Testing proximity versus directional voting using experiments ☆

Dean Lacy [a],[1], Philip Paolino [b],*

[a] Dartmouth College, 211A Silsby Hall, HB 6108, Hanover, NH 03755, United States
[b] University of North Texas, 1155 Union Circle # 305340, Denton, TX 76203-5017, United States

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ABSTRACT

A long-running debate about how voters use issues to evaluate candidates pits the proximity theory of voting against directional theory. Using surveys, both sides of the debate have found support for their preferred theory, but disagreement remains because of differing ways of analyzing the data. Lewis and King (2000) point out that these researchers make assumptions that bias results in favor of their theory. To avoid these difficulties, our approach creates fictitious candidates with controlled positions, presents these candidates to randomly-assigned subjects, and examines the relationship between subjects' evaluations of these candidates and their ideological beliefs as a neutral test of proximity and directional theory. Our results provide reasonably strong support for proximity theory but little for directional theory.

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1. Introduction

An important tenet of democracy is that elections allow voters to influence public policy. While it is clear that some voters choose candidates based on issues of public policy, political scientists have yet to settle on an explanation for how voters evaluate candidates' positions on issues, leaving a significant gap in our understanding of voter decision-making, candidate position-taking, and the importance of issues in elections.

One way for voters to use issues is to vote for the candidate whose issue position most closely matches the voter's. This "proximity" theory of voting closely corresponds to the notion of elections as a means by which voters express their policy preferences. Under proximity

voting, voters and candidates have ideal points on a logical ordering of different policies, and voters choose the candidate whose ideal point is nearest to their own (e.g., Downs, 1957; Enelow and Hinich, 1984). A voter's utility for each candidate is inversely related to the distance along this continuum between her and each candidate's preferred policy on one or more issues. If V_i represents voter i's ideal point on the one-dimensional real line, and C_j is candidate j's announced position, a linear loss function,

$$U_{ij}^P = -|V_i - C_j|. \tag{1}$$

or a quadratic loss function,

$$U_{ij}^P = -(V_i - C_j)^2 \tag{2}$$

can capture the logic of voting.

In contrast, Rabinowitz and Macdonald (1989) propose a "directional" theory of voting. In this conception of issue voting, voters and candidates choose one of two sides of an issue and hold that position with varying levels of intensity or remain neutral. A voter's utility for a candidate is based upon whether or not the candidate shares the voter's preferences and the intensity of the voter's and the candidate's commitment to those preferences. If a position on an

issue, S, can be represented by -1, 0, or 1, with 0 representing a neutral point committed to neither side of an issue, and intensity, I, is some positive value, a voter's directional utility for a candidate on a policy is:

$$U_{ij}^D = (S_v I_v)(S_c I_c) = V_i C_j, \qquad (3)$$

In this model, a voter's utility is strictly increasing for candidates that take increasingly intense positions on her side of the policy space. Likewise, the utility for any single candidate is strictly increasing for increasingly intense voters on the same side of the policy space.

The two theories are represented graphically in Fig. 1, with voters' utilities for three candidates, placed spatially at positions -1, 1, and 4, with the directional utilities for both candidates specified by Eq. (3) represented in subfigure (Fig. 1a) and the proximity utilities specified by Eq. (2) represented in subfigure (Fig. 1b). Note that voters in directional theory differ from those in proximity theory in that they do not necessarily receive maximal utility from a candidate who reflects their beliefs. Rather, all non-

neutral voters will always prefer the candidate who shares their beliefs on an issue with the most intensity over any other candidate, including one who also supports that position with a low level of intensity, even when the voter's intensity is also low. For instance, a directional voter at position 1 receives more utility from the candidate located at position 4 than from the one located at position 1, just the opposite for the proximity voter. The similarity of a candidate to voters does not matter as much as a candidate's commitment to an issue in the direction that voters favor.

As one can also see in Fig. 1, both models predict that voters on the opposite side of the issue space from a candidate will have decreasing utility for increasingly extreme or intense candidates. Similarly, both models predict that the most extreme or intense voters on the same side of the issue or ideological space will prefer a more extreme candidate to a more moderate one.[2] A voter at position 5 will prefer any candidate to the right of another one, whether the voter's utility is expressed under directional or proximity theory. One reason that it has been so difficult to determine which model better describes how voters use issues is that the models' predictions are indistinguishable for most voters.

A second possibility that makes it hard to distinguish these theories is that some voters may behave in a directional fashion without truly thinking in directional terms. Several theories of divided government posit that voters choose candidates for one branch of government to balance the other branch (Fiorina, 1992; Alesina and Rosenthal, 1995). Several empirical studies find that voters engage in policy balancing Mebane (2000), policy discounting (Adams et al., 2004; Grofman, 1985), or policy expectations by considering the positions of other branches of government and a candidate's skill and veracity in office (Lacy and Paolino, 1998). In a system of checks and balances, voters may prefer a candidate with policy preferences more extreme than the voter's own in order to pull policy in the voter's direction. Kedar (2005) presents evidence that European voters in multiparty systems may act in a manner consistent with directional theory in order to produce outcomes that mirror their preferences. This is not directional voting but a form of proximity voting in which voters think about how different combinations of candidates will interact in office. Voters choose the combination of candidates that come closest to the voter's ideal point in a proximity sense, but they may vote for more extreme candidates for some offices.
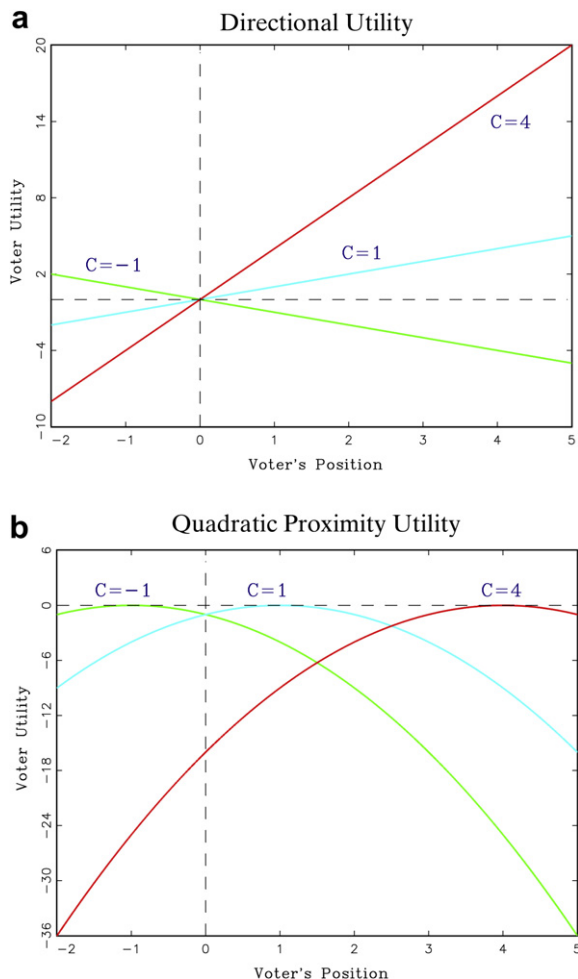

Fig. 1. Directional and proximity utility functions. The figures illustrate the directional (a) and quadratic proximity (b) utilities across a spectrum of different voter positions for candidates, located at -1, 1, and 4.

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[2] "Extreme" and "intense" are not synonyms when describing attitudes (Krosnick et al., 1993). Proximity theory, because it allows for issues to be ordered along a continuum, allows candidates to be intense moderates as well as intense extremists, but level of commitment is generally not evaluated as a central part of empirical tests of proximity voting. Directional theory, by contrast, allows for moderation only in terms of one's commitment to an issue position. There may exist some similarity between the two as spatial candidates who are more extreme are often more intensely committed to their positions, but we cannot absolutely say that the two are the same. Nonetheless, for purposes of exposition, we will mostly use the terms "extreme" and "intense" interchangeably. We will return to this issue later in the paper.

However, two key distinctions do arise between the models' predictions. The first is the relationship between moderate voters' utility for different candidates on the same side of the issue space. Proximity theory predicts that a moderate voter will prefer a moderate candidate on the same side of the neutral point—and sometimes candidates on the *other* side of the neutral point—to an extreme one. In subfigure (Fig. 1b), for example, a voter located at position 1 receives the highest utility from a candidate also located at 1, but also receives higher utility from a candidate located at −1 than from one located at position 4. In contrast, directional theory predicts that a moderate voter on the same side of the issue space as a candidate will always prefer an extreme candidate to a more moderate candidate on the same side and will prefer any candidate on the same side to any candidate on the opposite side. We can see from subfigure (Fig. 1a) that a voter located at position 1 prefers a candidate located at 4 to one located at 1, who is in turn preferred to a candidate located at −1.

The theories also differ concerning voters' evaluations of moderate candidates. In the directional theory, voters' utility for candidates on the same side is an increasing function of both voters' and candidates' intensity. Directional theory predicts that "the strongest support for the candidate comes at one extreme" (Rabinowitz and Macdonald, 1989, 98), meaning that more intense voters should give greater evaluations than moderate voters to a moderate candidate (also see Macdonald et al., 2001, 491). While it is not clear that proximity theory makes any prediction on this point, Eq. (1) suggests that moderate candidates should receive higher evaluations from moderate than from extreme voters under proximity theory. Because of these differences, tests of the theories should focus not on the whole issue space, but on areas where the predictions of each theory contrast most sharply, specifically moderate voters' preferences for extreme and moderate candidates and moderate and extreme voters' evaluations of moderate candidates. An experimental approach is well-suited for this task.

These differences, therefore, set up two primary hypotheses that we test in this paper. The first concerns the effect of candidate position upon voters' preferences. For any given opposition candidate:

H1$_{Directional}$: *Moderate voters prefer an extreme candidate over a more moderate candidate who locates on their side of the policy space.*

H1$_{Proximity}$: *Moderate voters prefer a more moderate candidate over an extreme candidate who locates on their side of the policy space.*

These hypotheses are straightforward implications of the theories as we have discussed them above. Directional theory also produces one unique hypothesis concerning evaluations of less intense candidates.

H2$_{Directional}$: *Extreme voters give higher evaluations than more moderate voters to moderate candidates on the same side of the policy space.*

This hypothesis tests the prediction that, for any given candidate on the same side of the neutral point as two voters, the more extreme voter will have higher utility for that candidate. To some extent, Macdonald et al.'s (1998) claim about the greater falsifiability of directional theory than proximity theory is supported with respect to this hypothesis. Taking Westholm's point that proximity theory does not make predictions about interpersonal comparisons of utility, directional theory offers a prediction that proximity theory does not. Moreover, it is a prediction that is unaffected by directional theory's disputed *region of responsibility*, a region where candidates who are too intense are punished by voters, because the hypothesis concerns how voters of different intensities evaluate only a moderate candidate on the same side as the neutral point as the voters. Because these hypotheses are very specific about the direction of the proposed relationships, we report one-tailed tests in our analysis.

In the next section, we describe our experiments and how they provide a means of testing the theories while avoiding three major points of contention: how candidate placement is determined; whether the theories should be tested using preference curves or support curves; and the region of responsibility.[3] We then present our results. Finally, we consider the implications of our research for this debate.

2. An experimental approach

Experimental studies of mass behavior have shown great promise in a number of debates (e.g., Druckman, 2004; Morton, 1999; Morton and Williams, 2001) but have only recently been used to test proximity and directional theories of voter choice against each other (Claassen, 2007; Tomz et al., 2006; Tomz and van Houweling, 2009). Our experiments are designed to focus on the points of divergence between the two theories, while bypassing points of contention.

The cornerstone of this project is the creation of candidates whose issue positions are fixed at locations that allow us to test the differences between the two theories. We recruited one hundred and thirty-four subjects from the University of North Texas and one hundred and sixty-three from the Ohio State University in exchange for extra course credit and told them that they are participating in a study of campaign communication in an election to the US House of Representatives. The experiments were conducted during the spring and fall of 2004, and the candidates were believable competitors in an unspecified House district. We used a 2 × 2 design, whereby subjects were randomly assigned, unknown to them, to one of four treatments, where they viewed campaign materials from two candidates running against one another: a Republican who is either conservative or moderate and a Democrat who is either liberal or moderate.

Prior to exposure to the candidates, subjects were asked about their party identification, ideology, and positions on eight political issues, all of which would be presented in the campaign materials. Subjects were then exposed to a professionally-produced 30-s televised campaign

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[3] For the reader unfamiliar with these points, we provide elaboration in the Appendix.

commercial for each candidate and mock newspaper interviews with each of the candidates (transcripts available from the authors on request). None of the materials included pictures of the candidates because of research indicating that preference for candidates can be influenced by appearance (Rosenberg et al., 1986). Aside from the issues, the only information that would clearly influence beliefs about the candidates is their party affiliation. Even the names of the candidates, John Cook and Paul Miller, were chosen to be as ordinary as possible.

The mock interviews presented questions about the same issues across all candidates, with both the direction and extremity of the candidates' positions selected in accordance with party and extremity treatments. The advertisements presented some different issues for each party, with positions varied within party. Having both candidates in a race create ads that use the same issues, in the same order if we wanted to have complete similarity across conditions, would likely have raised our subjects' suspicions. While it may have been ideal to use the same issues across all candidates, we need only to keep the issues constant within the party, varying the position, because our comparisons concern the candidates of the same party.

Following the presentation of stimulus materials, a "Need for Cognition" battery of questions (Cacioppo and Petty, 1982) provided a distractor test. Subjects were then asked to evaluate the candidates on a variety of measures, starting with a "thermometer" measure that asks subjects to place the candidates on a scale where 0 reflects a "cold" feeling toward each candidate and a 100 represents a "hot" feeling. Subjects' impressions of each candidate's ideological beliefs, positions on issues, and vote preference were also obtained after their exposure to the stimuli.

We use three different dependent variables: the raw thermometer ratings of the candidates, thermometer differences between the candidates, and vote preference. The thermometer differences and vote preference are dependent variables that speak only to Hypothesis 1, the direct test of proximity and directional voting. It is easy to show (Table 1) that both directional and proximity theory

predict that more extreme voters will have greater thermometer differences than more moderate voters for a moderate candidate on their side of the neutral point compared to a candidate on the opposite side. At best, proximity theory predicts, when utilities are specified as in Eq. (1), equal thermometer differences for moderate and more extreme voters. As a result, the test of Hypothesis 2 requires that we use raw thermometer scores as the dependent variable.

The principal independent variables are the experimental treatment, party identification, and issue self-placements. The most important of these variables is the experimental treatment. If our experiments support directional theory, moderate subjects in the treatment with extreme candidates on their side of the policy space should prefer and provide higher thermometer scores to the extreme candidates than moderate subjects in the treatment with moderate candidates. Directional theory would also receive support if more extreme subjects in the treatment with moderate candidates give higher thermometer scores to moderate candidates than do moderate subjects in the same treatment. Observing the opposite relationships would constitute support for proximity theory. In all cases, the relevant comparisons are between candidates within the same party, not across the parties. Because realism dictated that our fictitious candidates were associated with party labels, we also control for subjects' party identification.

As we note above, proximity theory and directional theory differ in their conceptions of public policies. Like Blais et al. (2001), we measure subjects' issue preferences using a branching format that asks respondents to declare, first, which side of an issue they agree with and then express the strength of their support for that position, but unlike their work these "directional" measures over eight issues better fit directional theory's conception of public policy.[4] This may bias our tests against proximity theory, but we believe it is important to finally provide a test of the theories that approaches issues as they are conceived of in directional theory. For each issue, subjects' scores ranged from a strongly liberal position of −3 to a strongly conservative one of 3. To determine each subject's policy location, we take the average score across the eight issues.

2.1. The value of an experimental approach

The extensive controversy between proximity and directional theory has spanned several articles and responses (e.g., Rabinowitz and Macdonald, 1989; Macdonald et al., 1991, 1998, 2001; Westholm, 1997, 2001) and led to at least one attempt to combine the two theories (Merrill and Grofman, 1999). In this paper, we cannot address every aspect of the debate, but our experimental design allows us to avoid the three central controversies that studies based upon survey research cannot ignore and have helped prolong debate over this question: determining candidate placement, the use of preferences

Table 1
Moderate candidates and differenced utilities.

	Voter location				
	1	2	3	4	5
A. Directional utilities					
Candidate placement = 1	1	2	3	4	5
Candidate placement = −1	−1	−2	−3	−4	−5
Difference	2	4	6	8	10
B. Quadratic utilities					
Candidate placement = 1	0	−1	−4	−9	−6
Candidate placement = −1	−4	−9	−6	−25	−35
Difference	4	8	12	16	20
C. "City block" utilities					
Candidate placement = 1	0	−1	−2	−3	−4
Candidate placement = −1	−2	−3	−4	−5	−6
Difference	2	2	2	2	2

Cell entries are utilities or differenced utilities for candidates with issue placement at either 1 or −1 and for voters with placements that range from 1 to 5. Utilities are calculated according to directional utility functions, quadratic utility functions, or absolute value proximity utility functions.

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[4] The specific issues and question wordings are included in the Appendix.

versus support scores, and the "region of responsibility" (cf. Blais et al., 2001). Since most readers are probably aware of these issues, we provide elaboration of these points in the Appendix. We want to stress that our experimental approach is not designed to arbitrate the correctness of these points of contention, but to remove these difficulties from a test between the two theories.

Our experiment avoids the problem of candidate placement by having voters evaluate candidates whose relative positions we have established in advance. By creating candidate positions, we know the relative true positions of each candidate and can avoid questions of where to place a fixed candidate location. We also avoid the real-world problem that different voters often receive different messages from candidates who tailor their messages to their audiences. We can reasonably examine, therefore, the consequences using both a voter's perceptions of the candidates' positions or fixed candidate placements. We do not even need to be concerned with the specific form of voters' utility functions (cf. Westholm, 1997, 817–872). For our test, we need only to determine if voters with similar issue preferences have candidate preferences more consistent with proximity theory or with directional theory.

Some might still argue that our approach ignores the relationship between voters' perceptions of and their preferences for the candidates. While it is often important to take voters' perceptions into account, this should present little problem in our experiments if our subjects accurately perceive that the candidates have distinct positions. We asked respondents to place themselves and each of the two candidates they saw on a nine-point ideology scale since a seven-point scale provides too few points for subjects and candidates where the predictions of directional and proximity theory differ. The results (Table 2) indicate that the experiments generally had the intended effect. The liberal Democrat is seen as more liberal than the moderate Democrat, and the conservative Republican is seen as clearly more conservative than the moderate Republican. The average ideological placement of the liberal Democratic candidate is 3.01, compared with a 4.23 for the moderate Democrat.[5] For Republicans, the moderate Republican's average ideological placement is 5.28, compared with a placement for the conservative Republican of 8.25. These differences are statistically significant at $p < .05$ for candidates in both parties, and over 80% of our subjects see the Republican candidate to the right of the Democrat.

We also determined that the candidates reflect our intended variation using the "directional" measures of the candidates' positions from the same issues on which the subjects placed themselves. These results indicate that

the directional placements across all issues matched the ideological placements. The liberal Democratic candidate's mean directional placement is −1.50, compared with the moderate Democrat's −1.07. Similarly, the conservative Republican is perceived as having stronger and more conservative positions on the issues, with a mean score of 1.73, than the moderate Republican, whose overall average is 0.42. These differences are also all significant at $p < .05$. On specific issues, both Democratic candidates are seen on the liberal side of every issue, with the exception that the moderate Democrat is perceived as somewhat supportive of going to war in Iraq. Also, the moderate and liberal Democrats are seen as similarly intense on issues of the economy, the environment, health care, and education, even though our ads made distinctions, such as the liberal's proposal to stimulate the economy by "extending benefits to unemployed workers," compared with the moderate's support for "targeted tax cuts for innovative industries." With this measure, more than 80% of our subjects also see the Republican candidate to the right of the Democratic candidate.

On the individual issues, the moderate Republican is seen, on average, as having a slight liberal lean on three of the issues: the economy, abortion, and education; although, the scores were so close to 0, at −0.12, −0.12 and −0.65, respectively, that we might say that the candidate appeared to have come across as relatively neutral, which, if not our explicit intention, further sharpens our ability to test proximity against directional voting. Subjects perceive the moderate Republican, on average, to the right of the moderate Democrat on each issue. The issue where the directional placements are contrary to the intended relative positioning of the two Republican candidates is environmental protection, where both candidates expressed support for drilling in the Arctic National Wildlife Refuge in their interviews. There is also little difference in the perception of the Republican candidates on the war in Iraq, where the similarity is probably the result of the strong support that both candidates offered for President Bush's position in the interviews.

The important matter from all of this is that the candidate manipulations were generally successful, though subjects perceived greater differences between the two Republican candidates than the two Democrats.[6] We expect, therefore, that subjects' evaluations of the Republican candidates will produce the better test of directional versus proximity voting. The greater similarity in subjects' perceptions between the two Democratic candidates may make it more difficult for us to distinguish proximity from directional theory, but we were concerned that giving the Democratic candidates even more distinct positions created a risk of moving the liberal Democrat outside the region of responsibility. In weighing these trade-offs, we believed that it was more important to make sure that all of

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[5] Our ideological placement measure uses a branching format that first asks subjects whether or not they are liberal, conservative, or moderate and then, depending on their response, determines whether they are very, somewhat, or slightly liberal or conservative or, for those responding as moderates, whether they are slightly liberal, slightly conservative, or simply moderate. This measure, like the one we use for candidate placements below, produces a 9-point scale, with higher values reflecting a more conservative placement.

[6] The experiments were conducted at state universities in two states that voted Republican in the 2000 and 2004 presidential elections. Our subject pool had slightly more Republicans than Democrats, which may explain the greater perceived differences between the Republican candidates than the Democrats.

Table 2
Ideological and directional placements of subjects and candidates.

Issue	Democrat		Subjects	Republican	
	Liberal	Moderate		Moderate	Conservative
Ideology	3.01 [2.65,3.36]	4.23 [3.91,4.56]	5.10 [4.81,5.40]	5.28 [4.89,5.67]	8.25 [7.99,8.51]
Summary directional	−1.50 [−1.68,−1.31]	−1.07 [−1.24,−0.89]	−0.43 [−0.58,−0.28]	0.42 [0.23,0.61]	1.73 [1.56,1.91]
Gun control	−1.33 [−1.63,−1.02]	−1.11 [−1.44,−0.77]	−0.42 [−0.67,−0.17]	0.03 [−0.35,0.40]	1.65 [1.31,1.99]
Economy	−1.64 [−1.97,−1.31]	−1.65 [−1.95,−1.34]	−0.63 [−0.88,−0.38]	−0.12 [−0.50,0.26]	1.40 [1.06,1.75]
Drug policy	−1.56 [−1.88,−1.23]	−0.80 [−1.17,−0.43]	−0.35 [−0.61,−0.08]	0.41 [0.01,0.82]	2.14 [1.89,2.41]
Health care	−1.56 [−1.79,−1.08]	−1.47 [−1.79,−1.16]	−0.17 [−0.42,0.09]	0.06 [−0.32,0.44]	1.17 [0.84,1.52]
Abortion	−1.44 [−1.64,−0.98]	−1.28 [−1.61,−0.96]	−0.42 [−0.71,−0.13]	−0.12 [−0.50,0.26]	2.28 [2.03,2.53]
Environment	−1.14 [−1.47,−0.81]	−1.07 [−1.40,−0.75]	−0.15 [−0.39,0.08]	1.46 [1.16,1.77]	1.39 [1.08,1.70]
Education	−1.65 [−1.99,−1.33]	−1.65 [−1.97,−1.33]	−1.82 [−2.03,−1.62]	−0.65 [−1.02,−0.29]	1.33 [0.98,1.68]
Iraq War	−1.91 [−2.22,−1.59]	0.49 [0.13,0.86]	0.54 [0.25,0.82]	2.28 [2.05,2.51]	2.50 [2.29,2.70]
N	149	148	297	150	147

Entries are means with 95% confidence intervals in brackets and number of cases below.Source: Author's experimental data.

the candidates remained clearly within the region of responsibility for American politics.

While our manipulations were generally successful, it is clear that some subjects were not sensitive to which candidate was the Republican and which was the Democrat and placed the Republican to the left of the Democrat. These respondents cause something of a problem for our analysis because our tests assume that voters' perceptions of the candidates match our intended placements. If a moderately liberal voter, for instance, placed the candidate that we designed to be a moderate Democrat to the right of the neutral point, our test that moderate voters prefer moderate candidates to more extreme candidates on their side of the neutral point might lead us to conclude that this moderate liberal preferred the extreme Democrat to the moderate Democrat because the moderate liberal was a directional voter, even though the extreme Democrat was closer in the subject's mind. Similarly, when we look at Hypothesis 2, that more extreme voters give higher evaluations than moderate voters to moderate candidates, we have to consider that if extremely conservative voters are more likely than moderately conservative voters to place the moderate Republican candidate to the left of the neutral point, we might easily find that more extreme conservative voters evaluate that candidate lower than moderately conservative voters and argue that this was evidence that directional theory was not supported, when this pattern of results would be perfectly consistent with directional theory. Even though we conduct analysis on all voters, we also conduct analysis using only subjects who were able to correctly identify and place the Republican candidate to the right of the neutral point and the Democrat to the left in order to minimize the risk of confounding results based upon the assumption of fixed candidate locations with results arising from our subjects' perceptions or response error.

Our experiments also allow us to avoid some of the empirical problems related to testing theories of preference and evaluation. This question revolves around the matter of the appropriate dependent variable. We can use raw thermometer scores because of the random assignment of subjects to treatments. One objection to the use of raw scores is that, as a proxy for utility, interpersonal comparisons of thermometer scores are invalid because of things such as scaling differences across individuals.

Randomization removes consequences of this problem because people using either a higher end or a greater range of the scale are equally likely to be assigned to treatments where they evaluate an extreme candidate as they are a moderate candidate. The use of raw thermometer scores under these conditions frees us from the problem that Westholm (2001, Fig. 7) discusses concerning the dependence of the regressor and the intercept variations. Because our primary explanatory variable is the randomly-assigned treatment, variations in our subjects' mean evaluations of the candidates are independent of our explanatory variable. Our analysis, nonetheless, also uses intrapersonal comparisons in both thermometer differences and vote choice to test Hypothesis 1.

Finally, we have generated candidates with positions that we believe are well within the region of responsibility of current modern American politics. We have chosen issue positions that are taken directly out of real candidates' campaigns or used language that is very similar to the positions on which they ran. Moreover, almost 29% of our subjects are as or more liberal than our liberal candidate and almost 28% are as or more conservative than our conservative candidate—and these percentages are even higher after considering that subjects on the other side of the policy space are not relevant for these tests because of our focus on how voters on the same side of the policy space evaluate candidates on their own side. This gives us some comfort that our subjects do not see these candidates outside of the region of responsibility. In addition, without a definition of what determines what places a candidate inside or outside of the region of responsibility, there is no way to test rigorously the implications of such a region.

Hypothetically, it is possible to perform a similar analysis with a quasi-experimental approach, using real candidates and mass surveys. One would have to find elections with at least two candidates on the same side of the policy space who are sufficiently distinct to allow for a comparison of the evaluations of moderate and extreme voters who also fall on the same side of the policy space. This, however, is not as easy as it sounds. In real elections, non-policy factors that vary across the candidates often influence voters' evaluations. Familiarity, physical appearance, personality traits, and even strategic considerations arising from candidates' standing in public opinion polls could confound our ability to isolate the effect of policy.

While instrumental variables models can control for reciprocal effects, estimating these models is often dependent upon the variables available in the survey. When the first-stage models are not well-specified, the second-stage results suffer.

In our experiments, we know that all of our subjects have the same starting level of familiarity with the candidates. We know that they all receive the same information about the candidates' issue stands. Electability is not a factor because polls were not included in the experiment and the candidates from the same side of the policy space were never presented as competing against one another. In fact, subjects did not have any knowledge that another candidate on the same side of the policy space existed. Finally, we presented no pictures of the candidates, and information about their traits, contained only at the end of the newspaper interview, was constant for candidates from the same party. We even had the same professional voice-over person record the ads for each party; although, the person who did the Democratic ads was different from the one who did the Republican ads.

Party identification is, admittedly, a confounding factor, but even here the experiment provides some value over quasi-experimental studies. As with quasi-experimental studies, we can control for the effects of party identification on preference and evaluation. Association of the candidates with parties probably influences how our subjects see the candidates' positions and probably helps explain why some of our subjects, albeit less than half, believe that our moderate Republican is pro-life, even though his ad explicitly pronounces his support for protecting a woman's right to choose. Unlike quasi-experimental designs, our experimental design insures that subjects' party identification and issue preferences are completely exogenous of their candidate evaluations, as we collected that information before subjects had received any information about the candidates.

3. Analysis

We now examine the effect of these treatments on the subjects' evaluations of the candidates and what these results say about voters' use of proximity or directional approaches to voting. Throughout our analysis, we control for the effects of party identification, which is likely to be correlated with both candidate thermometer scores and self-placement on issues. This should not present much problem when we are comparing moderate voters' evaluations of moderate and extreme candidates (i.e. the test of Hypothesis 1), which were assigned randomly to moderate voters. It will, however, have an effect upon our test of the comparative evaluations of moderate candidates by moderate and extreme voters (i.e. Hypothesis 2) because party identification should be correlated with subjects' ideological self-placement.

The subjects in our study are quite evenly distributed between liberals, moderates, and conservatives. Twenty nine percent of our subjects described themselves as liberal, 28% described themselves as conservative, and the remaining 43% called themselves moderate. Using a nine-point scale centered at 5, the average ideological score

among our subjects is 5.1, almost right in the middle of the scale. When subjects' attitudes are measured using the directional measures, there is a slight proclivity toward the liberal side of issues, as indicated by an average score across the 8 issues of −0.43. There is, however, a slight tendency among our subjects to identify with the Republican Party, as 52.9% (including leaners) identified with Republicans and only 41.8% identified with the Democratic Party.

The first issue concerns how to classify subjects based on their policy beliefs. Our analysis focuses on subjects on the same side of the policy space as a candidate because the predictions of both theories are quite similar for voters on the opposite side of a policy space from a candidate. Voters who are closer to the neutral point are predicted by proximity theory to prefer a moderate candidate to an extreme one, whereas directional theory makes the opposite prediction. We use the information from Table 2 to get a rough idea of which subjects should, under proximity theory, prefer the moderate candidate to the extreme one. For this, we classify any subject between the neutral point and the midpoint of the average placements for the moderate and extreme candidates as a moderate voter and those between the midpoint and the ends of the scale as extreme voters.

We test the two hypotheses simultaneously; although, in our first test using thermometer differences and vote preference, there is no expectation that thermometer differences should vary under either directional or proximity voting when comparing how moderate and extreme voters evaluate a moderate candidate. To conduct the analysis for the relevant candidates and subjects, the dependent and independent variables are coded with respect to the side of the neutral point on which each subject falls, using her summary issue self-placement. For subjects who summary self-placement is less than zero, a higher score on the dependent variable indicates a greater thermometer score or vote for the Democratic candidate for subjects whose summary issue self-placement score is less than zero. For subjects whose summary self-placement is greater than zero, a higher score on the dependent variable indicates a greater thermometer score or vote for the Republican candidate. Similarly, the treatment variable is a dummy variable to classify whether the candidate whose thermometer score is the dependent variable is the extreme or the moderate candidate. There is no dummy variable for the extremity of the "opposition" candidate because random assignment means that variable would be uncorrelated with any of the explanatory variables. The party identification variable is also recoded so that for subjects whose dependent variable is the Democratic candidate, strong Democrats get high scores and strong Republicans get low scores. For subjects whose dependent variable is the Republican candidate, strong Republicans get high scores and strong Democrats low scores. Finally, we include a variable for voter type (whether or not the subject is classified as an extreme or moderate voter) and an interaction between voter type and candidate treatment. Ten subjects whose self-placement score was zero are not used in the analysis. The variable codings are summarized in Table 3. We present results for three different dependent variables: differences in thermometer

Table 3
Variable definitions.

	Left-of-center voter (self-placement < 0)	Right-of-center voter (self-placement > 0)
Dependent variable	Democratic candidate thermometer	Republican candidate thermometer
Extreme voter	Extreme = 1/moderate = 0 (Moderate −1.25 to −0.125)	(Moderate 0.125 to 1.00)
Candidate condition	Democratic extreme = 1 Democratic moderate = 0	Republican extreme = 1 Republican moderate = 0
Party identification	6 = Strong Democrat 0 = Strong Republican	6 = Strong Republican 0 = Strong Democrat

Note: Codings for variables used in the analysis.

ratings of the candidates and vote as tests of Hypothesis 1 and feeling thermometer ratings of the candidates as a test of Hypotheses 1 and 2.

If proximity theory is correct, then moderate voters should give lower differenced feeling thermometer scores and be less likely to vote for extreme candidates than moderate candidates on their side of the neutral point. Directional theory predicts the opposite: moderates should be more likely to vote for and to give higher differenced thermometer scores to extreme candidates than to moderates on their side of the neutral point.

The results (Table 4) provide weak support for proximity theory when we use all subjects, but solid support when we restrict analysis to voters who correctly identified the party of the candidates and placed each candidate on the correct side of the neutral point. Looking at thermometer differences between candidates, moderates gave the extreme candidate on their side of the neutral point thermometer ratings over the opposition candidate that were more than 13 points lower than the difference they gave to the moderate candidate on their side of the neutral point compared to the opposition candidate. Using the more blunt measure of vote choice, the result is still significant, with the predicted probability of a moderate voter supporting the candidate from the same side of the neutral point 0.10 lower (from the probit coefficient of −0.71) for an extreme candidate than for a moderate one.

The results for thermometer ratings of the candidates (Table 5) are agnostic for Hypothesis 1 when using all voters, but when the analysis is limited to subjects who

placed each candidate on the correct side of the neutral point, the support for proximity theory is strong, with moderate voters giving the extreme candidate on their side thermometer scores almost 7 points lower than the moderate candidate. Westholm (1997) argues that comparisons of thermometer scores is not a test of proximity theory, but we believe that thermometer scores can be a test in our experiments when there are controls for party and because interpersonal scaling differences are random across candidate treatments in our experiment.

The test of Hypothesis 2 is provided by the coefficient for "Extreme Voter," which compares the thermometer ratings of extreme subjects and moderate subjects who are in the treatment with a moderate candidate on their side of the issue space. Directional theory predicts that extreme voters will give a higher rating than moderate voters to the moderate candidate. When we conduct analysis on all subjects, the coefficient of −8.67, $p < .05$, indicates that extreme voters give lower thermometer ratings to moderate candidates than do moderate voters, rejecting the hypothesis from directional theory. Yet, when we focus upon only subjects who identified the candidates' correct positions with respect to the neutral point, we cannot confidently reject the directional hypothesis; although, there is no support for the directional hypothesis that extreme voters provide higher thermometer scores than moderate voters to moderate candidates.

The difference in results with respect to Hypothesis 2 raises an important point about the use of perceived locations in tests of directional and proximity voting. While the differences in results for the two groups are not statistically

Table 4
Voter position and comparative candidate measures.

	All voters		Voters who locate candidates correctly	
	Thermometer difference	Vote	Thermometer difference	Vote
Extreme candidate	−2.15 (4.41)	−0.14 (0.24)	−13.79* (5.32)	−0.71* (0.40)
Extreme voter	−1.98 (4.95)	−0.37 (0.28)	−0.70 (7.19)	0.12 (0.71)
Extreme voter × extreme candidate	22.27* (6.78)	0.99* (0.43)	24.35* (8.46)	0.78 (0.86)
Party identification	10.49* (0.90)	0.41* (0.05)	12.72* (1.11)	0.52* (0.08)
Constant	−26.18 (4.75)	−0.85 (0.25)	−24.97 (6.12)	−0.82 (0.40)
N	270	270	148	148
Adj. R^2	0.40		0.58	
σ	27.33		23.27	
χ^2_4		85.06		67.95

Note: Entries in the first and third columns are OLS coefficients. Entries in the second and fourth columns are MLE probit coefficients. Standard errors are in parentheses. Variables are statistically significant *$p < .05$, one-tailed test.

Table 5
Voter position and candidate evaluations.

	All voters	Voters who locate candidates correctly
Extreme candidate	0.13 (2.58)	−6.99* (3.02)
Extreme voter	−8.67* (2.91)	−5.22 (4.09)
Extreme voter × extreme candidate	14.46* (3.98)	14.17* (4.81)
Party identification	4.69* (0.53)	5.16* (0.63)
Constant	49.47 (2.79)	52.77 (3.48)
N	270	148
Adj. R^2	0.26	0.40
σ	16.03	13.24

Note: Entries are OLS coefficients. Standard errors are in parentheses. Variables are statistically significant $^*p < .05$, one-tailed test.

significant, the great effect of extreme voters' lower evaluations of more moderate candidates does indicate that extreme voters who placed the moderate candidate to the other side of the neutral point did, as both theories would predict, give lower thermometer scores to that candidate than voters who placed the candidates on the correct side of the neutral point. While our tests were based upon candidates with fixed positions, it is impossible to fix voters' perceptions. Even though we were able to create moderate candidates on the predicted sides of the neutral point, at least when using all subjects' perceptions, it is clear that many subjects perceived those candidates to be in positions where proximity and directional theory do not provide unique predictions. This result should make it clear that researchers testing directional and proximity theory need to be careful in making sure that the motivations for voters' behavior truly reflects what researchers assume they are doing.

In this sense, Claassen's experiments are worth considering. Claassen cleverly avoids the problem of perceptions by giving his subjects only a candidate placement on a scale. Presumably, a point on a scale is not subject to any misperception. In this way, his research provides a highly internally valid test of the two theories. Yet once we move away from such highly controlled stimuli, voters' perceptions must be an issue. Researchers using fixed candidate placements need to consider how to determine those placements. A reasonable approach that researchers have taken is to use the mean placement based upon all respondents' placements of candidates. But our results show that such fixed placements may not capture voters' behavior, even when candidate positions are truly fixed and lead researchers to believe that behavior that is actually consistent with a competing theory is support for their favored theory.

4. Discussion

This paper addresses a debate that has attracted significant attention in the top journals in political science, which speaks to the importance of the debate within the profession (in addition to the above examples, see also Iversen, 1994; Merrill, 1995). Our experiments are among the very first designed to settle the debate between directional and proximity voting. By creating believable candidates that vary only in their spatial position and randomly assigning nearly 300 subjects to treatments that vary the combinations of and extreme and moderate candidate from each of the major parties, we present a realistic yet controlled test of directional theory against proximity theory. The results provide stronger support for proximity theory than for directional theory. With respect to Hypothesis 1, results for all voters were in the direction of the predictions from proximity theory, not from directional theory. And when analysis was conducted only upon the subjects who perceived the candidates as we had intended—and as perceived on average by all respondents–proximity received strong support. Moreover, when we move to the unique prediction of directional theory in Hypothesis 2, our results do not provide any support that less moderate voters provide higher evaluations than more moderate voters of moderate candidates.

These results cast doubt upon directional theory for a number of reasons. First, the tests were sensitive to directional theory. The results do not rely on the subjects' placements of the candidates' positions, only that the subjects correctly identify the candidates' position with respect to the neutral point, which provides a fair test of both theories for the reasons we explained above. Moreover, the tests showing the moderate voters had more favorable evaluations than more intense voters of moderate candidates used thermometer scores as the dependent variable, which Macdonald et al. argue is the more appropriate measure. Third, in simplifying the situation to a two-candidate race, our experiments also evaluate voters' decision-making in a situation that (Macdonald et al., 1991, 1108) may favor directional theory:

> In the U.S. test, the directional theory may have benefited from the fact that the two parties provide only two sources for political cues. Thus, the dichotomous nature of issues posited by the directional model may not be a general phenomenon but, rather, one restricted to two-party systems.

Finally, we used questions that were framed as directional questions by asking our subjects to place themselves and candidates on one side of the issue before asking them about the candidates' intensity of position. We are not convinced that this approach to asking the question had any priming effect upon the way subjects would evaluate the candidates, but if it did one would assume that the effect would be to encourage directional thinking.

Beyond our results, there are other reasons to doubt that directional theory is a potent explanation of issue voting in the United States. Globetti's (2002) analysis of Senate ads from 1988 to 1996, for example, shows that candidates use ideological labels most often to attack their opponents for being too extreme, never for being too moderate. This does not prove that voters necessarily evaluate candidates based on proximity theory because directional theory does predict that voters will evaluate candidates on the other side of issues more negatively as the more intensely they are perceived as holding that position. Globetti, however, finds almost no positive references to liberals in these ads, something directional theory does predict, at least in states

with liberal majorities.[7] These data suggest that candidates do believe that voters will often evaluate more highly candidates who are closer to the median voter over those who are intense committed to ideological positions. This is consistent with our findings that Republicans risk losing the votes of moderate conservatives when they nominate extreme candidates.

Other recent experimental tests of proximity and directional voting reach conclusions similar to ours, even with different experimental formats. In separate experiments conducted by Tomz and van Houweling (2009) and Claassen (2007), subjects were asked their position on medical insurance and general ideology, respectively, and then given a choice between two abstract candidates defined only by their numerical position on the same scale. Tomz and van Houweling also presented the candidates' party in one version of the experiment. Candidate positions were manipulated in the experiment, and subjects were asked to rate the candidates or choose between them in a mock election. Both experiments, like ours, find less support for directional than for proximity voting.

These experiments complement our results. Our approach attempts to maximize external validity in an experimental setting by producing realistic advertisements and interviews with candidates that subjects believe are real. The issues and content of the ads and interviews resembled those from real-world elections, though placed in obscure elections in other states. The external validity comes at the cost that we do not tell subjects the positions of the candidates on the issues scales; instead, our subjects are asked to place the candidates on issue scales. Where our study focuses on life-like candidates and campaigns, we sacrifice some control over subjects' understanding of the precise positions of the candidates. The studies by Tomz and van Houweling (2009) and Claassen (2007) gain precise control over subjects' understanding of the different alternatives to choose between on an issue scale, but they sacrifice external validity by not associating these positions with real candidates. Real-world candidates do not state their positions on seven-point scales. This creates a risk that the alternatives are little more than numbers on a scale that, without context, do not activate directional considerations among voters and are, therefore, biased in favor of proximity theory. Our experiments find stronger evidence for proximity than for directional theory in a context that is more likely to activate directional voting among subjects and that provides greater external validity than previous experiments. The studies each have complementary strengths and weaknesses, yet it is remarkable that all three point to the same conclusion.

At the same time, we believe that further experimental studies similar to ours should be conducted to test proximity, directional, and policy balancing (cf. Geer et al.,

2004), particularly given the difficulties in survey analysis that Adams et al. (2004) note exist for testing directional and balancing theory. In general, experimental methods hold great promise for ultimately sorting out some of the difficulties in comparing competing arguments about issue voting that have not been distinguished clearly through the analysis of survey data.

The study of voters' use of issues when evaluating candidates has proved to be one of the more critical and enduring enterprises in political science. Questions about voter sophistication, optimal candidate strategies in elections, and the role of elections in driving policy change all hinge on answering the fundamental question of whether voters evaluate candidates according to the proximity theory of voting or the directional theory. One also must recognize that different conditions, such as the electoral or governmental system, may differentially favor proximity, directional, and balancing. The debate has yet to be resolved using data from real elections, as Lewis and King aptly discuss. Our experimental approach, however, casts further doubt on the directional theory of voting.

A. Elaboration on salient points of controversy

A.1. Candidate placement

A central controversy between proximity and directional approaches revolves around the placement of candidates' policy preferences. In real elections, it is difficult to determine candidates' policy preferences in a way that allows for easy comparison with voters' preferences. Many candidates do not state their policy preferences clearly, much less represent them on the seven-point scales on which we measure voters' attitudes (Page, 1978). Candidates may also send different messages to different audiences (Page, 1978; Westholm, 1997). Because of this, relying upon voters' own reported perceptions of candidates' beliefs may be reasonable, and many scholars (e.g., Blais et al., 2001; Westholm, 1997) go further and argue that individual placements are more appropriate theoretically, even if candidates do have truly fixed positions. Yet, Macdonald et al. respond that using voters' unique perceptions of candidates' positions produces illusory evidence for proximity theory because voters will simply project their views onto the candidates they prefer for non-policy reasons (Page and Jones, 1972). In order to avoid this problem, Macdonald et al. define a candidate's "true" position as the average placement of the candidate by all voters. The large number of observations used to create this single "true" position means that an individual voter's placement of a candidate cannot be the result of a voter presuming that a preferred candidate shares her beliefs.

Lewis and King (2000) argue that a fundamental problem arising from determining candidate placement is that scholars have tended to adopt solutions to this problem that statistically favor their hypothesized approach to issue voting. Because the relationship between projection and proximity is discussed above and is widely understood, we focus on Lewis and King (2000) insight about how the use of a single candidate position favors directional theory. Lewis and King note that Eq. (2), which can also be written:

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[7] Another reason why our Democratic candidates may have been more difficult for our subjects to distinguish positionally is that we made a decision to have the liberal Democrat refer to himself as "progressive" precisely because so few candidates explicitly refer to themselves as "liberals" in their ads.

$$U_{ij}^{P} = -\left(V_i^2 + C_j^2 - 2V_iC_j\right) \qquad (4)$$

where V_i and C_j are defined as in Eq. (1), provides a test of the two theories. After regressing a measure of candidate evaluation on each term in Eq. (4), finding statistically significant and equivalent coefficients on each term supports the proximity model. In contrast, statistically insignificant coefficients for the V_i^2 and C_j^2 terms and a statistically significant coefficient for V_iC_j term support the directional model. So while use of individual placements may favor proximity theory, using a single placement restricts variation of C_j and increases the likelihood that the parameter on C_j^2 is statistically insignificant — thereby making it easier to find support for directional theory.

A.2. Preference curves vs. support curves

Another point of contention is the appropriate dependent variable. Westholm argues that the different theories concern individual preference. As such, the appropriate test is the effect of issues on a voter's preference for candidates. In contrast, Macdonald et al. argue that the differences in candidate support across voters constitute the appropriate test. Effectively, this produces a question of whether one should use raw or relative feeling thermometer scores to examine the effect of issues on candidate evaluation.

The distinction between the two approaches is important. (Westholm, 1997, 868) provides an example of "Voter 1," who gives a feeling thermometer rating of 70 to "Party A," but only 60 to "Party B," while "Voter 2" gives "Party A" a rating of 40 and "Party B" a rating of 50. Westholm contends that the important point is that Voter 1 prefers Party A to B, not that Voter 1 gives higher evaluations than Voter 2 to Party B. Westholm argues that the latter comparison is not valid for understanding voting behavior because interpersonal comparisons of utility are irrelevant to choice theory. To avoid such comparisons, Westholm incorporates some form of fixed voter effects to control for these arbitrary differences. In essence, thermometer scores for a candidate are compared only relatively to other candidates scored by the same individual; although, Lewis and King (2000, 29) note that this still involves interpersonal comparisons of the differences.

In achieving this "fixed effects" model, an individual's mean thermometer evaluation of all candidates is subtracted from the thermometer score of each candidate. Lewis and King point out, however, that this approach gives an advantage to proximity theory. The inclusion of fixed voter effects means that the parameter on V_i^2 is unidentified and removes the constraint under proximity theory that all of the coefficients on the terms in Eq. (4) are equal. Removing this constraint favors proximity theory because it is no longer necessary to show that thermometer scores are a function of the voter's ideal point.

A.3. The region of responsibility

One final dispute concerns directional theory's "region of responsibility" (née the "region of acceptability") as a component of voters' utility for candidates. Directional theory posits that candidates who are too intense fall outside of a region of responsibility where voters punish these candidates for their lack of moderation. Directional theory recognizes that voters may become disaffected from candidates who adopt unreasonable positions on issues, so directional theory incorporates a penalty for candidates who stray beyond the responsible range of advocacy. Without such a penalty, directional theory could predict that voters' preferences for more intense candidates would lead candidates to adopt irresponsible levels of commitment to their position on an issue. (Macdonald et al., 2001, 497) argue that while the region of responsibility does add a proximity component to the directional model, it also produces a prediction of where parties should locate to maximize their votes; namely the most intense position within the region of responsibility.

Advocates of proximity theory argue that a "region of responsibility" is unnecessary because proximity theory already explains low evaluations for very extreme candidates as a punishment for adopting positions too far from most voters' ideal points. A "region of responsibility" makes directional theory less falsifiable because it declares that candidates who fall on the same side of issues as voters, but who are evaluated less highly by those voters, are penalized for being outside of some unspecified region, not because of their distance from the voters' ideal points. Furthermore, unlike the two-party Downsian prediction of convergence to the median voter, the region of responsibility does not provide any clear prediction about the location of the region of responsibility. Macdonald et al. acknowledge (Macdonald et al., 1998, 686, 2001, 495) that there is no precise way of distinguishing between extreme parties on different sides of the region of responsibility; although, they do suggest in their 1991 paper that a party that is thought to be "too extreme" by as few as 9.5% of the voters may be outside the region of responsibility.

B. Directional issue question wordings

The Directional Issue Questions asked subjects: "Which of the following statements are you more likely to agree with? " After respondents expressed their agreement with one of the two statements for each issue, they were asked: "How strongly do you feel about this issue? Very strongly, Somewhat strongly, Not very strongly." The specific statements for each issue are given below.

1. Gun Control:
   - The government should try to reduce the availability of guns.
   - The government should be careful to respect the rights of gun owners.
2. Abortion:
   - The government should protect the rights of the unborn.
   - The government should give women freedom of choice with respect to reproductive decisions.
3. Economy:
   - The government should play an active role in the economy.

- The government should do as little as possible to affect the economy.

4. Environment:
   - It is more important to protect jobs even if it sometimes means that the environment may be harmed.
   - It is important to protect the environment even if it sometimes means that some people may lose jobs.

5. Drugs:
   - Drug abuse is a medical problem that requires treatment.
   - Drug abuse is a criminal problem that requires tough law enforcement.

6. Education:
   - We can best educate our children by giving parents greater opportunities to take their children out of public schools.
   - We can best educate our children by giving greater resources to public schools.

7. Health:
   - We can best provide quality health care for people by giving the government a larger role in health care.
   - We can best provide quality health care for people by giving the free market greater freedom to allocate health care.

8. Iraq:
   - The United States was right to invade Iraq because they could have posed a threat to us.
   - The United States was wrong to invade Iraq because they did not attack us.

References

Adams, J., Bishin, B.G., Dow, J.K., May 2004. Representation in congressional campaigns: evidence for discounting/directional voting in U.S. Senate elections. The Journal of Politics 66 (2), 348–373.

Alesina, A., Rosenthal, H., 1995. Partisan Politics, Divided Government, and the Economy. Cambridge University Press, Cambridge.

Blais, A., Nadeau, R., Gidengil, E., Nevitte, N., August 2001. The formation of party preferences: test the proximity and directional models. European Journal of Political Research 40, 81–91.

Cacioppo, J.T., Petty, R.E., 1982. The need for cognition. Journal of Personality and Social Psychology 42, 116–131.

Claassen, R., 2007. Ideology and evaulation in an experimental setting: comparing the proximity and directional models. Political Research Quarterly 60 (2), 263–273.

Downs, A., 1957. An Economic Theory of Democracy. Harper and Row, New York.

Druckman, J.N., 2004. Political preference formation: competition, deliberation, and the (ir)relevance of framing effects. American Political Science Review 98 (4), 671–686.

Enelow, J.M., Hinich, M.J., 1984. The Spatial Theory of Voting: An Introduction. Cambridge University Press, Cambridge.

Fiorina, M.P., 1992. Divided Government. Macmillan Publishing Co., New York.

Geer, J.G., Carter, A., McHenry, J., Teten, R., Hoef, J., February 2004. Experimenting with the balancing hypothesis. Political Psychology 25 (1), 49–63.

Globetti, S., 2002. Ideological Campaign Rhetoric and its Effects. Ph.D. Thesis, The University of Texas at Austin.

Grofman, B., February 1985. The neglected role of the status quo in models of issue voting. Journal of Politics 47 (1), 230–237.

Iversen, T., February 1994. Political leadership and representation in Western European democracies: a test of the three voting models. American Journal of Political Science 39 (1), 46–74.

Kedar, O., May 2005. When moderate voters prefer extreme parties: policy balancing in parliamentary elections. American Political Science Review 99 (2), 185–199.

Krosnick, J.A., Boninger, D.S., Chuang, Y.C., Berent, M.K., Carnot, C.G., 1993. Attitude strength: one construct or many related constructs? Journal of Personality and Social Psychology 65 (6), 1132–1151.

Lacy, D., Paolino, P., October 1998. Downsian voting and the separation of powers. American Journal of Political Science 42 (4), 1180–1199.

Lewis, J., King, G., Winter 2000. No evidence on directional vs. proximity voting. Political Analysis 8 (1), 21–34.

Macdonald, S.E., Listhaug, O., Rabinowitz, G., December 1991. Issues and party support in multiparty systems. American Political Science Review 85 (4), 1107–1131.

Macdonald, S.E., Rabinowitz, G., Listhaug, O., August 1998. On attempting to rehabilitate the proximity model: sometimes the patient just can't be helped. Journal of Politics 60 (3), 653–690.

Macdonald, S.E., Rabinowitz, G., Listhaug, O., May 2001. Sophistry versus science: on further efforts to rehabilitate the proximity model. Journal of Politics 63 (2), 482–500.

Mebane, W.R.J., March 2000. Coordination, moderation, and institutional balancing in American Presidential and House elections. American Political Science Review 94 (1), 37–58.

Merrill, S., 1995. Discriminating between the direction and proximity spatial model of electoral competition. Electoral Studies 14, 273–287.

Merrill, S.I., Grofman, B., 1999. A Unified Theory of Voting: Directional and Spatial Models. Cambridge University Press, Cambridge.

Morton, R.B., 1999. Methods and Models: a Guide to the Empirical Analysis of Formal Models in Political Science. Cambridge University Press, New York.

Morton, R.B., Williams, K.C., 2001. Learning by Voting: Sequential Choices in Presidential Primaries and Other Elections. University of Michigan Press, Ann Arbor.

Page, B.I., 1978. Choices and Echoes in Presidential Elections: Rational Man and Electoral Democracy. University of Chicago Press, Chicago.

Page, B.I., Jones, C.C., December 1972. Reciprocal effects of policy preferences, party loyalties, and the vote. American Political Science Review 73 (4), 1071–1090.

Rabinowitz, G., Macdonald, S.E., March 1989. A directional theory of issue voting. American Political Science Review 83 (1), 93–121.

Rosenberg, S.W., Bohan, L., McCafferty, P., Harris, K., February 1986. The image and the vote: the effect of candidate presentation on voter preference. American Journal of Political Science 30 (1), 108–127.

Tomz, M., van Houweling, R.P., 2009. Candidate positioning and voter choice. American Political Science Review 102 (3), 303–318.

Tomz, M., van Houweling, R.P., Sniderman, P.M., 2006. New evidence on directional versus proximity voting. Paper presented at the 2006 Annual Meeting of the Midwest Political Science Association.

Westholm, A., December 1997. Distance versus direction: the illusory defeat of the proximity theory of electoral choice. American Political Science Review 91 (4), 865–884.

Westholm, A., May 2001. On the return of epicycles: some crossroads in spatial modeling revisited. The Journal of Politics 63 (2), 436–481.