \textbf{(3)}$$

Thus, voters compare their utility of candidates' positions, π_α and π_β(defined analogously to equation 3), on the ideological dimension.

We are now in a position to consider the policy space **Ω**, which contains the voter ideal points. Suppose we allow voter i to have ideal point $\mathbf{x}_i=(\omega_T,\omega_S)$, and be faced with the choice between two candidates α and β based on their platforms, π_α and π_β, in the ideological space Π. Let preferences around x_i be described by separable ellipsoidal, rather than circular, indifference curves. The correspondence between the policy space **Ω** and the ideological dimension Π, given by equation (2) above, can then be depicted in the graph in Figure 3. The feasible positions in **Ω** are described by Π, with the status quo point in the policy space represented by $\mathbf{b}=(b_T,b_S)$ and the status quo ideological position being $\mathbf{b}+\pi_0\mathbf{v}$.

FIGURE 2: The Relation between Ideology and (A) Tanks (B) Schools



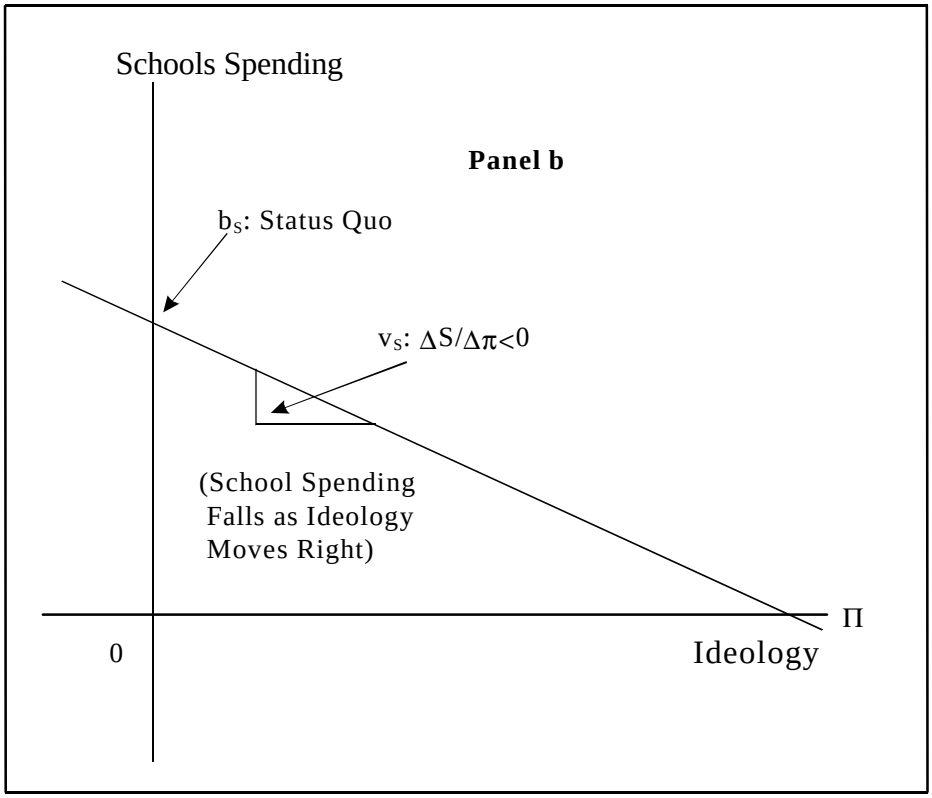
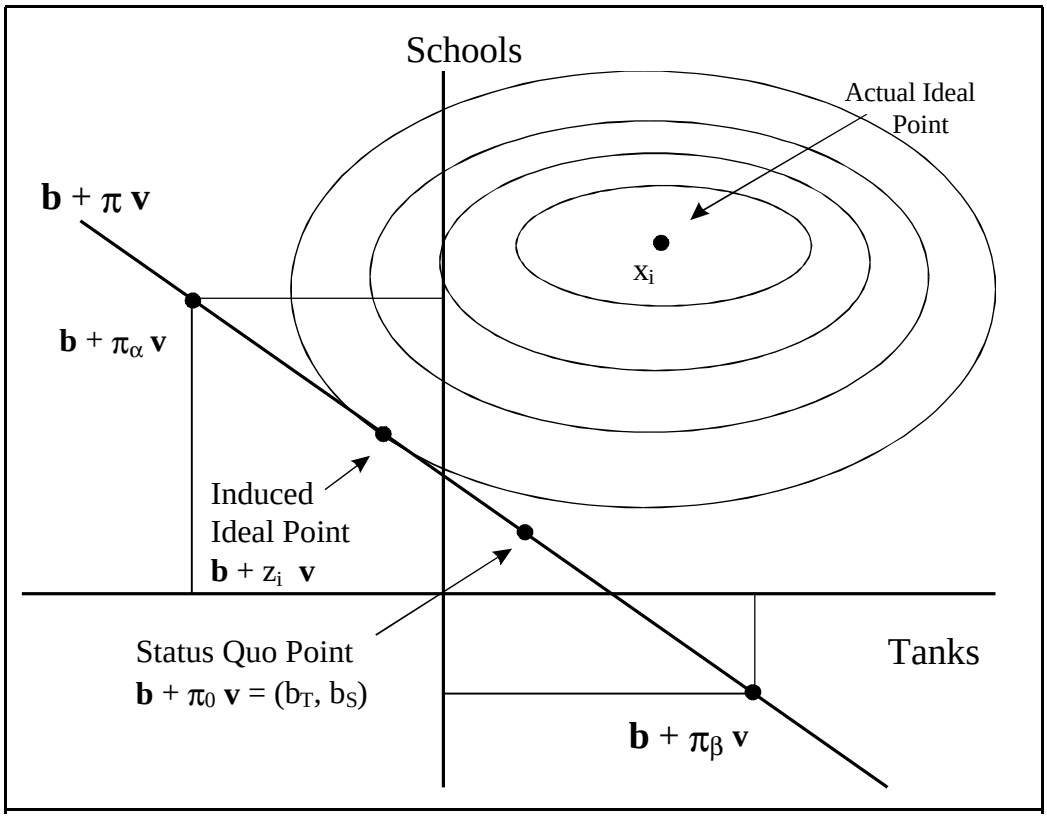


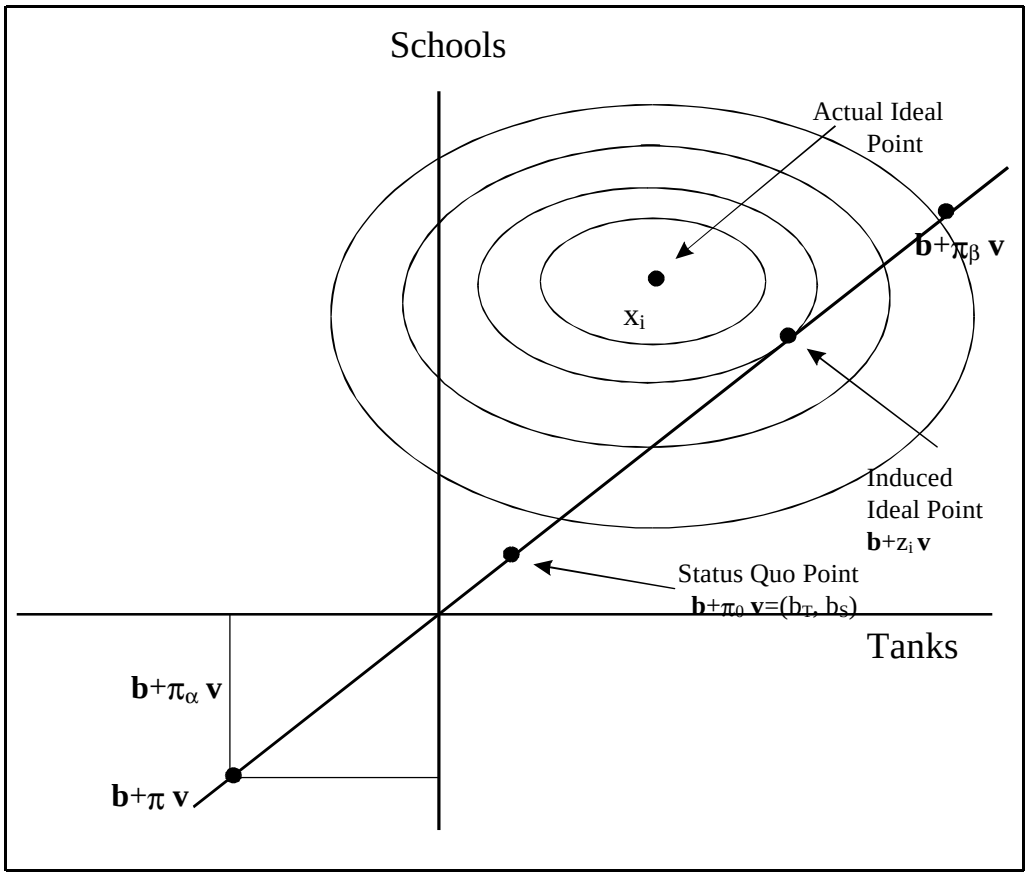
FIGURE 3: Voter i chooses α, the candidate closest to z_i in Π, and closest to x_i in Ω: Scenario 1



The induced ideal point on the $\mathbf{b}+\pi\mathbf{v}$ line is $\mathbf{b}+z_i\mathbf{v}$, the point tangent to the highest attainable indifference curve. The corresponding ideal point in the ideological space Π is z_i. The voter would prefer x_i, of course, but such a position is not feasible for politicians to take given the prevailing ideological cleavage in the society.[14] The choice is between the partisans of the right, who favor tanks, and the partisans of the left, who favor school lunch programs.[15]

Consequently, in Figure 3 voter i chooses candidate α over β, because π_α is closer (in *weighted* Euclidean space) than π_β to x_i. Of course, this ideological cleavage is but one of many possibilities; in Figure 3, the main consideration appears to be distributional, or concern for a balanced budget. In fact, if the slope of the ideological line is -$1.00, we have a situation where the dispute is over how to divide a constant budget between two functions.

FIGURE 4: Voter i chooses α, the candidate closest to z_i in $\prod$, and closest to x_i in Ω: Scenario 2



It is possible to place the same voter in a very different ideological context, as Figure 4 shows. Suppose the „left" party is classical liberal, with a desire to reduce government at all margins. Suppose the „right" party is seeking a corporatist-statist society where most functions are performed by government. It is important to note that the only difference between Figures 3 and 4 is the location of the prevailing ideological choice set. The voter's preferences are *identical*, and *fixed*, in both cases.

Now, however, the voter clearly prefers party β, the statist party. Before the voter was a „leftist;" now she is a „rightist." But she has not changed her preference in any way! What has changed is the structure of the party system, and the set of choices.

We will find it useful to define more formally the *induced ideal point* (denoted $\mathbf{b}+z_i\mathbf{v}$ in Figures 3 and 4) of voter i on the ideological dimension. Starting, for the sake of simplicity[16], with simple Euclidean distance (i.e., circular, rather than elliptical, indifference curves), Enelow and Hinich (1984) show that the ideal point (in an m-dimensional policy space) of a voter presented with only those choices associated with existing parties, located along a single ideological dimension, is:

$$z_i = \frac{\sum_{k=1}^{m} v_k (x_{ik} - b_{ik})}{\sum_{k=1}^{m} v_k^2} \qquad \textbf{(4)}$$

This expression will be discussed at greater length below. For now, it is enough to establish that the voter's induced ideal point on the ideological dimension is a weighted sum of the differences between the voter's ideal point **x** and the status quo policy vector **b**. The weights are a function of the ratio of the ideological mapping terms v_k to the sum of squares of the weights on all issues. The expression in equation (4) is a simple model of voter choice: Choose the candidate whose ideological position is closest to the induced ideal point z_i on Π.

In the next section, we formalize the model of ideology and issues, and relax the assumption of circular indifference curves and separable preferences by incorporating a matrix of weights.

II. Model

Let us begin the presentation of the model by fixing notation.

x_{ik} - The ideal point of voter i on policy k, $i \in \{1,...,n\}$, $k \in \{1,...,m\}$.

ω_k - Policy position on the issue k

v_k - The weight, or ideological translation term, for issue k.

b_k - Status quo policy for issue k.

π_p - Ideological position of candidate p. For simplicity, we will assume the ideological space is one-dimensional.

z_i - Induced ideal point of voter i in ideological space.

$\mathbf{A}_i$ - mxm matrix of weights for ith voter's utility function (assumed to be quadratic loss function). If **A**=**I**, then loss function is simple Euclidean distance. If **A** is diagonal, then the loss function is *weighted* Euclidean distance, with ellipsoidal indifference curves, but preferences are still separable (marginal utility of one public good does not depend on the expected level of consumption of some other public good).

Ω - n-dimensional policy space, where "dimensions" come from the set of existing, widely discussed issues. The set of *possible* issues is, of course, infinite.[17]

Further, continue to let **bold** denote vectors, so that $\mathbf{x}_i$, **v**, and **b** all have the obvious meanings, and let „′„ denote transpose. Finally, we will drop the subscript i, so that unless otherwise noted all formulas refer to a representative voter.[18] Finally, let us assume that **A** is diagonal, tantamount to assuming preferences are separable.[19]
Under these circumstances, we can define z_i as follows:

$$\boldsymbol{z} = \frac{\mathbf{v}'\boldsymbol{A}(\boldsymbol{x}-\boldsymbol{b})}{\mathbf{v}'\boldsymbol{A}\mathbf{v}} \qquad \textbf{(5)}$$

where **v**, **x**, and **b** are column vectors, and the matrix **A** is defined as:

$$A = \begin{bmatrix} a_{11} & \Lambda & 0 \\ \mathrm{M} & \mathrm{O} & \\ 0 & \Lambda & a_{mm} \end{bmatrix} \qquad \textbf{(6)}$$

In this case, we can write the expression for z in the equilibrium setting before the introduction of the new issue:

$$z = \frac{\sum_{k=1}^{m} a_{kk}(x_k - b_k)n_k}{\sum_{k=1}^{m} a_{kk} n_k^2} \qquad \textbf{(7)}$$

Let us define expression (7) as „z_{old}„, representing the induced ideological ideal when there are just m issues. Now, imagine that a "new" issue, here called m+1, is raised in the campaign. Since the **A** matrix is assumed to be defined over all issues (i.e., individual preferences are complete), we write:

$$A = \begin{bmatrix} a_{11} & \Lambda & 0 & 0 \\ \mathrm{M} & & \mathrm{M} & \mathrm{M} \\ 0 & \Lambda & a_{mm} & 0 \\ 0 & \Lambda & 0 & a_{m+1,m+1} \end{bmatrix} \qquad \textbf{(8)}$$

But this changes the induced ideal point of the voter on the ideological dimension. We can write:

$$z_{new} = \frac{\sum_{k=1}^{m} a_{kk}(x_k - b_k)n_k + \left[a_{m+1,m+1}(x_{m+1} - b_{m+1})n_{m+1}\right]}{\sum_{k=1}^{m} a_{kk} n_k^2 + \left[a_{m+1,m+1} n_{m+1}^2\right]} \qquad \textbf{(9)}$$

where the bracketed terms in both numerator and denominator represent the differences between expressions (7) and (9). To put it another way, if the bracketed terms are zero, $z_{new} = z_{old}$, and there is no change in the induced ideological ideal.

The general expression for the *change* in the induced ideological position can be obtained by simplifying Δz, the difference between z_{new} and z_{old}:

$$\Delta z = \frac{\left(\sum_{k=1}^{m} a_{kk} n_k^2 \left[a_{m+1,m+1}(x_{m+1} - b_{m+1})n_{m+1}\right]\right) - \left(\sum_{k=1}^{m} a_{kk}(x_k - b_k)n_k \left[a_{m+1,m+1} n_{m+1}^2\right]\right)}{\left(\sum_{k=1}^{m} a_{kk} n_k^2\right)\left(\sum_{k=1}^{m} a_{kk} n_k^2 + a_{m+1,m+1} n_{m+1}^2\right)} \qquad \textbf{(10)}$$

This expression is quite complex; to be able to offer interpretations, it
is useful to formalize the relations among the parameters in equation (10) in a simple theorem. In particular, we can specify a set of conditions under which the introduction of a new issue changes the induced ideal point of *any voter* on the ideological dimension.

Conditions on Parameters

1 (Mapping Terms v)

a: $0 \leq |\nu_k| < \infty$, k=1 to m

b: $0 < |\nu_{m+1}| < \infty$

c: $\exists$ at least one issue λ such that $\boldsymbol{\nu}_{\lambda} \neq 0$

*Condition **1** implies that no issue (including the new issue) has infinite weight. Notice that this does not rule out something close to „single issue" voting. It is quite possible, given condition **a**, that many issues have $v_k=0$. However, parts **b** and **c** require that the new issue, and at least one other issue, have nonzero links to the ideological dimension.*

2 (Diagonal Matrix of Preference Weights A)

a: $0 \leq a_{kk} < \infty$, k=1 to m

b: $0 < a_{m+1} < \infty$

c: $\exists$ at least one λ such that $a_{\lambda\lambda} \neq 0$; λ must take the same values as in condition **1c**.

*Condition **2** implies that the elements of the diagonal matrix **A** have at least one nonzero value, that that value applies to the same issue as had a nonzero ideological mapping, and that the preference weight for the new issue is neither infinite nor zero. More simply, the voter must* **care** *about the new issue, but not* **only** *the new issue.*

3 (Ideal Point - Status Quo Differences)

a: $0 \leq |x_k - b_k| < \infty$, k=1 to m

b: $0 \leq |x_{m+1} - b_{m+1}| < \infty$

c1: $\exists$ at aleast one λ such that $x_{\lambda\lambda} - b_{\lambda\lambda} \neq 0$; λ must take the same values as in conditions **1c** and **2c**.

c2: $x_{m+1} - b_{m+1} \neq 0$

*Condition **3** is met whenever parts **a** and **b**, and <u>either</u> **c1** or **c2**, are true. Thus, the condition requires only that the voter's ideal point differs from the status quo for at least one issue; that issue can be either m+1 or l.*

4 (Ratio of Weights and Ratio of Differences)

a: It cannot be the case, $\forall\ v_k \neq 0$ and $(x_k - b_k) \neq 0$:

$$\frac{n_{m+1}}{n_k} = \frac{x_{m+1} - b_{m+1}}{x_k - b_k}$$

In particular, it must be true that:

$$\frac{n_{m+1}}{n_\lambda} \neq \frac{x_{m+1} - b_{m+1}}{x_\lambda - b_\lambda}$$

b: It cannot be the case that:

$$\sum_{k=1}^{m} a_{kk} n_k \left[(n_k x_{m+1} - b_{m+1}) - n_{m+1}(x_k - b_k) \right] = 0$$

*Conditions **4a** and **4b** ensure that the numerator of equation (10) is nonzero. If the ratio of the mapping term on the new issue to even one of the nonzero mappings on old issues l is different from the ratio of the ideal point - status quo differences, condition **4a** is met, provided that a_l and v_l are also nonzero. Given that, from Condition **2**, **A** is positive semidefinite, and the fact that **4a** ensures the term in brackets in **4b** is nonzero, **4b** turns out to be a purely technical restriction on the sums of the products the a_{kk} and v_k terms.*

We are now in a position to state the following theorem; the proof is more tedious than interesting; sketch of the proof can be found in Appendix I.

Change Theorem: Necessary and Sufficient Conditions for a New Issue to Change a Voter's Ideology

Let $\Delta z = z_{new} - z_{old}$.
Then $0 < |\Delta z| < \infty$ if, and only if, Conditions 1-4 are met.

The „change theorem" is really a definition, since the assumed conditions are just those required to make the result follow. Still, it is useful to organize the definition in this way, particularly since some of the requirements for ideological change have interesting and intuitive content. Condition 4a, in particular, appears to represent a previously unknown aspect of the relations among old issues and the new issue. We hope to test this implication of the theory in future work.

In the meantime, it is useful to consider some simpler examples of the conditions for ideological change. In particular, we will investigate the implications for change of some characteristics of the new issue, simplifying equation 10 above by assuming that the representative voter i has an ideal point located at the current status quo on all other issues (i.e., $\mathbf{x}_i=\mathbf{b}_i$).

Example: Changing the Parameters of the New Issue
If $\mathbf{x}_i=\mathbf{b}_i$, (the voter's ideal is at the status quo) for issues 1 through m, then expression 10 can be simplified to:

$$\frac{\dfrac{\boldsymbol{x}_{m+1}-\boldsymbol{b}_{m+1}}{\boldsymbol{\nu}_{m+1}}}{\displaystyle\sum_{k=1}^{m}\frac{\boldsymbol{a}_{kk}}{\boldsymbol{a}_{m+1,m+1}}\left(\frac{\boldsymbol{\nu}_k}{\boldsymbol{\nu}_{m+1}}\right)^2+1} \qquad \textbf{(11)}$$

Under these simplified assumptions, we can point out several important things about the nature of change in political choice. First is the mapping of the new issue to the ideological dimension (v_{m+1}) compared to $\boldsymbol{\nu}$. Second is the preference weight the new issue receives in the voter's utility function (a_{m+1}, dropping the second subscript since $\mathbf{A}$ is diagonal) compared to $\mathbf{a}$. Finally, we consider the distance between the ideal point of the voter and the status quo of the new issue (x_{m+1}-b_{m+1}).

• **Mapping terms**. Somewhat surprisingly, the larger the ideological mapping v_{m+1} , the *smaller* is the change in z. In fact, as v_{m+1} grows large, the change in ideology vanishes completely.[20] A moment's reflection confirms the intuition behind this result, however: if the new issue is well accounted for by, and tightly linked to, the old ideology, it does not cause the voter to rethink his ideological position.

• **Utility weights**. The larger the utility weight of the new issue (a_{m+1}) compared to those of the old issues, the larger the change in the voter's ideology. If most of the $\mathbf{a}$ are small compared to a_{m+1}, the denominator is small. In fact:

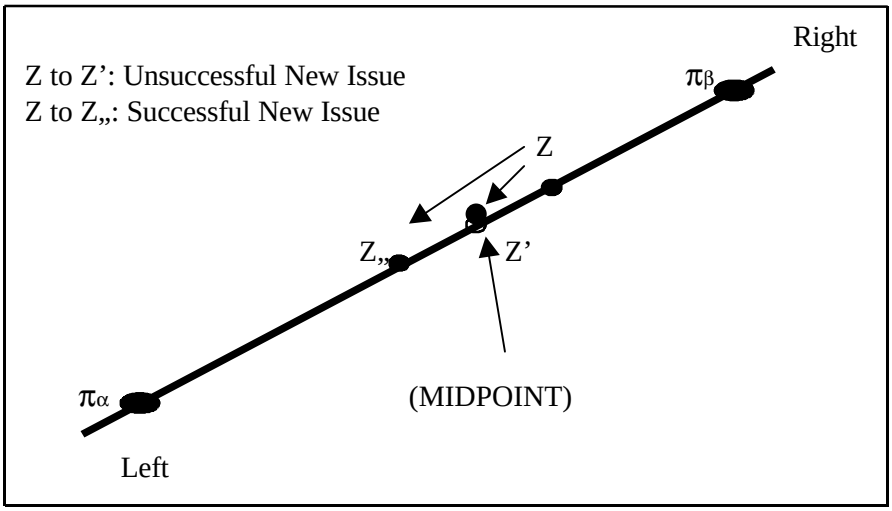
$$\lim_{a_{m+1}\to\infty}(\Delta z)=\frac{x_{m+1}-b_{m+1}}{n_{m+1}}$$

In other words, if the „new“ issue has a high enough weight, it dominates all the other issues and itself becomes the entire ideological dimension. For some people, at least, in the U.S. in the 1990s, abortion is very close to being such an issue. If, instead, $a_{m+1} \approx 0$, then $\Delta z \approx 0$: if the voter attaches no weight to the issue, then of course it does not change his ideological identification.

• **Status quo:** The larger the difference between the voter ideal point and the status quo on the new issue, the larger the change of the voter's ideology. Notice that this has nothing to do with underlying preferences, which have been fixed, though latent, all along. Rather, the set of issues that make up the political world, and the ideology that organizes the information in that world, are transformed by the introduction of the new issue.

Because z_i is induced on the ideological dimension by the preferences of voter i in the n-dimensional policy space $\mathbf{\Omega}$, it is possible to dispense with the presentation of Ω and represent voter choices solely on $\mathbf{\Pi}$, the ideological dimension itself. Figure 5 depicts an arbitrarily drawn example of the ideological dimension, with far left and far right positions. The voter's ideal z_i is drawn as before; the comparison for the voter is against π_α and π_β. Whichever candidate is closer to z_i will receive i's vote.

FIGURE 5: The Introduction of a New Issue Can Change the Election Outcome



As Figure 5 also shows, changes in z_i can change i's vote. In our example, i votes for β, given the original z_i. But suppose that a new issue is introduced: According to (10) above, the change in z can be in either direction, depending on the relative values of x_{m+1} and b_{m+1}. The magnitude of the change will depend on the weight ($a_{m+1,m+1}$) of the new issue in the voter's utility function, and the mapping (v_{m+1}) of the policy onto the ideological dimension. If we suppose that $x_{m+1} > b_{m+1}$, the change in z_i resulting from the introduction of the new issue will be positive. If the utility weight of the new issue is large, the change will also be large, and so on. In Figure 3, we have drawn z_i' and z_i'' as examples of possible changes in z caused by the strategic introduction of a new issue. As is clear from the figure, the change from z_i to z_i' does not change the vote; the change from z_i to z_i'' causes the voter to switch from candidate Beta to Alpha. Candidate Alpha, by introducing a new issue chosen to match the particular parameters needed to change voters' minds, has won the election.

This completes our discussion of the introduction of new issues when the prevailing party system and associated ideological cleavage accounts for the new issue. In the next section, we consider the implications of new issues when the new issue changes the dimensionality of the space of political debate

itself.

III. Discussion of New Issues and the Space of Political Competition

In considering new issues not accounted for by the prevailing ideology, it is useful briefly to consider the larger literature on the stability of electoral processes over time. The consideration of the strategic addition of new issues makes the implied game dynamic, and potentially unstable. What are the implications for political strategy?

As is well known, majority rule election processes always have a determinate Condorcet winner at the ideal point of the median voter, provided the relevant strategy set is one-dimensional and voter preferences are single-peaked. While one might quarrel with the assumption of single-peakedness, the obvious problem lies with the assumption of unidimensionality, particularly when we allow for *strategic* introduction of new dimensions. McKelvey (1976) showed that if the core of the election game is empty, and voting is sincere, then it is possible to choose an agenda (sequence of pairwise votes) that lead to virtually any outcome in the policy space.

This result requires, it should be noted, noncontinuous voting trajectories, so that the agenda may imply the sequential consideration of enormous changes in the status quo policy. Such an assumption does not square well with the possibility of strategic voting; neither do we observe such wild swings in real democratic decision-making. If we restrict voting trajectories to be continuous, then if there are two dimensions cycles will still generically result, but outcomes will be restricted to the Pareto set (Schofield, 1978).[21] For *any* continuous (nondictatorial) voting method, the „Voting Classification Theorem" (Schofield, 1984, 1993; McKelvey and Schofield, 1986) implies it is possible to assign an integer that describes the number of dimensions at or above which the system becomes generically unstable.

Thus, for the majority rule example, even if preferences are convex (the multidimensional analog of „single-peakedness"), if there are only two alternatives, and if voting trajectories are continuous, the election game becomes generically unstable when there are three or more dimensions.[22] This means that there is no restriction to any subset of the strategy space: voting outcomes can wander anywhere. The model of ideological dimension(s) embedded in a spatial choice framework in the present paper highlights the importance of dimensionality in causing stability or instability in a polity. The results of McKelvey and Schofield may have been given short shrift, because the policy space is assumed to be of very high dimension, and consequently n is always much larger than the number of dimensions that imply instability. But suppose the *actual* space where political debate takes place is usually of only two, and often one, dimensions, as Enelow, Hinich, MacRae, Munger, Poole, Rabinowitz, Rosenthal, and Schofield have all claimed in various works. Then the results of the Voting Classification Theorem are of great moment, and all political systems teeter constantly on the brink between stability and chaos.

Several authors have wondered if „institutions," or what North (1990) has called the „humanly devised rules of the game," may prevent instability. This argument, while plausible, begs the question. What Shepsle (1979), Shepsle and Weingast (1981), and others have actually shown is that institutions provide ways to *enforce* consensus on avoiding instability, particularly within legislatures. Disjoint committee jurisdictions, property rights to seats, germaneness requirements, „vote the status quo last" restrictions, and closed amendment rules do impart order to the potentially chaotic legislative agenda, *but only within a universalistic consensus that chaos is desirably avoided*. As Riker (1980) pointed out, in the absence of agreement over policies, we cannot rely on naive agreement over institutions to induce equilibrium.

If a party out of power, or a crosscutting coalition of disgruntled members, successfully introduce a new issue, the specter of chaos is raised. Those advantaged by the status quo will try to use the institutions of the legislature to defend stability, of course. Still, institutions cannot generically solve the problem of conflict over dimensionality for very long without (nearly) universal agreement. Riker's (1982) example, alluded to above, of the U.S. Civil war makes this point very clearly. By raising the issue of

slavery, the coalition that became the Republicans after 1854 managed to annihilate the dimensions of the previously (fairly) stable political space. It wasn't clear they would „win" as a result, but they did ensure that if they lost it would be in a different game.

Poole and Rosenthal (1984) provide an analysis of the classificatory power of an empirical model of ideology in their Table 3, examining several periods, including the 32nd House (1851-52). They find that briefly, and for one of the only times in U.S. history, the explanatory power of two separate recovered dimensions fell below 80%. This is *not* to say that a third dimension appeared. As Poole and Rosenthal (1991; p. 242) point out, the incremental improvement of a third measured dimension was less than 2% in 1852. What did happen, because of the introduction of slavery as an explicit issue, was a disappearance of any coherence in voting patterns. In Poole and Rosenthal's own words, „The conflict over *extension of slavery to the territories produced the chaos in voting* in the 1850s." (emphasis added; p. 258). The problem was not so much that there was a new issue, because this happens all the time. Rather, chaos arose because the new issue could not be handled within the existing ideological framework. Thus, slavery effectively raised the dimensionality not just of politics, but of the *strategy space*. We can't measure that directly, but we can see its effects in the measures that do exist: patterns of legislative voting broke down, previously clear divisions became incoherent, and the Poole and Rosenthal measures of the explanatory power of two recovered ideological dimensions fell to historic lows.

Poole and Rosenthal (1993) go further, claiming that only a fundamental change in the primary dimension of the ideological space itself is really a candidate to be called „realignment." Thus, realignments should not be confused with temporary circumstances when a „new" (for Poole and Rosenthal, second) dimension is added to the ideological space. Politics will look different (more chaotic) when there are two dimensions, but the original fundamental cleavage will return unless there is a realignment. The process of realignment when there is a genuinely new issue can then be summarized as follows:

> [W]ell before a realignment, congressional voting should be stable and organized around the cleavage of the last realignment . . . This means that the policy space is stable--the same dimension(s) account for voting over time, and legislator ideal points should show little change from Congress to Congress. A new issue then emerges that splits the political parties internally and begins the process of polarization. This can be modeled as a new dimension, orthogonal to the stable set from the last realignment, across which both parties become increasingly polarized. We should see this polarization take place in two ways . . . newly elected representatives from the same party should take relatively polarized positions on the new dimension . . . [Incumbents] should exhibit movement that, relative to their earlier positions, resulted in polarization. As the process continues, more and more of the voting is concerned with the new issue, so that the old, stable set begins to wither away. (Poole and Rosenthal, 1993, p. 16).

There are two parts of this description that require some exposition to fit into our discussion above. First, the „movement" of the candidates takes place *not* because they have changed their positions, but because the space itself has changed. The derivation of Δz, in earlier sections, is one possible theoretical description of how this takes place. Second, the Poole and Rosenthal description is very precise and accurate, but may mislead the casual reader. It is worth expanding on the reason that „more and more of the voting is *concerned with the new issue.*" The ideological linkages between the new issue and all other issues supplant the old linkages, which supported the old ideology. Not all the roll calls are „about" the new issue, of course. Instead, as other matters increasingly link to the new main cleavage, *the symbolic relations of other issues to the main cleavage increasingly become the basis for choice*.

To sum up, the „successful" introduction of a new issue may be a victory for the disgruntled or out of power coalition that introduces it, but the victory may be Pyrrhic. The result of the introduction of a genuinely „new" (i.e., not accounted for by the existing ideological cleavage) issue is not an orderly transformation to a new political space with another dimension. Rather, the effect is to release the genie of chaos from its bottle. This gives more room for maneuver and strategic action, it is true, but maneuvering

is now possible for all sides in the conflict. In the higher dimensional space, and with the collapse of the gate-keeping institutions designed by parties and legislatures to prevent multidimensional competition, anything can happen.

IV. An Example: Quebec Sovereignty

The 1993 Canadian general election is a fascinating case of a „new" issue changing the politics of a nation. The issue we have in mind, the sovereignty of the province of Quebec, is of course not really new. Tensions between Francophone and Anglophone Canadians predate the existence of Canada as a nation. However, consider the definition of „issue" in Hinich and Munger (1994):

> *Issues*: Social problems large numbers of citizens care about that (1) politicians talk about in (a) public, (b) to contributors, or (c) among themselves, OR (2) the press talks about, either because some interest group wants it discussed or because citizens care about it. (p. 111).

People may or may not have cared much about Quebec independence before the 1993 election, and in fact in some previous elections the possibility of Quebec becoming a separate nation had been raised. What happened in 1993 was that large numbers of people seemed to care, politicians debated the „issue," and the media covered the story.

A caveat: The empirical work in this section is not a test of the theory we have laid out in this paper. Rather, the example of Quebec sovereignty in the 1993 Canadian national election will help the reader understand what the theory is about. In particular, we can show two things.

(1) ***Issues positions of Canadian voters cluster.*** Those who support Quebec sovereignty tend to be relatively „liberal," by U.S. standards, and have a set of issue positions that are highly correlated with their stand on sovereignty. Likewise, voters who oppose sovereignty have predictable positions on other issues.

(2) ***The „New" issue changed whole groups of people's positions, and vote choice.*** In the 1993 election, sovereignty for Quebec came to dominate any other single issue. It became so important that positions on other issues came to cleave along one's position on sovereignty. More simply, in 1993 Quebec was very close to representing the ideological dimension that divided parties and determined the election.

The factor analysis below is performed on survey data from the 1993 Canadian Election Survey, obtained from the University of York in Toronto. The „issues" in the survey are answers to questions about subjects policy positions. The point of the factor analysis is to show (1) Issues cluster, and (2) Quebec sovereignty appeared to take on the status of entirely separate dimension.

As Table 1 shows, there were two important factors in the structure of voters' issue preferences in 1993. The first factor appears inclusive, and arguably corresponds with a classic left-right ideological dimension. The second factor, however, is for all practical purposes simply the issue of Quebec sovereignty. Two of the other issues do load on the second factor: crime (perhaps because Quebec is the most urban province) and the belief that the U.S. is too dominant in Canadian national affairs. The resentment of the U.S. may seem odd, unless one recognizes that those who favor Quebec sovereignty consider Anglophone Canada and the U.S. to be indistinguishable in terms of the threat they pose to the cultural autonomy of French-speaking Quebec.

Table 1: Results of Factor Analysis on 1993 Canadian Data:

Eigenvalues of the Correlation Matrix: Total = 8 Average = 1

	1	2	3	4	5	6	7	8
Eigenvalue	2.6356	1.2442	1.0098	0.8583	0.8224	0.6285	0.4169	0.3843
Difference	1.3914	0.2343	0.1515	0.0359	0.1939	0.2116	0.0326	
Proportion	0.3295	0.1555	0.1262	0.1073	0.1028	0.0786	0.05	0.0480
Cumulative	0.3295	0.4850	0.6112	0.7185	0.8213	0.8999	0.952	1.0000

Initial Factor Method: Principal Components

Factor Pattern

	FACTOR1	FACTOR2	FACTOR3
Quebec should be a „sovereign“ province	0.07265	0.83877	0.01983
Aboriginal peoples should be helped by govt.	0.75158	0.22994	0.11131
Canada needs less government	0.15738	0.05389	0.94023
Gays and Lesbians should have more rights	0.75574	-0.34641	-0.13105
Women should have more rights	0.69394	-0.09158	-0.10186
Minorities should have more rights	0.78486	0.11223	0.02409
The most important problem is „crime“	0.43735	-0.41452	0.08330
The United States is too dominant in Canada	0.42510	0.41476	-0.27919

Source: Canadian National Election Survey, 1993, University of York. Number of respondents: 710.

V. Conclusions

This paper has laid out a theory of the effects of the introduction of a new political issue. We claim that the most realistic, and most important, strategy for candidates embroiled in an actual political campaign is the search for the key issue, or set of issues, to use to change the likely electoral outcome. The other „moving parts" of the spatial model of politics, such as voter preference or party position, are not good candidates for the short-run political strategies that make up the campaign. Voter preferences are changed only by random (as far as the candidates are concerned) events, by socialization, or by the rhetorical messages candidates use repeatedly, as Riker (1990) discusses. Candidates, likewise, can commit to positions only through reputation and consistent use of ideology, as Dougan and Munger (1989), Hinich and Munger (1992, 1994), and Popkin (1994) have argued.

Though similar to Riker's "heresthetics," our approach of using ideology as a unifying device for communication enables us to derive explicit results on the parameters that affect voter preference. The importance of this general approach has already been highlighted, and explored empirically, by Baumgartner and Jones (1993). A good "new" issue is one (1) voters care about, (2) on which most voters have preferences that differ from the status quo, and (3) for which the existing ideological cleavage allows clear and credible linkages. A candidate who is losing is constantly trying to find such an issue. A candidate who is winning is constantly trying to neutralize the opponent's attempts to bring such an issue to prominence. Though it may be difficult in practice to say if an issue is „new" (did the change come from new technology, or from a new framing of an old dispute?), the basic strategy of redefining the space of debate is fundamental to political competition.

This point is hardly original, having been made from several theoretical perspectives (Budge and Farlie, 1983; MacDonald and Rabinowitz, 1987; 1993; Kollman, Miller and Page, 1992). As MacDonald and Rabinowitz (1993; p. 76) point out: „In directional theory, campaigning on the basis of issues and ideology is a game in which candidates attempt to define the relevant agenda by making 'their' issues - the issues on which a significant plurality favors their side - the issues on which the campaign turns." The contribution of the present paper has been to identify a systematic means by which the issues that a party perceives as „theirs" can be identified. Issues accounted for by the existing ideological split change *positions* of candidates, while issues outside the prevailing ideology change the *policy space* itself. Consequently, issues that are truly new are risky, and will be used only in times of great strain or uncertainty.

Finally, it is important to note that we have made only limited claims about the set of issues that cause „movement" in the minds of voters. The key distinction in the paper has been between new issues that cause movement of candidate positions in the existing recovered space, and new issues that cause fundamental realignments. Most „new" issues cause neither, because no one notices. But the changes, and movements, that we do observe are quite consistent with a model of strategic choice by political actors.

Appendix I: Sketch of Proof of Theorem on Change in Ideology

The theorem can be restated as having two parts:

- If Conditions 1-4 are met, then $0<|\Delta z|<\infty$.
- If $0<|\Delta z|<\infty$, then Conditions 1-4 must be met.

The proof requires two separate demonstrations, first that conditions 1-4 are sufficient for change in z, and second that they are necessary.

Sufficiency: Conditions 1-4 imply $0<|\Delta z|<\infty$. Suppose not; suppose that Conditions 1-4 are met, yet the following statement is true:

$$\Delta z = \frac{\left(\sum_{k=1}^{m} a_{kk} n_k^2 \left[a_{m+1,m+1}(x_{m+1} - b_{m+1}) n_{m+1}\right]\right) - \left(\sum_{k=1}^{m} a_{kk}(x_k - b_k) n_k \left[a_{m+1,m+1} n_{m+1}^2\right]\right)}{\left(\sum_{k=1}^{m} a_{kk} n_k^2\right)\left(\sum_{k=1}^{m} a_{kk} n_k^2 + a_{m+1,m+1} n_{m+1}^2\right)} \in \{0, \infty\} \qquad \textbf{(A1)}$$

Conditions 1-2 imply that each of the terms in brackets in the denominator of A1 are nonzero and finite. Conditions 1-3 imply that each of the terms in brackets in the numerator of A1 are nonzero and finite. Consequently, $\Delta z \neq \infty$. Now, since each of the terms in brackets in both the numerator and denominator are nonzero, the only way $\Delta z=0$ is possible is if the difference in the numerator is exactly zero. But this would imply that:

$$\sum_{k=1}^{m} a_{kk} n_k n_{m+1} a_{m+1,m+1}\left[(n_k x_{m+1} - b_{m+1}) - n_{m+1}(x_k - b_k)\right] = 0 \qquad \textbf{(A2)}$$

Condition 4a implies that the term in brackets in A2 is nonzero. Condition 4b implies that the weighted sum of the bracketed terms is nonzero; consequently, expression A2 is false, and the sufficiency portion of the theorem is proved.

Necessity: If $0<|\Delta z|<\infty$, then Conditions 1-4 are met. Again, suppose not, so that $|\Delta z| = \gamma$, $0<\gamma<\infty$, but at least one of Conditions 1-4 are not met. It is easy to show, relaxing Conditions 1-4 one at a time, that $\gamma=0$, contradicting the original claim that $\gamma \neq 0$.

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Notes

1. Numerous authors have considered the dimensionality of the "space" of competition, of course, including the importance of bundling issues or "division of the question." For a review, see MacRae (1970); for further work, see Enelow and Hinich (1984). Also, it is important to note that we ignore the role of parties as „gateways“ (or gatekeepers) in the propagation of new issues, a role first described in detail by Berelson, Lazarsfeld, and McPhee (1954). A recent paper that models parties as „adaptive,“ and shows that different search algorithms may lead to different kinds of political competition, is Kollman, Miller, and Page (1992).

2. See, e.g., Hinich and Pollard (1981); Enelow and Hinich (1984; 1990); Poole and Rosenthal (1984; 1991; 1993); Hinich and Munger (1992; 1994).

3. For three very different views of what „issues“ are, or should be, see MacRae (1970), Zaller (1993), and Hinich and Munger (1994).

4. On the importance of, and difficulty understanding, belief systems see Denzau and North (1993).

5. The definition of „issues“ is of course crucial to this claim, but any such definition is very difficult to defend. As Poole and Rosenthal (1991; p. 239) point out: „[O]ur work shows that a low dimensional Euclidean model largely captures the structure of Congressional voting, ...[but] the work says nothing about how specific issues get defined in terms of the structure.“ For a detailed discussion of the problem of defining issues in legislatures, see MacRae (1970).

6. The perceptions of meaning of ideological terms are not identical across individuals, of course, and may in some cases vary widely (see, e.g., Conover and Feldman, 1984). The point is that the terms have enough meaning, enough shared understanding, that they are useful for political communication. If this were not true, we wouldn't use them.

7. There are several ways of conceiving signals by parties or candidates. For a review of the signalling literature, see Banks (1991) . Two alternate views are the claim that reputation solves problems of commitment (Dougan and Munger, 1989), or that personal relations *or perceptions are the key to achieving trust (Bianco, 1995).*

8. We adopt the convention that lower case Greek letters are points, and upper case letters are spaces. Thus, for policy: $\omega \varepsilon \Omega$; for ideology: $\pi \varepsilon \Pi$; and so on.

9. There is a crucial distinction between the „constraint“ considered by Converse (1964), and that intended here. In Converse's „nature of mass belief systems,“ constraint is imposed by coherent and consistent individual belief systems. In the our conception, constraint is imposed by people's experience and their understanding of the regularities of political discourse. The notion of consistency is not logical, but is rather temporal.

10. The linearity of the correspondence is subject to question, of course, particularly over large discrete changes. It is much more plausible to imagine that the correspondence is only locally linear.

11. The Poole and Rosenthal results show that, as an empirical matter, the dimensionality of the space of political debate is usually one. There is no theoretical reason to believe that one dimension, rather than two or even three, is to be expected. The theory only implies we should expect few ideological dimensions compared to many issues.

12. If p=2, then $p_j \in \Pi, \Pi \equiv \Pi_1 \times \Pi_2$, and so on in higher dimensions.

13. The extent to which an understanding of an ideology is shared is, of course partly a question of definition and partly one of measurement. A potentially important line of inquiry is that suggested by Lupia (1994), who notes that decision rules and understanding of cues need not be universal to achieve the benefits of the evolution of such rules. Whether ideologies are in fact one such kind of decision rule is part of the remaining research agenda.

14. In our example, this means that there is no party associated with the more tanks, more school lunches

position.

15. This theoretical discussion sounds very similar to a related perspective, „directional“ theory, advanced by MacDonald and Rabinowitz (1987), and Rabinowitz and MacDonald (1989). The *key difference*, and the main point of contention, between the two theories, is whether is makes sense to conceive of issues as being linked (as we have), or claiming issues are evaluated in isolation because individual belief systems are diffuse (as MacDonald and Rabinowitz have claimed). The theory of ideology claims that there are important linkages, *across* issues, in the way that issues are presented. The reason may be a budget problem (the only way to increase spending in one area is to decrease spending elsewhere), or pure ideology (defense spending is bad, social welfare programs are good, for liberal ideologues, and the only way to commit is to claim to share beliefs). The reason for the difference in theoretical perspective may simply derive from a difference in explanandums: directional theory seeks to explain voter evaluation and choice (voter beliefs may actually be diffuse and unlinked), while ideological theory seeks to explain platform choice at the elite level (where coherence in programs may be crucial, both for partisan and practical budget reasons).

16. The only difference implied by the use of circular indifference curves is that the matrix of utility weights is all ones; that is, **A=I**.

17. The set of new „issues“ is quite likely uncountably infinite, since variations on statements and „framing“ can be argued fundamentally to change the nature of the issues themselves.
18.. We do not mean "the" representative voter, in the sense of a median voter; representative here simply means arbitrarily chosen.

19. The model is quite capable of handling nonseparable preferences, simply by allowing the off-diagonal elements of **A** to be nonzero. This explicitly causes the level of satisfaction with the amount of policy k to depend on the available amount of policy h, $h \neq k$.. For a more complete discussion, see Hinich and Munger (1996), especially chapters 3 and 7.

20. $\lim_{v_{m+1} \to \infty} (\Delta z) = 0 / 1 = 0$

21. For all practical purposes, the Pareto set is identical to the convex hull of the set of ideal points of all voters.

22. This is an oversimplification. In fact, majority rule becomes unstable at three dimensions only when n is odd. When n is even, the instability dimension is the fourth. Obviously, these results, and all others discussed here, require that all voters vote.