

**Bringing Politics to the Study of Voter Behavior:
Menu Dependence in Voter Choice**

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Chapter 1

Introduction

Introduction

This work develops and tests a theory of issue voting. I demonstrate that voters, seeking to affect policy outcomes, do not necessarily vote for the party closest to them, but rather reward parties that pull policy in a preferred direction. Furthermore, I use this observation to provide a micro-foundational explanation to a persistent empirical finding unaccounted for in political science – menu dependence in voter choice. The argument starts with the observation that voters care about policy outcomes and that outcomes are usually a product of bargaining among multiple players. I then show that the impact of each party on policy, and hence voter assessment of each party alone, depends on the configuration and characteristics of other parties on the ballot ('menu'). Finally, drawing on a comparative empirical analysis, I demonstrate how institutional environment determines the conversion from party platforms to policy outcomes and thus affects voter behavior.

A key feature of politics, most political scientists would probably agree, is policy making. Moreover, politics is about making policies that change (or reinforce) the status quo. It is a constant battle among forces that pull, each one in its own direction, to shift policy to an outcome that is beneficial to them. Indeed, the notion of forces acting to change policy and consequently political outcomes is indeed central to almost any field of research in political science. Studies of interest groups, bargaining, political economy, gender politics, and institutional design are only some fields that incorporate this notion. Strangely, however, theories of issue voting are divorced of outcome-oriented behavior. Instead, theories of issue voting consist of affective or expressive behavior (as in the directional or proximity model, respectively) and thereby remove issue voting from the realm of what we usually think of as politics.

This project improves on current models of issue voting in two main dimensions. First, it enhances study of voter behavior by developing a model that explicitly recognizes that parties engage in a constant effort to influence policy outcomes, and that voters, as political actors, wish to use their vote choice to affect policy. In this model, voters reward parties not only for presenting a platform proximate to their own positions (as in current models), but also for pulling policy outcomes in their direction.¹

Allowing for policy outcomes to affect voter choice involves a second contribution of this study. Most of formal theory of voter behavior, as well as most empirical analyses of voter choice, employ the proximity model by which the closer a voter is to a party platform, the more likely she is to vote for that party. The proximity model implies that voter assessment of each party depends on her distance from that party *and from that party alone*; any other party on the ballot makes no difference. Yet multiple evidence in political science, psychology, and economics suggest that individual choice between two alternatives often depends on availability and characteristics of other alternatives on the ‘menu’, an empirical regularity and a theoretical statement referred to as menu dependence. Incorporating outcomes into voter calculation allows me to develop and test a formal model that deviates from strict assumptions of rationality and is consistent with empirical evidence of individual behavior. My project recognizes the empirical regularity of menu dependence in individual behavior and provides a micro foundation explanation for it.

Moving from the abstract to the concrete, a German voter, for example, may change her likely vote choice between the German Greens and the Social Democrats, depending on the availability of the Christian Democrats in the race, their strength, and their location in policy

¹ Of course, tactical voting models acknowledge the relevance of competing parties for the evaluation of a single party (see, for example, Gschwend, 2000, 2001). Emphasizing that voters vote to achieve an outcome, these models incorporate availability of other parties into voter calculation. Issue voting literature, however, overlooks policy outcome as a motivation for voter choice. Consequently, most models of issue voting have no hint of policy-making process in them.

space. Current models of vote choice, however, ignore the potential dependence of choice on characteristics of other parties on the ballot, and instead assume that whether proximity or intensity (depending on the model), it is only characteristics of the Greens that a voter considers when evaluating the Greens, such that the availability of the Christian Democrats is irrelevant for voter choice.

A handful of empirical studies in political science acknowledge menu dependence (Alvarez and Nagler, 1995,1996, 1999, Lacy and Burden 1999, 2001, Schofield et al, 1998, Quinn, Martin, Whitford, 1999). Using statistical tools, these studies allow for the set of competing parties to affect voter assessment of each party alone. While statistically relaxing the menu independence assumption, these studies provide no explanation of what it is about the presence of the Christian Democrats that affects voter assessment of the Greens.

This is where the two main features of the proposed model – outcome oriented voters, and menu dependence – interact. In most democracies, policy outcomes are a function of more than one actor. Whether the parties composing the governing coalition in parliamentary systems, or legislature and president in presidential systems, the outcome function involves a compromise between multiple forces. German immigration policy, for example, is a compromise among the different factions in the governing coalition. If voters care about policy, and if policy outcomes are a product of a compromise of multiple players, then in assessing each party, voters value not only how proximate is the party platform to their own positions, but also what impact the party has on policy. The marginal impact of each party on policy, in turn, depends on other parties. Generally speaking, my model shows that the more similar parties are, the smaller is the marginal impact of each party on policy. Therefore, when evaluating parties, indicators of similarity and substitutability across parties are relevant. In other words, position shifting of the Christian Democrats may change Green impact on policy which in turn changes voter assessment of the Greens.

These two features lead to two related contributions. The first has to do with current debate in the issue voting literature. Analyzing the relationship between issue positions and voting behavior, political scientists have been divided between two theories of voting. The proximity model (Downs, 1957) is the benchmark model in empirical analyses of voter behavior. Almost any study of voter choice includes distances between voter issue positions and candidate positions as explanatory variables. In the past two decades, however, the spatial model has been challenged by an alternative theory – the directional model (Rabinowitz and Macdonald, 1978, 1989). In spite of the heated debate over the most accurate representation of voter choice, there is no clear evidence supporting one model or the other (see, for example, Iversen, 1994a, Merrill and Grofman, 1999, Lewis and King, 2000).

As it turns out, predictions of the proposed model encompass predictions of the two existing models as specific cases and specify the conditions under which voting is directional or spatial, and the extent to which it is one or the other. Incorporating outcome-oriented behavior and menu dependence allows me to endogenize the directional component of voting without inducing arbitrary decision rules such as the region of acceptability. I show that outcome-oriented voting leads to directional voting, while expressive, representation-oriented voting leads to proximity voting. The stronger are the pulling forces of the ‘opposite side’ of the status quo, the more balance in her own direction the voter hopes to achieve, and hence voting is more directional. Our German voter is more likely to vote for the Greens even if her positions are closer to the Social Democrats the more likely the Christian Democrats are to participate in the governing coalition, and the more influential they may be in that coalition.

Finally, the model allows me to investigate institutional effects on menu dependence. Whether under proportional representation or in presidential systems, policy is usually determined by more than a single actor. Similar to parties that pull in their direction in a parliamentary system, the institutions – president and the legislature – in presidential systems pull in their own directions. While similar in essence, these effects are not the same. Analyzing voter

behavior under presidential versus parliamentary versions of the model, I show the differences between the two.

The chapter proceeds as follows. The next section reviews what we know about menu dependence in political science and other disciplines. The following section discusses current models of issue voting. In particular, it reviews the most often used model – the proximity model – and its main challenger – the directional model, and unfolds the menu dependence assumption, the Independence of Irrelevant alternatives (IIA) embedded in these models. The final section provides a roadmap for the project as a whole.

What We Know about Menu Dependence

Political Science: Empirical Evidence

Recent studies in political science examine voting in multiparty systems. Students of voting behavior no longer lump parties in order to create artificially dichotomous systems, nor do they eliminate parties to shoehorn politics into existing models. Instead, they treat multiparty systems as such and adjust their own methods of analysis to fit substantive characteristics of each case (See, for example, Quinn, Martin, and Whitford, 1999, Schofield et al., 1997, Whitten and Palmer, 1996).

Generally speaking, studies analyzing multiple-choice situations split into two waves both chronologically and analytically. The first wave pioneers the discussion of multiple-choice situations. It enhances previous research through its substantive insights about voter behavior in multi-party systems as well as the methods it uses. Evaluating the spatial model against the directional model and a model of representational policy leadership which combines insights from the two, Iversen (1994a) analyzes voting patterns in six West European party systems. Iversen employs a series of binary and multinomial logit models to analyze voter choice. He finds that the representational policy leadership model best accounts for observed voting patterns. Whitten and Palmer (1996) test binary versus multinomial models for the analysis of vote choice

in multi-party systems. Using the Netherlands and Great Britain as cases, they show that multinomial logit produces results that are congruent with established theories of Dutch and British politics.²

Studies of multi-choice electoral situations go beyond multi-party systems. Nownes (1992) employs an unusual framework to the study of turnout in the U.S., treating the decision to vote in primary and general elections as a multiple-choice (unordered) situation where a voter can vote in both elections, vote only in the general election, or abstain from both.

In addition to focusing on vote choice in multi-candidate elections, recent work also examines the effect of a specific candidate's presence on voter choice. Studies explore from whom did a specific candidate steal votes and how electoral results would have changed had she not run (Alvarez and Nagler 1995, 1998, Lacy and Burden 1999, 2000). This second wave builds on the first, discusses choice-set effects, and partly relaxes the econometric version of menu independence assumption, the Independence of Irrelevant Alternatives (IIA) assumption, embedded in the spatial model (see definition and discussion of the assumption below). Alvarez and Nagler (1995) relax the IIA assumption (even if partly) for the first time in empirical study of voting behavior. The authors analyze vote choice in three-candidate races. They examine the 1992 U.S. presidential election and ask whose votes Perot stole. Reallocating Perot's voters between the other two candidates, they compare Clinton's and Bush's vote shares in Perot's absence to their vote shares in his presence. Similarly, looking at 1987 U.K. elections, the authors examine the ideal location of the Labour party – that is, the location in policy space that would have maximized its vote share.

Lacy and Burden (1999, 2000) extend these studies and endogenize the decision to turn out. When the choice set changes, they argue, the decision to turn out should not be held constant. Vote shares of all candidates are therefore sensitive to turnout. Building on Alvarez

² Whitten and Palmer do estimate a nested model that allows for partial violation of IIA as well, but most of their results build on the MNL (or the specific case of it – the bivariate logistic model).

and Nagler's work, the authors employ a more flexible framework to the study of menu dependence. Schofield et al. (1998) too perform a counterfactual analysis in multi-party electoral systems. Examining data from Germany and The Netherlands, they estimate ideal locations for parties in policy space – locations that would maximize parties' vote shares.

While these studies provide empirical evidence that choice sets matter as well as a statistical solution to address it, political scientists still know little about *how and why* they matter to voters. Sophisticated statistical models allow menu dependence to be violated via the stochastic component (see technical discussion below). These models allow the error terms to correlate across alternatives, and thereby allow for something other than what is measured in the researcher's explicit theory (as it appears in the systematic component of the statistical model) to affect voter utility for each alternative. What that something might be is left as a black box, such that even when political scientists acknowledge the effects of choice sets, our substantive understanding of choice sets is limited. Alvarez and Nagler (1995) raise a possible explanation of an omitted-variable bias. They propose that there might be a characteristic of the different alternatives that is missing from the model. This could be, for example, a policy position on some dimension that was not included in the survey. Whether it is the right explanation, it is merely hypothetical and while solving the statistical problem does not get us far in understanding how choice sets are relevant for voter choice. These studies model away the 'nuisance' of menu dependence, providing little theoretical insight as to what that dependence might be.

For technical reasons that will be discussed below, the statistical model used in the first wave, multinomial Logit, cannot provide answers to menu-dependence puzzles. Most studies examining menu dependence empirically employ multinomial Probit (MNP) models. Unlike multinomial Logit, MNP is computationally cumbersome. In addition, a saturated MNP model cannot be estimated, and constraints on some of the parameters are essential. In particular, the variance-covariance matrix – the component of the model that allows relaxation of IIA – cannot be fully estimated in regular likelihood procedures; the researcher has to place constraints on

some of the elements, which almost always translates to assuming no menu dependence between some of the alternatives. Technically too, then, the MNP provides only a partial answer to the study of choice sets.

Another partial solution the methodological literature offers is nested models. The most common solution is the nested multinomial Logit model (NMNL). By grouping the choices hierarchically into branches, the NMNL allows choices within the same branch to have their errors correlated. While it provides a partial solution to the problem, the nested model requires rigid impositions on the data. The researcher must have a well-specified theory about the decision making process, such that it provides a clear prior belief about the correct grouping criterion. Employing a nested model, Born (1990) analyzes vote choice in the U.S. as nested within the decision to turn out. He shows that for some substantive questions, the results the nested model produces differ from the results produced by models that treat the two decisions as simultaneous. Still, while some would agree with Born's grouping, others, for example, would argue that voters first decide whether or not to support the incumbent, and nested within this node is the decision of whether to abstain or to vote for a challenger.

Generally, the issues broached in these studies – the effect of a third candidate on other candidates' vote shares, and from whom she stole votes in a particular election – are aggregate-level consequences of menu dependence. A discussion of the micro foundations is missing, or is limited at most. The studies do not provide a compelling theoretical framework that describes which voters are likely to shift their vote, nor do they describe the circumstances under which (or the type of voters for whom) IIA will likely be violated. Methodological concerns aside, these studies still do not provide a satisfactory answer to the choice-set puzzle. The systematic component still complies with principles of the proximity model – even though evidence shows that these principles do not hold. Scholars in psychology and economics have addressed menu dependence as well. I turn now to examine micro-foundation explanations of menu dependence in these fields.

Micro-Foundations: Theoretical Explanations

Social-choice theory, experimental psychology, and behavioral economics discuss menu dependence extensively. Experimentalists and theorists in these fields have investigated multiple mechanisms by which alternatives available on the menu affect subjects' evaluation of each alternative alone. The approach and premises of these studies differ from premises of parallel studies in political science. Consequently, a comparison of models from different fields is not obvious. Nonetheless, it may prove helpful to review a sample of these studies.

Huber, Payne, and Puto (1982) investigate how addition of an alternative to the choice set affects consumer choice among several products. In particular, they focus on addition of an alternative that is dominated by one of two available alternatives and show that it increases the preference for the dominating alternative. What is the mechanism that causes subjects to evaluate highly the dominating alternative? Wedell (1991) examines several mechanisms that can account for this effect. Figure 1 (taken from Wedell, 1991, p. 768) presents three possible theories for choice-set effects under these circumstances. I first discuss these explanations and then examine their applicability and explanatory power in political situations.

Dimensional Weighting. Under the dimensional weighting hypothesis, a third alternative can affect evaluation of the first two relative to each other by changing the weights put on each of the dimensions. Imagine a two-alternative choice set $S=\{A, B\}$ such that initially, A and B lie on the same indifference contour where A is preferred to B on dimension y but B is preferred to A on dimension x (see figure 1a). The introduction of alternative C which is dominated by A changes the weights of the two dimensions such that A and B do not lie on the same indifference curve any more. C extends the weight given to dimension y , and consequently, A is preferred to B .

Value shifting. According to the value shifting model, change in evaluation of A versus B in the presence of a third alternative (dominated by A) results from changes in the subjective values subjects place on properties of A and B rather than values of weights on these properties. Padrucci (1965) presents a range-frequency theory to explain choice-set effects of this sort in one

dimension. According to his theory, the value of an alternative on a given dimension depends on (a) the position of the alternative relative to the perceived minimum and maximum on the dimension (range), and (b) the proportion of alternatives scoring lower than that alternative (relative frequency). Figure 1b shows an example of such effect. Again, *A* and *B* initially lie on the same indifference contour. R_A extends the subjective range on dimension *x*, making both *A* and *B* gain higher subjective values. However, as *B* lies close to the maximum on dimension *x*, the effect of R_A on *B*'s subjective value is smaller than its effect on *A*'s value, and hence *A* is eventually of higher value than *B*. Similarly, F_A increases the proportion of alternatives scoring lower than *A* on dimension *y* and hence increases the subjective value of *A* on dimension *y*. In addition, F_A raises the proportion of alternatives scoring higher than *B* and thus makes its perceived value lower. Finally, RF_A raises *A*'s subjective value on both dimensions. Consequently, R_A , F_A , and RF_A change the preference order between the two alternatives such that *A* is now preferred to *B*.

Dominance valuing. Unlike the previous two models, under the dominance valuing model dimensional weights and values along different dimensions are insensitive to choice sets. The dominance relationship affects choice by increasing the *global* attractiveness of the dominating alternative (see figure 1c). Unlike the value-shifting model, dominance valuing predicts equal effects of *D*, *E*, and *F*, since all three are dominated by *A* and hence increase *A*'s attractiveness. Also, unlike the dimensional-weighting model, it predicts that *E* will increase the attractiveness of *A*, as it is dominated by *A*. Finally, since *G* is dominated by both *A* and *B*, it predicts that it will have no effect on evaluation of the two relative to each other.

Considering these psychological explanations and evaluating their applicability to political situations, it is useful to think about the choices subjects make and the institutional environment in which these choices take place and draw parallels in the political world. As mentioned above, several aspects of these explanations make it harder to apply them to political situations. First, all three theories apply to cases where the first two choices are on the same

indifference contour to begin with, and moreover, the additional alternative is strictly dominated by one of the two or by both alternatives. This setup limits the set of situations to which these theories apply, or at least, it limits the set of voters for whom it applies.

More importantly, mapping from choice to outcome differs between these situations and most political systems. In situations described in the psychological literature the outcome function is simple: outcome is identical to choice. There is no compromise across alternatives or institutions; if A is chosen over B then A is the outcome. This is analogous to a political institution where there is only one voter, or alternatively, where the winner is a dictator and implements her own policy. This, of course, is not the case in most political systems. Unlike these explanations, the model I propose is most relevant where there is discrepancy between the set of available points in platform space and policy space. Given these differences, the psychological explanations only loosely apply to political situations. The following adaptations should be then taken in that spirit.

Applied to electoral situations, the dimensional weighting model implies that as the choice set changes the information set changes as well. More specifically, salience placed on each dimension is endogenous to choice set. Empirical support for this claim is plentiful. Both the behavioral literature of campaigning (e.g. Iyengar and Kinder, 1987) and the formal literature of heresthetic (Riker, 1990) show that candidates place issues on the agenda, frame and reframe others, and highlight or downplay the importance of other issues, according to the candidate's reading of potential vote distribution. Moreover, candidates who join an already going race often capitalize by raising the salience of an otherwise latent dimension. For example, Perot turned the deficit into a central issue in the 1992 U.S. presidential race, forcing Clinton and Bush to address it, and green parties in Western Europe have been able to raise environmental issues to the top of the agenda.

Dominance valuing theory does not apply to politics plainly. What is it about the dominance relationship that makes an alternative more attractive? A possible explanation is the

public component of the choice. Simonson (1989) shows that when subjects have to explain their choice to others, they are more likely to choose the dominating alternative than the other one compared to situations where they were assured that their choice will stay confidential; it is easier to explain having chosen the dominating alternative (A) than the other alternative (B). Even though Simonson's study is aimed at explaining choice in the psychological context, it touches on the deliberative component of elections. Talking to peers, fellow workers, family, and friends, voters often have to justify their choice. It is easier to explain having voted for a dominating alternative than another one.

As I discuss above, the setup and the outcome function in particular differ between the two theories and the choice-set model, and hence a comparison is not obvious. Nonetheless, as I show in the next chapter, both dimensional weighting and dominance valuing differ in their predictions from the prediction of the choice-set model I propose. While the choice-set model predicts an increase in the attractiveness of B in the presence of a new alternative in the vicinity of A, dimensional weighting and dominance valuing predict an increase in the attractiveness of A over B when a dominated alternative is available next to it.

Multidimensional Aggregation. How do voters make decisions in multidimensional situations? Do they evaluate their options alternative-by-alternative or dimension-by-dimension? How does a dynamic choice set affect decision-makers' evaluations? Theoretical discussions in social choice theory (Arrow and Raynault, 1981, and more recently, List, 2000) discuss multidimensional decision making as an Arrowian aggregation paradox – a paradox that takes place within oneself. Individuals, it is argued, rank order alternatives on each dimension alone, and then aggregate their preference order across dimensions. Just like aggregation failure may occur in the process of aggregation of individual preferences, here too, aggregation across dimensions may result in cyclicity.

May (1954) presents individuals with three potential marriage partners, ranked on intelligence, look and wealth. The three candidates $\{x,y,z\}$ are ranked such that on intelligence

the preference order is $xPyPz$, on look $yPzPx$, and on wealth $zPxPy$. The resulting choice for many individuals (a product of multidimensional aggregation) is, not surprisingly, a cycle of preferences. Mintz et. al (1997) introduced top-ranking officers in the U.S. air force with several choices of action in international conflict (containment, do nothing, sanctions) that vary on four dimensions (political, military, economic, and diplomatic). They then add a fourth alternative (use of force). The authors show that once the choice set is dynamic, decision makers tend to shift their information gathering on the four alternatives between evaluation by alternative and evaluation by dimension. Since in many cases the alternatives are rank ordered rather than having a cardinal value, an addition or elimination of an alternative can result in a preference shift. The following example illustrates this.

Consider an individual whose preference profile is as follows: she mostly prefers alternative A, second is B, and alternative C is her least preferred choice (see table 1 for probabilities of voting for each alternative). Once C is eliminated, if IIA is violated, the probability of voting for C is partitioned between A and B in some fashion such that the new probabilities are:

$$P_i(A) = .35 + x$$

$$P_i(B) = .34 + (.31 - x)$$

Where $x \in [0, .31]$

Table 1. Preference Profiles of individual i : Probabilities under IIA and with IIA Relaxed

	Original Choice Set	IIA holds	IIA violated
Alternative A	P=.350	.507	.350-.660
Alternative B	.340	.493	.650-.340
Alternative C	.310	--	--

If the individual evaluates the alternatives dimension by dimension and x is the number (proportion) of dimensions on which A is the individual's second choice and B is third (assuming

all dimensions are of equal salience), any new set of probabilities that does not preserve the original ratio implies expected choice different than the original one. Even if the order of the two probabilities is unchanged, the mere fact that the odds change is an indication of menu dependence. Take for example a case where the original probabilities of i choosing A and B (initially .35 and .34, respectively) change to .65 and .35 in C 's absence. In the original case, i is almost indifferent between the two candidates, yet under the confined choice set i clearly prefers A to B .³ A more extreme change is such that the ranking of probabilities switches because most dimensions on which C is preferred are allocated to B . Here the preference order between A and B changes only because C dropped out.

The multidimensional aggregation framework can be applied to multidimensional political situations. Imagine a voter who prefers A to B to C . If C drops out of the race, the voter reallocates the dimensions on which party C best represents her between A and B . Depending on the distribution of these dimensions, she might switch to B (her initially second best choice) rather than to A .

Like the three models above, multidimensional aggregation framework too implicitly assumes an outcome function of one player: the outcome is identical to the chosen alternative. Unlike these models, however, it does not require any dominance relationship among the alternatives. In addition, the prediction can be (though need not be) similar to the prediction of the choice-set model in the similarity principle: the dimensions on which the dropping out candidate is the voter's first or second choice are reallocated among other parties, such that parties similar to the dropping out party gain a larger portion of the dimension share of the dropping-out alternative. However, isolated parties (but equally beneficial to the voter) can gain these dimensions as well. Regardless, unlike the choice-set model, a key condition of menu dependence under multidimensional aggregation is ordinal utility. If voters employ cardinal

³ Since all probabilities are conditioned on the systemic component of the model, they can change only due to the partition of the dropping alternative. In other words, unlike the dimensional weighting model, this

utility, preference order across parties cannot change when the choice set changes; the numbers add up the same way. Under this framework, the number of competing candidates affects voter choice only if utility depends on ranking (such as ordinal utility or Borda count).

In summary, though compelling, psychological explanations assume an outcome function different than outcome functions of political processes, and hence cannot easily apply to menu dependence in political situations. The next section reviews existing models of issue voting and unpacks the assumptions embedded in these models.

Current Models of Issue Voting

Proximity Voting

The proximity model (Downs, 1957) describes party competition in a two-party system where the winner can implement its policy platform. Under this system, the model can be summarized by the following principles:

1. Voters' issue positions can be represented by points in policy space,
2. Parties' policy positions can be represented by points in the same space, and
3. Based on their positions, voters choose a party such that the outcome is closest to their own.

The result of this model is well known; the two parties will adopt the policy position of the median voter.

This representation of the model appears in most theoretical accounts (see, for example, Davis and Hinich, 1966, Davis, Hinich, and Ordeshook, 1970). Note, however, that in the two party setup where the winner can implement her preferred policy, policy outcome is identical to the winner's platform (assuming a binding platform), and thus the same result can be achieved either by voting over policy outcomes or by voting over platforms. The equivalence of these two alternatives in yielding the same outcome in the two-party system results in discrepancies between the theoretical and the empirical interpretations of the model. While theoretical accounts

model assumes identical weights on the different dimensions across choice sets.

of voting take proximity voting to mean vote over outcome, empirical research adopts the latter motivation – vote over platform.

In Enelow and Hinich (1984), the utility of voter i for candidate j is negatively related to the weighted sum of Euclidean distances (WED) between voter i and candidate j 's issue positions. In a two dimensional space the voter's utility is then:

$$U_{ij} = -\|v_i - p_j\|_A = -WED(v_i, p_j) \quad (1)$$

$$= \left[a(v_i^{(1)} - p_j^{(1)})^2 + 2a_{12}(v_i^{(1)} - p_j^{(1)})(v_i^{(2)} - p_j^{(2)}) + a_{22}(v_i^{(2)} - p_j^{(2)})^2 \right]^{1/2}$$

where

v_i is a vector of voter i 's positions such that $v_i^{(1)}$ and $v_i^{(2)}$ are her issue positions on dimensions (1) and (2), respectively,

p_j is a vector of candidate j 's positions such that $p_j^{(1)}$ and $p_j^{(2)}$ are her issue positions on dimensions (1) and (2), respectively, and

A is a matrix of weights (diagonal when preferences are separable, and identity when dimensions are equal in salience).

Following Enelow and Hinich, almost all empirical studies of voter choice include a vector of distances between the voter ideal points and the party's platform positions on the relevant issues on the right hand side. The proximity model is the benchmark model in studies of issue voting. I turn now to an alternative model of issue voting.

Directional Voting

In spite of its solid status in voter behavior research, the proximity model has been persistently challenged in the past two decades, mostly by the directional model. Rabinowitz and Macdonald (1978, 1989) propose a directional theory that links issue positions to voter choice. For issues to have impact, the authors claim, they have to convey a symbol and consequently evoke sentiments. Symbols have two qualities that trigger voter sentiments:

Direction: voters feel favorable or unfavorable toward a symbol

Intensity: the symbol conjures feelings with high or low emotional content

It is impossible, according to the authors, to locate voters on a scale. Rather than different levels of extremity of issue positions, voters respond to issues with different levels of intensity.

Voters thus vote for parties that are on the same direction of an issue as themselves, and within that direction, they prefer more intense to less intense parties. Parties are vote maximizers and will thus be more intense than voters.

The two components, direction and intensity, are integrated into a simple choice model.

In one dimension:

$$U_{ij} = v_i p_j \tag{2}$$

As equation (2) shows, when the voter and the party are on the same side of an issue with respect to some neutral point (v_i and p_j are of the same sign), effect on the voter is positive, and when they are on opposing sides, it is negative. Building on ideas of symbolic politics (Edelman, 1964), the directional model predicts that a voter may prefer a candidate farther away from her as long as she is on the same ‘side’ of the issue as the candidate to a candidate closer to her but located on a different side. Implicit in this model is that intensity and extremity are synonymous.

As equation (2) indicates, the more intense is a party, the more vote support it receives. As is, however, this model does not have a well-defined maximum. The prediction is divergence of parties to the extremes of policy space (‘up to’ infinity and minus infinity). Rabinowitz and Macdonald solve the problem by adding what they call ‘region of acceptability’: “Of course, it is possible for a candidate may be so intense as to become an unacceptable ‘extremist’”, they write (1989, p. 97). While a candidate wants to be the one that makes the most effective use of a symbol, there are bounds on how aggressive a candidate may be. These are bounds of ‘reasonableness’ which a candidate should not cross, or she will lose her support. The prediction of the model, in turn, is that parties will locate right at the edge of what Rabinowitz and Macdonald define as ‘region of acceptability’.

In addition to the original logic of the directional model put forth by Macdonald and Rabinowitz regarding directional behavior, explanations of directional behavior that hint at outcome-oriented voters are found in the literature. Building on Przeworski and Sprague (1986), Iversen (1994b) suggests that consistent with the directional model voters look at politicians in quest for direction, but also that party elites, on their side, pull electorates toward sharper positions. This model is fundamentally different from other models of issue voting in that it allows for positions to be endogenous to the political process. Bailey (in progress) is the only work I am aware of that explicitly treats directional behavior as outcome-looking voting. Incorporating institutional context into the proximity / directional debate, Bailey proposes a model that reconciles the parsimony of the proximity model with the empirical attractiveness of the directional model. In his framework, institutional constraints determine individuals' opportunities to affect policy, and thus directional behavior is an attempt by individuals under certain institutional environments to reach spatially proximate policy outcomes.

My discussion of the spatial and directional models thus far has addressed first principles of these models. While it is crucial to understand their theoretical assumptions, solutions, and implications, my ultimate goal is empirical. The empirical and theoretical approaches differ not only in their interpretation of the model but also in their use of basic concepts. In what follows I refer to these models as they are discussed in the empirical literature. In particular, I take the empirical literature and its interpretation of the proximity model and assumptions embedded in it on its own terms. A key property of the model that is central to both traditions yet varies in its meaning is the Independence of Irrelevant Alternatives (IIA).

The Independence of Irrelevant Alternatives

If voters indeed care about proximity to or direction and intensity of party platforms, then when evaluating the German Greens versus the Social Democrats, a voter would examine each of the two platforms and make a choice between the two based on a comparison of the two platforms with respect to the relevant characteristics. Any other platform should not be relevant

to voter assessment of either of the two. Indeed, unpacking the two models, one can see that they both imply this assumption.

Both rational choice theory and econometrics discuss extensively the Independence of Irrelevant Alternatives. While the former utilizes Arrow's (1951) definition of IIA (see also Sen, 1971) that is employed in social choice theory, the behavioral tradition utilizes a different definition, borrowed from econometric research (McFadden, 1974). For the puzzle I examine in this study, the latter is appropriate. In its econometric sense, the IIA is represented by the following equation:

$$\frac{p_i^S(j|X)}{p_i^S(k|X)} = \frac{p_i^T(j|X)}{p_i^T(k|X)}$$

where

S and T are choice sets such that

$$S = \{j, k, m\}$$

$$T = \{j, k\}, \text{ and}$$

$$m = (m_1, m_2, \dots, m_c), \text{ and}$$

X is the systemic component

That is, while absolute probabilities of choosing each of the alternatives change with the addition of an alternative, their odds ratio remains the same. The violation of IIA, in turn, implies that conditioning on the systemic component, the odds do not necessarily remain constant when the choice set changes. This is an assumption about individual behavior; in electoral situations IIA implies that the ratio of probabilities of an individual voting for two candidates does not change when a third candidate joins the race (assuming the same electoral context).

As mentioned above, if voters only care about the proximity of a party to their own ideal position, assuming independence of all other parties make much sense. After all, an addition or elimination of, say, the Christian Democrats does not change the distance between a voter and the German Greens; the numbers add up the same way. More technically, as seen in equation (1), the

spatial model is insensitive to choice sets; utility function of voter i for candidate j depends only on elements that have to do with voter i -party j characteristics (e.g. distances). Availability or characteristics of any other party do not affect i 's utility for j ($\partial U_{ij} / \partial p_{k, k \neq j} = 0$). Since the only arguments in i 's utility for party j are i - j characteristics, a utility maximizer voter will change her vote choice *only* if another alternative, located closer to her, becomes available.

Although not stated explicitly, it is easy to show that the IIA assumption is embedded in the directional model as well. As equation (2) reveals, the utility of voter i for party j depends only on the direction of the two with respect to each other and on j 's intensity. Any change in the set of parties available or in their dispersion in space does not affect voter utility for a specific party. Here too, voter utility for the Greens does not change when other parties join or drop out of the race.

As discussed above, the IIA assumption is empirically questionable. Granted, in the process of abstraction social scientists need to make assumptions to make their theories parsimonious, their mathematical models tractable, and their statistical analyses solvable. In this case, however, IIA precludes political scientists from gaining better understanding of issue voting. In particular, IIA implies that when assessing a party, voters care about the platform of the party (or any other characteristic that is specific for that party), rather than about policy – a characteristic which is a function of other parties as well. This, in turn, leads political scientists to inferences inconsistent with empirical evidence. In particular, the spatial model predicts convergence of parties to the median voter, while evidence shows that parties actually diverge away from the center (see for example, Iversen, 1994b). As I show below, if voters think about policy outcomes and therefore their utility is based on more than one party, they prefer parties *more extreme* than they are. Consequently, my model predicts divergence of parties from the center, a prediction consistent with empirical evidence.

The Plan of the Project

This project is divided into two main parts. Chapter 2, followed by extensions in chapter 3, presents the principal theory of this work. It presents the core model in formal and informal forms, followed by some comparative statics. In addition to menu dependence, it then discusses two implications of the model. First, it proposes a reformulation of the ongoing debate in the literature between the proximity and directional models. Second, it discusses institutional environments and how they affect menu dependence in voter behavior. These implications are picked up and further developed in following chapters.

Chapter 3 will elaborate on the institutional aspects of menu dependence discussed in chapter 2. In particular, it will compare menu dependence under presidentialism to menu dependence under parliamentary systems, and within the latter, under majoritarian versus proportional representation. As alluded to in chapter 2, any voter concerned with outcomes, realizing the circumstances under which outcomes involve political bargaining, may take into account in her choice the bargaining process. Obviously, the outcome function depends on the institutional environment; the institutions involved, interaction between them, their design, and the like.

This chapter will elaborate on how institutional design and hence mapping from parties available on the ballot to policies produced by the political system determine the nature and extent of menu dependence. Bargaining among parties in the parliament or in the coalition is different from bargaining between a president and the legislature, or bargaining between state and federal levels in a federal system. In a parliamentary majoritarian system as in the UK, for example, the party forming the government has almost complete control over policy outcomes. An outcome in a parliamentary system that requires coalition formation or under minority government as is often the case in Norway, on the other hand, depends heavily on all factions participating in the parliament or the governing coalition. Similarly, an outcome in a presidential system as in the U.S. depends on compromise between the executive and legislature, and as

explored by Alesina and Rosenthal (1995), Burden and Kimball (1998), and others, varies between general and midterm elections. Still, this outcome function is different from the former. This chapter discusses how the mapping process from parties on the ballot to policy outcomes, a process that hinges on the institutional environment, shapes menu dependence in voter behavior.

Drawing on the theory predictions, chapters 4 through 7 present comparative empirical analysis from field (chapters 4 through 6) and lab. The first three empirical cases used vary on their institutional environment, such that in addition to voter behavior at the individual level, I will draw inference on institutional impact on voter behavior. Chapters 4 and 5 analyze voter behavior in parliamentary systems, under proportional representation and majoritarian electoral systems, accordingly. Chapter 4 analyzes voter behavior in Norway (utilizing in particular data from the 1989 and 1993 Norwegian elections). The Norwegian case is illuminating from two aspects. At the micro level, Norway has been a central case in the proximity-directional debate (see, for example Lewis and King, 2000, Westholm, 1997). My model allows me to reinterpret voter behavior analyzed in these studies in light of the choice set model proposed here. On the macro level, a case of many minority governments, Norwegian policy is a compromise across parties in the parliament. My analysis will show how voters want to affect outcomes using their vote, and how the extent to which voting is spatial or directional depends on other parties in the bargaining system.

Chapter 5 examines voter behavior in the U.K (1987 elections). A parliamentary majoritarian system, policy in the U.K. depends only to a minor extent on parties other than the governing party. When the Conservatives are in power, compromise with the Liberals and Labour over policy is limited. I therefore expect to find choice set-effects weaker in the UK compared to the proportional system of Norway.

Chapter 6 examines voter behavior in the U.S. A federal presidential system, policy outcome in the U.S. involves compromise between local and federal levels, as well as between federal and executive. Focusing on the latter, my analysis will take place within the context of

policy moderation arguments (as in Alesina and Rosenthal, 1995, or Fiorina, 1996). I will discuss how choice-set effect in the presidential case differ from choice set in the multi-party proportional representation case.

Moving from the field to the lab, chapter 7 will examine empirical evidence of menu dependence based on lab experiment. The combination of field data analysis of voter behavior in real political situations with sterile lab environment will allow me to tighten my empirical tests of the proposed theory. The lab environment enables complete control over variables that are harder to isolate in the field. It allows me to test the assumptions, as well as the empirical predictions, of the proximity and my proposed model. The lab allows me to control the choice set, add parties to the race and eliminate others, have different substitutability patterns across parties, different outcome functions (i.e. different institutions) and explore the effects of these changes on voter choice. Chapter 8 will conclude.