American Politics Research
Volume 37 Number 2
March 2009 227-253

10.1177/1532673X08321756
http://apr.sagepub.com
hosted at
http://online.sagepub.com

Direction Versus Proximity

Amassing Experimental Evidence

Ryan L. Claassen
Kent State University, Ohio

Scale limitations, endogeneity problems, and observational equivalence in observational studies render many tests of the proximity and directional models inconclusive. Fortunately, the task of designing experimental tests has proven tractable and the small, but growing, body of experimental evidence sheds new light on directional and proximity motivated behavior. The experiment described in this article was designed to reexamine the role of ideology structuring candidate evaluations in the general population and test the models in two new policy areas: opinion about military spending and opinion about abortion. The results indicate that ideology and opinions about military spending stimulate proximity behavior whereas opinions about abortion stimulate directional behavior. It is also found that abortion-based evaluations are more strongly directional for those who oppose abortion—which is consistent with the notion of policy balancing. The article concludes by considering the possibility that some issues lend themselves to proximity comparisons whereas others lend themselves to directional comparisons and discussing the implications for democratic politics.

Keywords: *voting; political ideology; directional model; proximity model; spatial model; polarization; experimental design*

I would remind you that extremism in the defense of liberty is no vice! And let me remind you also that moderation in the pursuit of justice is no virtue.

—Barry Goldwater

Author's Note: This research would not have been possible without generous support from *Time-sharing Experiments for the Social Sciences*, NSF Grant 0094964, Diana C. Mutz and Arthur Lupia, Principal Investigators. The author especially appreciates encouragement, advice, and assistance in developing and implementing the experiment from Diana Mutz. Also many thanks to Poom Nukulkij at *Knowledge Networks* for converting the abstract idea into an experimental survey instrument. Please address correspondence to Ryan L. Claassen, Department of Political Science, Kent State University, PO Box 5190, Kent, OH 44242-0001; e-mail: rclaasse@kent.edu.

> It's a great country, where anybody can grow up to be president . . . except me.
>
> —*Barry Goldwater*

> The proximity spatial model . . . has not matched well the empirical reality it tries to explain . . . contrary to the theory's predictions, in two-party systems, parties do not converge. (MacDonald and Rabinowitz, 1998, p. 281)

Goldwater's lackluster electoral performance in the presidential election of 1964 fits nicely with the spatial theory of elections. If voters select candidates by minimizing the policy–space distance between their preferences and candidates' positions, or by making "proximity" comparisons, then although moderation may not be a virtue, it may be essential if you want to grow up to be president. But if proximity logic explains Goldwater's defeat, what political force prevents vote-maximizing parties and candidates from converging on the political center? Are there situations in which extreme positions attract more support than moderate ones? In Table 1, I list the average perceived ideology of each presidential candidate from 1972 through 2004 (National Election Studies [NES] Cumulative Data File). Contrary to the implications of proximity logic and the Median Voter Theorem, the more extreme position (e.g.; the candidate more distant from the median ideology in the electorate, see notes under Table 1) appears to attract more support than the moderate position in roughly half of recent American presidential elections. An electorate making proximity comparisons would not reward extremism, an electorate making directional comparisons would. There are many possible non-spatial reasons for elections in which the more extreme candidate prevails; however, because both the proximity and directional models are spatial models, some combination of the two may provide a more parsimonious explanation (see Adams & Merrill, 1999a, 1999b; Merrill & Grofman, 1997, 1999).

Below, I describe proximity and directional forces in democratic politics and review the reasons scholars have encountered difficulty distinguishing one from the other in observational studies (see Lewis & King, 1999). To avoid problems encountered in observational studies, I design an experiment to test directional and proximity models of behavior in several different policy areas. A representative sample of the American electorate is surveyed about their positions on three scales: abortion, military spending, and ideology.[1] An interactive computer survey then solicits their evaluations of hypothetical candidates described by positions on each scale. As described below, proximity and directional evaluations differ with respect to the relationship between distance and evaluation. Use of computer-generated

Table 1
Historic National Election Studies Mean Presidential Candidate Placements on the Seven-Point Ideology Scale (Zero-Centered), 1972-2004

Year	Democrat	Republican	Did Centrist Win?[a]
1972	−1.55	0.87	Yes
1976	−0.77	0.91	Yes
1980	−0.26	1.21	No
1984	−0.55	0.96	No
1988	−0.76	1.11	No
1992	−0.81	1.05	Yes
1996	−0.85	1.15	Yes
2000	−0.82	1.02	Maybe[b]
2004	−1.01	1.18	No

Note: Cells are the mean perceived ideologies (recoded to range from −3, *extremely liberal*, to +3, *extremely conservative*) for each presidential candidate in the National Election Studies sample for the designated year. All missing and don't know responses are coded as missing. VCF9088 was used to measure respondents' perceptions of Democratic candidates' ideologies. VCF9096 was used to measure respondents' perceptions of Republican candidates' ideologies.
a. The median ideology in the electorate for each year is the center of the 7-point scale, or zero, as coded above (VCF0803 was used to measure respondents' ideologies).
b. Gore is generally recognized as winning in the popular vote.

candidate locations randomly assigns individuals to evaluate candidates on the same side of the policy space, but 1, 2, 3, 4, or 5 units more extreme. The computer then generates additional candidates for evaluation so that intrapersonal evaluation comparisons of the two models can also be made. The locations of the additional candidates are determined to ensure that, for each pair of evaluations, the directional choice and the proximity choice are different. I uncover evidence that ideology and opinions about military spending stimulate proximity behavior whereas opinions about abortion stimulate directional behavior. I conclude by considering the possibility that some issues lend themselves to proximity comparisons whereas others lend themselves to directional comparisons and discussing the implications for democratic politics.

Observational Equivalence

Lewis and King (1999) conclude observational studies lack sufficient empirical leverage for directional theory or proximity theory falsification.

On one hand, their assessment would seem to suggest the debate between whether individuals evaluate candidates based on policy proximity or some other logic (e.g., directional, to be described shortly) is entirely academic. After all, if both models perform similarly predicting behavior in observational studies, then perhaps which model one specifies matters very little. On the other hand, the level of scholarly attention given the debate suggests a great deal is at stake. Moreover, the reason observational studies fail to distinguish the two models need not derive from behavior; it could be that the way political scientists observe behavior, not the behavior itself, limits empirical leverage. For example, the use of 7-point scales (rather than broader scales) to measure political positions limits opportunities to distinguish the models when citizens compare two candidates. Tomz, Van Houweling, and Sniderman (2006) note, "[O]f the 196 permutations of individual and candidate positions, only two (approximately 1 percent) provide a strong test of directional versus proximity theory" (p. 6). Furthermore, endogeneity problems make it difficult to estimate unbiased models of directional and proximity behavior when one is observing individuals' reactions to different candidates.[2]

Lack of definitive evidence from observational studies notwithstanding, the theoretical divide between proximity and directional logic is large and of considerable consequence. The now commonplace notion that citizens compare their preferences to candidates' positions and select candidates whose positions most resemble their own is the basis for the spatial theory of elections.[3] Most theories of democratic representation and accountability assume proximity logic. Even the concept of an "electoral mandate" assumes policy proximity governs voting booth behavior. Presidents cite electoral mandates as evidence a majority of citizens share their policy vision; but if voters do not follow proximity logic, then elections may not convey information about mass policy preferences. The very foundation of the spatial model of elections is at stake in the debate.

The directional model maintains, "[T]he traditional spatial theory of elections is seriously flawed" (Rabinowitz & MacDonald, 1989, p. 93). Directional logic suggests citizens see the political world in black and white. Directional citizens do not have policy preferences per se, rather they simply take a side—for or against—in political debates about issues. Furthermore, directional citizens do not evaluate candidates based on policy proximity; rather directional citizens react to emotional appeals as the intensity of their feelings about a political issue interact with the intensity of candidates' appeals. If the directional model better represents citizens' political behavior, elections do not validate candidates' policy positions.

Rather the directional model posits elections provide only diffuse information about which side was better able to harness the passions of the electorate (MacDonald, Rabinowitz, & Listhaug, 1995, pp. 472-474).

The Calculus of Political Evaluation

Rather than rank ordering preferences over a variety of possible policies, the directional model posits individuals hold dichotomous policy positions. Individuals need not work out the specific policy options associated with each issue, let alone rank the options in their preferences, because they do not make policy themselves (e.g., they elect people to make policy). In addition to taking sides, directional evaluation involves emotional responses to issues. Individuals take sides and differ in terms of how much they care about an issue. Operationalizing individuals' directional policy considerations, Rabinowitz and Macdonald (1989) deploy scales that are bracketed by opposing political positions and zero centered so that positive values are associated with one side in the political debate and negative values are associated with the other side (figure 1, p. 97). Having associated opposing sides with different signs and different levels of concern with different magnitudes on the scale, the directional model represents the way an individual evaluates a candidate as the product of the individual's position on the scale and the candidate's position,

$$\text{Directional Evaluation}_{\text{i}} = (P_i \times C_i) \tag{1}$$

where P_i represents citizen i's position and C_i is the position of the candidate i was asked to evaluate. The directional model predicts citizens will evaluate candidates on the same side of the policy space positively (e.g., $2 \times 2 = 4$ and $-2 \times -2 = 4$) and candidates on the opposite side of the policy space negatively (e.g., $-2 \times 2 = -4$). Furthermore, by multiplying individuals' and candidates' positions, the directional model captures citizens' emotional responses to candidates. Intensity of individuals' policy positions and intensity of candidates' policy positions reinforce one another. Provided they are on the same side of the issue, citizens will evaluate more intense candidates more favorably than less intense candidates (see Rabinowitz & MacDonald, 1989, for model development).

The scale described above can also represent proximity preferences, but the proximity model posits individuals have preferences over specific policy

options within a given political issue. Hence each numeral would represent a specific policy option, not intensity. For the issue of abortion, −5 and beyond (very strong support) would represent unrestricted access to abortion, −4 partial birth procedure restrictions, −3 third trimester restrictions, −2 second trimester restrictions, and so on, up to and beyond +5 (very strong opposition) and no legal access to abortion. In contrast to the directional calculation, the proximity model formalizes evaluation in terms of the absolute value of the difference between the individual's policy position and the candidate's policy position.

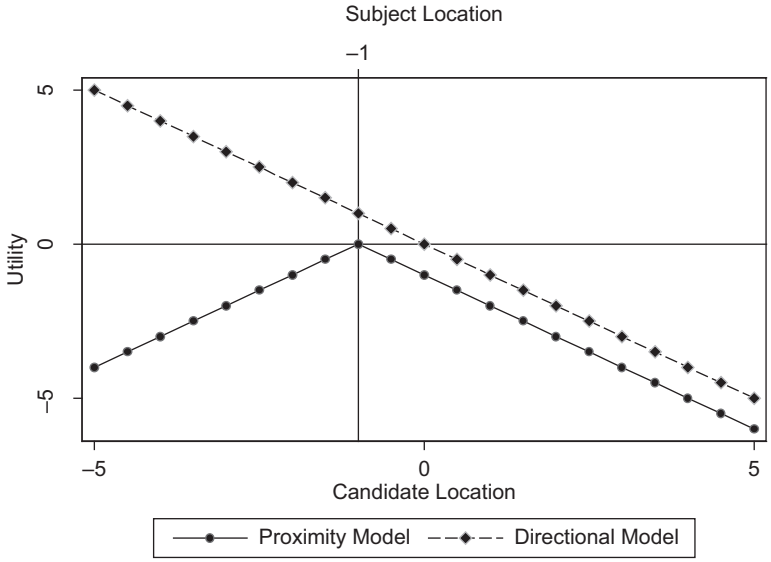
$$\text{Proximity Evaluation}_i = |P_i - C_i| \tag{2}$$

Thus the proximity model predicts citizens penalize more distant candidates, regardless of which side of the issue the citizen and candidate occupy.[4] Figure 1 presents the directional and proximity computations for an individual located at −1 on a policy scale assessing candidates located at each point on the scale. On the right side of the subject in Figure 1, the different calculations yield very similar evaluations. When evaluating more moderate candidates, the utility associated with both proximity and directional evaluations declines as the distance between the individual and the candidate increases. The proximity evaluations decline because the candidate is less proximate and the directional evaluations decline because the candidate decreases in intensity, crosses over the neutral point of the policy scale, and then increases in opposite-signed intensity. On the left side of the subject in Figure 1, however, the proximity and directional calculations yield very different patterns. When evaluating more extreme candidates (on the same side), the utility associated with proximity computations again *decreases* as the distance between the individual and the candidate increases. But the utility associated with directional computations, in contrast, *increases* as the distance between the individual and the candidate increases. Proximity evaluations reward moderate positions more than extreme ones. In contrast, directional evaluations reward extreme positions more than moderate ones.

The Way Forward

Table 1 suggests the laws of proximity sometimes fail to explain political behavior. However, as suggested in the introduction, a spatial theory of elections that combines both proximity and directional forces may be

Figure 1
Contrasting Directional and Proximity Evaluations



Source: Adapted from Claassen (2007).

greater than the sum of its parts. After all, American parties have neither converged on the median voter, nor have they become fringe parties controlled by extremists. Over time, the parties sometimes converge and sometimes diverge. The historical record shows party movements toward the ideological poles recently, but the present epoch was preceded by an epoch of movement toward the center (see McCarty, Poole, & Rosenthal, 2006, figure 2.1). Democratic politics involve both centripetal and centrifugal forces, and it seems plausible that the two behavior models alternatively explain the workings of these very different, indeed opposite, forces. Describing the Median Voter Theorem, Black (1948, 1958) outlines the centripetal implications of the proximity model. The directional model, in contrast, proposes a centrifugal combination of individuals' policy preferences and candidates' positions (see MacDonald & Rabinowitz 1998).

The strategy of using both models to learn about behavior, rather than using behavior to falsify one of the models, is not without precedent. Merrill and Grofman (1997, 1999) and Adams and Merrill (1999a, 1999b)

develop a mixed model to explain macrolevel patterns of partisan convergence and divergence. Their strategy of modeling party performance to predict party locations—using both proximity and direction and a "mixing" parameter to maximize predictive power—excels at explaining party locations. However, questions remain about what a "mixed-model" means at the individual level. For example, are some issues uniquely directional (e.g., about picking sides and igniting passions) whereas other issues stimulate proximity comparisons? More generally, as citizens consider their own political preferences and compare them to those of candidates, how do they "mix" directional and proximity considerations? Reviewing *A Unified Theory of Voting: Directional and Proximity Spatial Models*, Keith Poole (2000) concludes,

> [Merrill and Grofman's] empirical results for the mixed model raise important questions about the nature of individual choice. What model of individual behavior would generate these results? The debate will be a lively one. Stay tuned. (p. 953)

It seems plausible that the mixed model predicts party locations successfully because some political environments give rise to (individual-level) directional behavior and have centrifugal effects on democratic politics, whereas other political environments give rise to (individual-level) proximity behavior and have centripetal effects. These possibilities suggest tests of the models in a variety of political contexts are needed. However, it is difficult to isolate specific political environments in observational studies. And more generally, several hurdles prevent distinguishing proximity behavior from directional behavior in observational studies. First, in the real world, individuals receive so many bits of information about candidates it becomes difficult to isolate the effect of a specific issue on evaluation, let alone assess model performance across issues. Second, scale limitations and the endogeneity problems discussed above render empirical tests in observational studies inconclusive. Finally, the prevalence of cases (e.g., combinations of certain individual positions and candidate positions) for which the two models make very similar predictions render the models observationally equivalent in many observational studies. For example, the right side of Figure 1 demonstrates that the models will make similar predictions for each NES respondent who is a liberal evaluating a less liberal Democratic candidate. Likewise, the models will make similar predictions for each NES respondent who is a conservative evaluating a less conservative Republican

candidate. Thus, when using the NES to test the models, many cases provide little or no statistical leverage. In fact, comparing NES (1972-2004) respondents' ideologies with their perceptions of the candidates' ideologies, 83% of liberals perceive the Democratic presidential candidate as less liberal than themselves, and 75% of conservatives perceive the Republican presidential candidate as less conservative than themselves.[5] Thus only a handful of NES subjects evaluate a presidential candidate they perceive is on the same side of the ideological continuum but more extreme. For the vast majority of NES subjects, both models predict evaluations decline as the distance between subjects and candidates increases.

A new approach is needed. Lewis and King (1999) suggest turning to the power of the experiment, "[I]f we cannot design an experiment—even in principle—to answer the critical questions at hand, there is little hope of making inferences from observational data" (p. 31). The power of the experimental method lies in its ability to create desired evaluation environments and design them so that the models make very different predictions. Fortunately, the task of designing experimental tests has proven tractable and the small, but growing, body of experimental evidence sheds new light on directional and proximity motivated behavior.

To date, the experiment by Lacy and Paolino (2004) most closely resembles the way citizens encounter real candidates. Lacy and Paolino randomly assign subjects to view ads for hypothetical candidates and they vary candidate extremeness by manipulating the content of the ads. Their study reveals both directional and proximity motivations and tentatively supports the hypothesis some conditions give rise to the former whereas other conditions give rise to the latter (Lacy & Paolino, 2004, p. 10). Other experiments have sacrificed some of the realism achieved in the Lacy and Paolino study by simply describing candidates' positions as numerals on policy scales. Although these experiments differ from studies based on observational data in the way subjects encounter candidates, they succeed in simulating the relevant conditions (e.g., combinations of individual and candidate positions for which the models make different predictions) and they solve the endogeneity problems that plague observational studies by exogenously manipulating candidate positions and randomly assigning subjects into each evaluation condition. Claassen (2007) follows this strategy to randomly manipulate ideological distance between subjects and hypothetical candidates and demonstrates, consistent with proximity logic, that candidate evaluations decline as distance between subjects and candidates increase, even when the candidates' views are simply more intense versions of the subjects' views (e.g., in the same ideological "direction").

Tomz et al. (2006) systematically assign subjects the task of voting for one of two hypothetical candidates who are on the same side of the health care issue as the subjects, but who differ in policy extremeness, and they find subjects make the proximity selection at least twice as often.

Hence it would appear that evaluations of candidates based on ideology and health care considerations turn on proximity comparisons, but the experimental research is still in the early stages and the findings remain preliminary. For example, Claassen's ideology study involved college-aged subjects, and questions remain about whether the results will hold in the general population. Tomz et al. investigate the question for the issue of health care in a sample of the general population, but would the results generalize to other policy issues?

The Experiment

This experiment was designed to reexamine the role of ideology structuring candidate evaluations in the general population and to test the models in two new policy areas: opinion about military spending and opinion about abortion. The experiment was included as a part of surveys administered over the internet to the Knowledge Networks' KnowledgePanel (SM) during the summer of 2006.[6] Figure 2A-C pictures the abortion scale, military spending scale, and ideology scale, respectively, as seen by subjects (see Appendix A for the distributions on each scale). Based on subjects' responses to each of these prompts, hypothetical candidate locations were generated and each subject was surveyed for their evaluation. The prompts, graphics showing the candidates' locations, and the evaluation scales are pictured in Figure 3A-C. The responses to these evaluation prompts form the dependent variables used in regressions estimated to compare proximity and directional model performance. Evaluations were recoded so that very favorable and somewhat favorable = +1, neither favorable nor unfavorable = 0, and somewhat unfavorable and very unfavorable = −1.[7]

The goal of the experiment is to assess whether proximity or directional considerations structure evaluation in several different evaluation environments. The three scales pictured in Figure 2A-C define the evaluation environments. Subjects are asked to provide their self-location on each scale and then asked to evaluate a candidate. The evaluation environment is carefully controlled because the only information subjects are given about the candidate is the candidate's location on the scale. In addition to the ability to control the evaluation environment, the experiment also enables the

Figure 2
(A) Abortion Scale, (B) Military Spending Scale, and (C) Ideology Scale

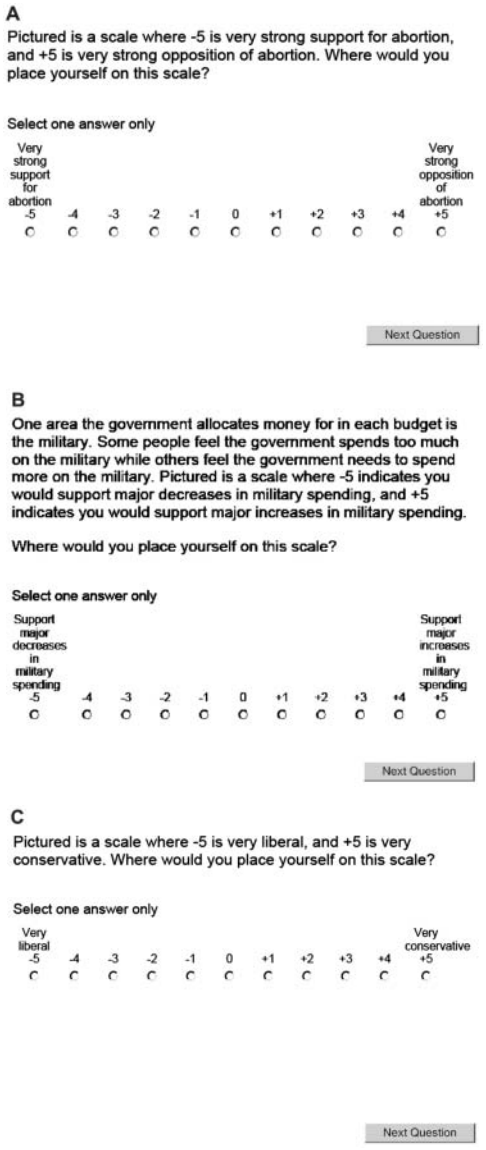
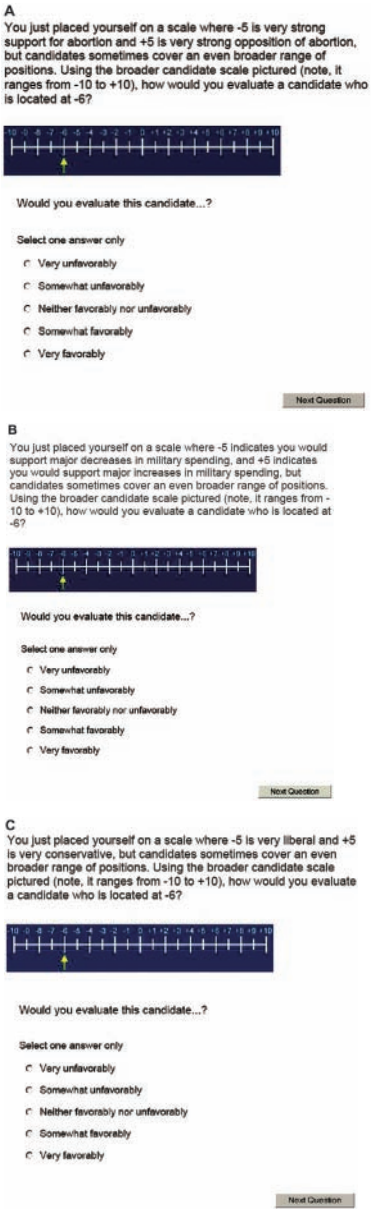


Figure 3
Candidate Evaluation for (A) Abortion Scale, (B) Military Spending Scale, and (C) Ideology Scale



creation of evaluation situations in which the two models make different predictions. It is this feature of the experiment that enables me to assess which model better describes evaluation in each environment. The first evaluation situation designed to test the models in each environment involves comparing individuals' evaluations of candidates who are on the same side of the scale, but between 1 and 5 units more extreme. The left side of Figure 1 demonstrates that the models make different predictions about the way individuals would evaluate these candidates. The directional model predicts that more distant candidates will be rated higher whereas the proximity model predicts that more distant candidates will be rated lower.

To create the desired evaluation situations, the evaluation prompts pictured in Figure 3A-C were designed to generate a candidate who was on the same side of the scale neutral point (e.g., 0), but more extreme, with how much more extreme determined at random. If the subject's location was a positive integer, the candidate's location was determined by drawing an integer from a uniform distribution of integers from 1 to 5 and adding the integer to the subject's location. If the subject's location was a negative integer, the candidate's location was determined by drawing an integer from a uniform distribution of integers from −1 to −5 and adding that integer to the subject's location. To make the process a bit more concrete, a subject with an abortion position of −1, for example, was asked to evaluate a candidate with an abortion position ranging from −2 to −6.[8]

The proximity model predicts less favorable evaluations for more distant candidates. Furthermore, the experimental treatment ensures that these individuals are statistically comparable by randomly manipulating the distance between subjects and candidates. Unfortunately, the directional prediction is a bit more complicated. For each possible subject location, the calculation in Equation (1) increases as the distance between the subject and candidate increases. However, because the directional computation involves the product of subjects' and candidates' locations, the pattern of increasing directional computations holds only for comparisons among subjects who are identical in scale extremeness. For example, plugging values into Equation (1) for a subject with an abortion position of 1 evaluating a candidate 5 units more extreme produces a score of 6 ($1 \times 6 = 6$). But plugging values into Equation (1) for a subject with an abortion position of 3 evaluating a candidate only 1 unit more extreme produces a score of 12 ($3 \times 4 = 12$). In short, the directional computation yields higher scores for more extreme individuals.[9] Thus, it is necessary to hold extremism constant to ensure that the directional model predicts warmer evaluations as distance increases.

Comparing Evaluations Across the Treatment Groups

Bearing these considerations in mind, the test is carried out by regressing evaluations of candidates (who are on the same side as subjects, but more extreme) on a measure of the distance between subjects and candidates. I also control for subjects' ideological extremeness to ensure that the directional computations are comparable across individuals with different ideologies. I estimate the model

$$\text{Evaluation}_i = \alpha + \beta_1(|P_i - C_i|) + \beta_2(|P_i|) \quad (3)$$

where the dependent variable is i's candidate evaluation, P_i is i's position on the scale, and C_i is the position of the candidate i was asked to evaluate (on the same side of the scale and more extreme by 1 to 5 units). Holding ideological extremism constant, the proximity model predicts a negative β_1, indicating evaluations are a negative function of distance, whereas the directional model predicts a positive β_1, indicating evaluations are a positive function of distance.

Table 2 presents the results of having regressed evaluations of more extreme candidates on distance, controlling for extremism, for each of the three scales. The first column contains the estimates for ideology-based evaluations. Consistent with proximity logic, the coefficient is negative and statistically significant ($p < .05$). Increased ideological distance between subjects and candidates is associated with decreased likelihood of favorable evaluation. Because an ordered logit estimator was used, I also computed the changes in predicted probabilities to illustrate the effect of distance on evaluations. The likelihood of a "Very" or "Somewhat Favorable" evaluation among the treatment group whose candidate was one unit more extreme was about 13% higher than the likelihood of a "Very" or "Somewhat Favorable" evaluation among the treatment group whose candidate was five units more extreme.[10]

Although the "Extremism" estimate in the ideology column of Table 2 also reveals a tendency among more ideologically polarized individuals to evaluate candidates more favorably, the simulated change in the likelihood of a "Very" or "Somewhat Favorable" evaluation is nonetheless inconsistent with the directional assertion that individuals evaluate candidates using a directional calculus. For example, individuals with +3/−3 ideologies would compute a directional score of 12 when evaluating a candidate one unit away ($3 \times 4 = 12$ or $-3 \times -4 = 12$) and 24 when evaluating a candidate five units away ($3 \times 8 = 24$ or $-3 \times -8 = 24$). In other words, holding ideological extremism constant, the directional calculation *increases* as distance

Table 2
Estimates of the Effect of Distance on Candidate Evaluation When Candidates Are More Extreme Than Subjects

Independent Variables	Ideology	Military Spending	Abortion
Distance	−.14*	−.09	.14*
	(.07)	(.07)	(.06)
Extremism	.61*	.45*	.11*
	(.06)	(.06)	(.04)
N	499	498	502
Simulated Changes in Likelihood of "Very" or "Somewhat Favorable" Evaluation[a]			
ΔDistance	−13%	−9%	14%
ΔExtremism	59%	48%	14%

Note: Ordered logit estimates (cutpoints omitted). Standard errors in parentheses.
a. Simulated change is the effect of a minimum to maximum change when the other variable is set to its mean. Computed using SPost (Long & Freese, 2006).
*$p < .05$ (all tests two-tailed).

varies from 1 to 5. However, the ΔDistance effect indicates that when subjects' ideologies are +3/−3 (the mean of extremism is about 3), the likelihood of a favorable evaluation *decreases* 13%, increasing directional computation notwithstanding.

The results in the "Military Spending" column are similar to those in the "Ideology" column; however, the coefficient for distance fails to reach an acceptable level of statistical significance. Although the negative sign of the coefficient indicates a weak proximity process driving evaluations, the lack of statistical significance indicates that opinions about military spending fail to stimulate much systematic variation in subjects' candidate evaluations. In contrast to the lackluster results for military spending, opinion about abortion is robustly related to candidate evaluations. The more interesting contrast, however, is evident in the sign of the distance coefficient. Abortion-based candidate evaluations appear to increase with the distance between subjects and candidates. Consistent with directional logic, the distance coefficient in the last column of Table 2 is positive and statistically significant ($p < .05$). Turning to the simulated effect of "ΔDistance," the likelihood of a "Very" or "Somewhat Favorable" evaluation among the treatment group whose candidate was one unit more extreme was about 14% lower than the likelihood of a "Very" or "Somewhat Favorable"

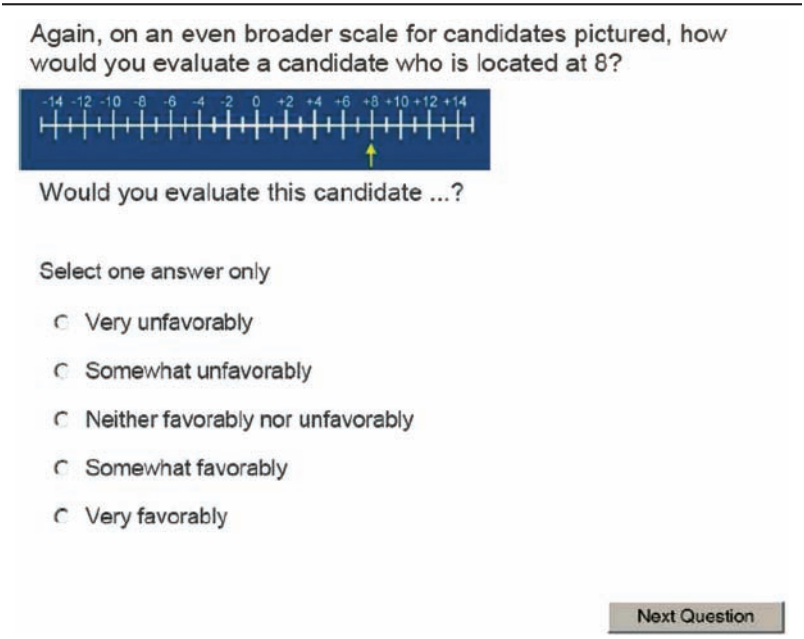
evaluation among the treatment group whose candidate was five units more extreme.[11]

Of course, the 800-pound gorilla lurking in this analysis is a feature of the directional model I have not yet mentioned. Some versions of the directional model include a "region of acceptability" and a penalty for candidates who stray beyond the region. The experimental treatment generates very extreme candidates. In many cases, the hypothetical candidates are more extreme than even the most extreme self-location available to the subjects. Although a necessary device to study these two spatial models in an experimental setting (e.g., without broader candidate scales, one cannot randomly assign subjects to distance groups), one wonders whether my results would have been different had I included a region and a penalty.[12] Of course the logic behind the region and the penalty poses no problem for the abortion result, because the result supports directional evaluation and this tendency could only be strengthened by adding the region and penalty. However, to test for the possibility that a region and a penalty would alter the ideology finding, I estimated Equation (3) with distance specified as a second-order polynomial. The specification allows for the possibility that subjects like more distant candidates to a point, then penalize them in their evaluations. However, the polynomial terms fail to reach statistical significance and do not improve explanatory power (see Appendix C, Table C1 for full results).[13] Therefore I am confident that the results do not turn on this specification decision.

Intrapersonal Evaluation Comparisons

Although experimental control overcomes most objections to making interpersonal comparisons, I also asked subjects to evaluate additional candidates in order to develop tests involving intrapersonal comparisons. Figure 4 displays a prompt designed to solicit the evaluation of another candidate described as having an ideology even more extreme than the ideology of the first candidate (with how much more extreme determined by another draw from the uniform distribution of integers between 1 and 5 or −1 and −5). Unfortunately, due to resource constraints, subjects were only asked to evaluate these even more extreme additional candidates for the ideology scale. An individual who was in the distance = 5 treatment group and whose own ideology was 1 would have received a first candidate located at 6. For the next candidate, the subject would again be placed into a treatment group at random. If the subject was in the distance = 2 treatment group for the additional candidate, the experiment would generate a candidate at 8 by adding 2 to the location of the first candidate (indicated by the arrow in Figure 4).

Figure 4
Second Candidate Evaluation for Ideology Scale



These additional candidate evaluations provide opportunities to distinguish between proximity and directional evaluations in the context of intrapersonal comparisons of evaluations. The proximity model predicts higher evaluations for the first candidate because the first candidate is closer to the subject. The directional model, on the other hand, predicts higher evaluations for the second candidate because the second candidate is a more intense version of the subject's own ideology (plug values into equations 1 and 2 to verify).

To test the models in the context of an intrapersonal comparison I simply conduct a *t* test of the null hypothesis that the difference of the evaluations equals zero. Because the first candidate evaluation (the more proximate candidate) was subtracted from the second candidate evaluation (the directional candidate), the proximity model predicts the mean of the differences will be negative, indicating subjects rated the more proximate candidate higher. The directional model predicts the mean of the differences will be positive, indicating subjects rated the directional candidate higher.

The one-sample *t* test reveals that the mean of the differences of the evaluations is –0.14 with a standard error of 0.03. Subjects clearly rate the closer candidate higher than the more intense candidate. I can reject the null hypothesis that subjects rated the two candidates about the same with better than 99.9% confidence. Consistent with the interpersonal ideology results, subjects appear to follow proximity logic in their ideology-based two-candidate comparisons also.

Discussion

This article contributes to the small but growing body of experimental research into proximity and directional forces in political behavior. The study replicates an important finding in a more diverse sample and expands the experimental research into two new evaluation environs. Consistent with previous work, I report evidence here that ideology-based evaluations turn on proximity motivations. The two new evaluation environments also yield interesting findings. Opinions about the proper level of military spending also appear to structure evaluations according to proximity, though the association is quite weak. However, abortion-based evaluations appear to turn on directional motivations.

One interesting explanation for directional behavior is that of policy balancing (Adams, Bishin, & Dow, 2004). Policy balancing is the idea that an individual might support an extreme candidate in order to counter a disagreeable status quo policy. In the case of abortion, this suggested to me that I would observe more directional behavior from those on the "oppose abortion" side of the scale. These individuals do not like the status quo; so to the extent policy balancing happens, I should observe more directional behavior among them than among those on the "support abortion" side. To test this possibility, I reestimated Equation (3) for abortion adding a variable capturing whether individuals were on the "oppose" side, and a statistical interaction between being opposed to abortion and distance. The results are presented in Table 3. Consistent with balancing theory, those who oppose abortion exhibit significantly more directional behavior than those who do not oppose abortion. The direct effect of distance is close to zero, indicating virtually no evidence of directional behavior among those who do not oppose abortion (e.g., the effect of distance when "Oppose Abortion" equals zero). The interaction between opposing abortion and

Table 3
Testing for Policy "Balancing"

Independent Variables	Abortion-Based Evaluations
Distance	.02
	(.08)
Extremism	.27*
	(.05)
Oppose abortion	–1.97*
	(.44)
Oppose abortion × distance	.26*
	(.12)
N	502

Note: Ordered logit estimates (cutpoints omitted). Standard errors in parentheses.
*$p < .05$ (all tests two-tailed).

distance, however, is large and statistically significant. Adding the direct effect of distance and the interactive effect reveals that the positive effect of distance on the candidate evaluations of those who oppose abortion is even more robust than the one estimated in Table 2. Among the 222 subjects who oppose abortion, the evidence supports the idea that they support more extreme candidates, but among the remaining subjects who do not oppose abortion there is little evidence of directional behavior.

Conclusion

Although the abortion finding reported in Table 2 is consistent with a directional motivation in political behavior, the result also appears to be consistent with observational studies of policy balancing. And evidence of abortion as a centrifugal force in politics is not surprising given the combustible environment that often surrounds political wrangling over abortion. Moreover, if observations of recent political polarization require an issue that both inspires directional behavior while being highly salient, then the abortion results reported here may well contribute to the explanation for recent evidence of centrifugal tendencies in American politics. For those concerned about political polarization, however, balancing offers a silver lining. Even a directional issue, such as abortion, is only directional for those attempting to balance policies they find disagreeable.

Taken as a whole, this experiment suggests that exploring different political issues and testing for directional or proximity tendencies may be a fruitful area for future research. Perhaps the "mixing" parameter, which combines directional and proximity forces in the models developed by Merrill and Grofman (1997, 1999) and Adams and Merrill (1999a, 1999b), turns on the mix of issue considerations and whether those issues tend to be directional issues or proximity issues. For example, if four issues prove relevant to candidate evaluations in a given election campaign, it could be that whether directional or proximity forces dominate depends on which issues are most salient and which issues inspire citizens to make directional or proximity comparisons—or it could be that different issues can be "framed" to draw directional or proximity responses. Given the current level of scholarly interest in political polarization, the possibility that different issues involve different types of candidate evaluations may provide important new insights into the centripetal and centrifugal forces at work in the political environment.

Appendix A

Table A1
Ideology, Military Spending, and Abortion Distributions in the Sample

Response Categories	Ideology (%)	Military Spending (%)	Abortion (%)
–5	6	10	14
–4	5	2	8
–3	9	7	8
–2	6	5	4
–1	5	4	3
0	28	23	18
1	7	7	1
2	8	8	3
3	11	15	5
4	8	7	9
5	8	12	26
N	499	498	502

Note: Cell entries are percentages. Column totals may not add to 100% because of rounding error.

Appendix B
Experimental Artifacts

Although the strongly exogenous treatment succeeds in the task of randomly assigning subjects to evaluate candidates 1, 2, 3, 4, and 5 units distant from their own location, there may be artifacts to consider from exposing subjects to candidate scales that extend beyond the scales they were offered for self-placement. The question then is whether such artifacts bias the results and, if so, whether the bias favors directional or proximity findings. On one hand, unusual candidates (those in the [|6, 10|] range) might fall into a category of candidates that the directional model would penalize for being outside of the region of acceptability. Although distance is uncorrelated with subject characteristics, it is correlated with receiving a candidate in the [|6, 10|] range. If subjects consider these candidates unacceptable, then one would expect a proximity bias as subjects in higher distance treatments mentally penalize their more unusual candidates. On the other hand, it is also possible that subjects who self-place at the extremes on scales would actually have self-placed even farther out had they been given the opportunity. If this were the case, then extreme subjects may bias results in favor of the directional model as they mentally reduce the distance between their self-location and the location of their more extreme evaluation targets. These are important concerns, and I conducted two additional analyses which address the possibility of experimental artifacts. Happily, I find little evidence of experimental artifacts.

First, I have added parameters capturing whether the candidate was in the [|6, 10|] range and an interaction between distance and whether the candidate was in the [|6, 10|] range to the models reported in Table 2 of the main text. This model estimates the effect of distance for subjects receiving each type of candidate and provides a statistical test of whether the effects of distance are different for those who received candidates in the [|6, 10|] range. Table B1 below presents the results. For the ideology and military spending models I cannot reject the null hypothesis that the effect of distance is the same among subjects regardless of whether they received a candidate in the [|6, 10|] range. Adding the ideology and military spending distance coefficients to their interactive effects, Table B1 shows that the effect of distance is actually more negative for subjects who received candidates in the [−5, +5] range—but the difference is not statistically significant. The ideology and military spending results suggest that subjects do not penalize candidates in the [|6, 10|] range.

(continued)

Table B1
Interactive Models Comparing the Effect of Distance Among Subjects Evaluating a Candidate From the [–5, 5] Range to the Effect of Distance Among Subjects Evaluating a Candidate From the [|6, 10|] Range

Independent Variables	Ideology	Military Spending	Abortion
Distance	–.09	–.11	–.05
	(.09)	(.09)	(.11)
Extremism	.77*	.48*	.08
	(.10)	(.09)	(.08)
Candidate from the [|6, 10|] range	–1.44	–.48	–.58
	(.78)	(.67)	(.49)
Distance × [|6, 10|] Range	.20	.10	.28*
	(.18)	(.16)	(.13)
N	499	498	502

Note: Ordered logit estimates (cutpoints omitted). Standard errors in parentheses.
*$p < .05$ (all tests two-tailed).

The abortion results in Table B1 also suggest that no penalty is needed for candidates in the [|6, 10|] range. Again distance is more positively—not more negatively—associated with abortion related evaluations for the subjects evaluating these candidates, and the difference is now statistically significant. Although it may be tempting to infer that there may be some directional bias due to the experimental manipulation, one should note that the pattern of abortion results are actually consistent with directional predictions and that the test was designed to detect a proximity—not a directional—bias. Because receiving a candidate in the [|6, 10|] range and extremism are correlated, the more positive evaluations associated with distance for subjects who received a candidate in the [|6, 10|] range may simply reflect the higher scalar combinations of their [more extreme] abortion positions and the candidates' positions. That the interactive effects were not significant for the ideology and military spending models provides additional evidence that evaluation follows proximity logic for these two scales.

To address the possibility of a directional bias, I have reestimated the original models excluding all subjects who self-located as +5s or –5s. These individuals are presumably the most susceptible to this flavor of experimental artifact (mentally reducing the distance between self and candidate) because they selected the most extreme option on the scale they were given. The remaining individuals did not locate themselves at another more extreme location, even though more extreme locations were available to them (e.g., they seem unlikely to mentally place themselves farther out when exposed to the broader candidate scale). Table B2 reveals that the results reported in the main text remain very similar after excluding the +5

(continued)

and −5s. The signs of the coefficients all remain the same—positive in the abortion model and negative for military spending and ideology—and all retain similar magnitudes. The robustness of the ideology and military spending results actually improve slightly whereas the precision of the abortion results decrease slightly. Although the loss of precision for the effect of distance in the abortion model is a bit troubling, it is less troubling because it is partially the result of the smaller sample (e.g., not entirely due to an experimental artifact). Taken as a whole, Tables B1 and B2 indicate that experimental artifacts pose little threat to making valid inferences from the basic models presented in the main text.

Table B2
Estimates of the Effect of Distance on Candidate Evaluation When Candidates Are More Extreme Than Subjects Excluding Subjects at +5/−5

Independent Variables	Ideology	Military Spending	Abortion
Distance	−.17*	−.12	.11
	(.07)	(.07)	(.08)
Extremism	.75*	.60*	.22*
	(.08)	(.08)	(.07)
N	432	389	302

Note: Ordered logit estimates (cutpoints omitted). Standard errors in parentheses.
*$p < .05$ (all tests two-tailed).

Appendix C

Table C1
Testing for a "Penalizing" Effect

Independent Variables	Ideology	Military Spending	Abortion
Distance	.23	.01	.05
	(.35)	(.35)	(.31)
Extremism	.61*	.45*	.11*
	(.06)	(.06)	(.04)
Distance^2	−.06	−.02	.02
	(.06)	(.06)	(.05)
N	499	498	502

Note: Ordered logit estimates (cutpoints omitted). Standard errors in parentheses.
*$p < .05$ (all tests two-tailed).

Notes

1. The experiment was included in Internet-based surveys administered by Knowledge Networks with funding from *Time-sharing Experiments for the Social Sciences* (TESS, NSF Grant 0094964).

2. Endogeneity results from the spurious effects of persuasion and projection. If one uses perceptual data to locate candidates in behavioral models it becomes difficult to separate the effect of the candidate, vis-à-vis persuasion and projection, on a subject's policy views from the effect of the subject's policy views on the subject's candidate evaluation (see Markus & Converse, 1979). The experimental method solves this problem by exogenously manipulating the location of the candidate.

3. Among the important expositions of the spatial model are Black (1958), Davis, Hinich, and Ordeshook (1970), Downs (1957), Enelow and Hinich (1982, 1984), Enelow, Hinich, and Mendell (1986), Hinich and Munger (1994), Hinich and Pollard (1981), Hotelling (1929), and Riker and Ordeshook (1968, 1973).

4. Absolute, or "city block," and squared "Euclidean" distance are two variants of the proximity model that yield nearly identical results and that coexist peaceably in the literature. Essentially they are two ways of eliminating the positive or negative sign (e.g., direction) from the proximity calculation. The city block approach measures the absolute value of the distances between voters and candidates. The Euclidean approach measures the squared distance rather than taking the absolute value. Empirically, the distinction matters little (e.g., my results are robust using either). However, I use the "city block" approach because absolute distance retains the same units as the original scale.

5. These percentages were computed using the NES, cumulative data file, 1972-2004. VCF0803 was used to measure respondents' ideologies. Liberals/conservatives include those who identify as extremely liberal/conservative, liberal/conservative, or slightly liberal/conservative. VCF9088 was used to measure respondents' perceptions of Democratic candidates' ideologies. VCF9096 was used to measure respondents' perceptions of Republican candidates' ideologies.

6. My experiment was fielded to 710 individuals and completed by 503, for a completion rate of 70.8%.

7. I collapse the categories primarily to simplify the presentation of predicted probabilities following model estimation with ordered logit. Had I not collapsed the categories, I would have needed to present separate predicted probabilities for each dependent variable outcome. Having collapsed the dependent variable to three categories enables me to present the change in the predicted probability of a favorable evaluation with a single numeral. Granted there are two additional categories, but neutral evaluations are not the central focus and negative evaluations are essentially complements of the ones presented. I also note that the results are similar in any case. I lose some precision with the five-category coding—which is probably a function of some random error in the five category measure (which would not bias coefficient estimates, but which would inflate the standard errors). Collapsing the "favorables" and "unfavorables" in effect reduces this random measurement error.

8. To harness the power of random assignment, candidate scales were allowed to span beyond the self-placement scales. Otherwise, as individuals locate themselves closer to the poles, the range of available distances between individuals and hypothetical candidates decreases, rendering random assignment impossible. The prompts were designed to prepare

subjects for this feature of the experiment. See Figure 3A-C. Distance for those who self-located at zero was determined by a draw from the uniform distribution of integers between −5 and +5, excluding 0. See Appendix B for additional discussion of issues relating to the experimental design.

9. Scale extremism (e.g., the absolute value of the subject's position), not the actual scale location, matters here because each subject in this portion of the experiment is evaluating a candidate on the *same side of the scale*. In the directional computation, positive values are multiplied with positive values and negative values are multiplied with negative values. Hence the particular side does not matter (e.g., $3 \times 3 = 9$ and $-3 \times -3 = 9$).

10. The change in likelihood was evaluated with extremism set to its mean. However, the change in likelihood is nearly identical across all values of extremism.

11. The change in likelihood was again evaluated with extremism set to its mean (also about 3). And again the change in likelihood is nearly identical across all values of extremism.

12. Fortunately, in previous studies, the use of a region and a penalty rarely alters the conclusions of the analysis. For example, in MacDonald, Listhaug, and Rabinowitz (1991), Westholm (1997), and Macdonald, Rabinowitz, and Listhaug (1998), the addition of a region of acceptability and a penalty parameter does not alter the relative performance of the models. It also bears mentioning that Rabinowitz and MacDonald (1989) and Lewis and King (1999) do not include the penalty in their empirical tests. Finally, Westholm (2001) argues that the region and the penalty render the directional model, "a mere tautology rather than an empirically testable proposition" (p. 478). Taken as a whole I deem including a penalty neither helpful (it almost never affects relative performance) nor desirable (the scientific merits of the region and penalty are debatable).

13. Also see Appendix B for yet another test of whether subjects penalize "unusual" candidates.

References

Adams, J., Bishin, B. G., & Dow, J. K. (2004). Representation in congressional campaigns: Evidence for discounting/directional voting in U.S. Senate elections. *Journal of Politics, 66*, 348-373.

Adams, J., & Merrill, S., III. (1999a). Modeling party strategies and policy representation in multiparty elections: Why are strategies so extreme? *American Journal of Political Science, 43*, 765-791.

Adams, J., & Merrill, S., III. (1999b). Party policy equilibrium for alternative spatial voting models: An application to the Norwegian Storting. *European Journal of Political Research, 36*, 235-255.

Black, D. (1948). On the rationale of group decision-making. *Journal of Political Economy, 56*, 23-34.

Black, D. (1958). *The theory of committees and elections*. Cambridge, UK: Cambridge University Press.

Claassen, R. L. (2007). Ideology and evaluation in an experimental setting: Comparing the proximity and the directional models. *Political Research Quarterly, 60*, 263-274.

Davis, O., Hinich, M., & Ordeshook, P. (1970). An expository development of a mathematical model of the electoral process. *American Political Science Review, 64*, 426-448.

Downs, A. (1957). *An economic theory of democracy.* New York: HarperCollins.

Enelow, J., & Hinich, M. (1982). Ideology, issues and the spatial theory of elections. *American Political Science Review, 76*, 493-501.

Enelow, J., & Hinich, M. (1984). *The spatial theory of elections.* New York: Cambridge University Press.

Enelow, J., Hinich, M., & Mendell, N. (1986). An empirical evaluation of alternative spatial models of elections. *Journal of Politics, 48*, 675-693.

Hinich, M., & Munger, M. (1994). *Ideology and the theory of political choice.* Ann Arbor: University of Michigan Press.

Hinich, M., & Pollard, W. (1981). A new approach to the spatial theory of electoral competition. *American Journal of Political Science, 25*, 323-341.

Hotelling, H. (1929). Stability in competition. *Economic Journal, 25*, 323-341.

Lacy, D., & Paolino, P. (2004). *An experimental test of proximity and directional voting*. Paper presented at the 2004 annual meeting of the Political Methodology Society. Palo Alto, CA.

Lewis, J., & King, G. (1999). No evidence on directional vs. proximity voting. *Political Analysis, 8*, 21-33.

Long, J. S., & Freese, J. (2006). *Regression models for categorical dependent variables using STATA* (2nd ed.). College Station, TX: Stata Press.

MacDonald, S. E., Listhaug, O., & Rabinowitz, G. (1991). Issues and party support in multiparty systems. *American Political Science Review, 85*, 1107-1131.

MacDonald, S. E., and Rabinowitz, G. (1998). Solving the paradox of nonconvergence: Valence, position, and direction in democratic politics. *Electoral Studies, 17*, 281-300.

MacDonald, S. E., Rabinowitz, G., & Listhaug, O. (1995). Political sophistication and models of issue voting. *British Journal of Political Science, 25*, 453-483.

MacDonald, S. E., Rabinowitz, G., & Listhaug, O. (1998). On attempting to rehabilitate the proximity model: Sometimes the patient just can't be helped. *Journal of Politics, 60*, 653-690.

Markus, G. B., & Converse, P. E. (1979). A dynamic simultaneous equation model of electoral choice. *American Political Science Review, 73*, 1055-1070.

McCarty, N., Poole, K. T., & Rosenthal, H. (2006). *Polarized America: The dance of ideology and unequal riches*. Cambridge: MIT Press.

Merrill, S., III, & Grofman, B. (1997). Directional and proximity models of voter utility and choice. *Journal of Theoretical Politics, 9*, 25-48.

Merrill, S., III, & Grofman, B. (1999). *A unified theory of voting: Directional and proximity spatial models.* Cambridge, UK: Cambridge University Press.

Poole, K. T. (2000). Review of the book *A unified theory of voting: Directional and proximity spatial models*. *American Political Science Review,* 94, 953.

Rabinowitz, G., & MacDonald, S. E. (1989). A directional theory of issue voting. *American Political Science Review, 83*, 93-121.

Riker, W. H., and Ordeshook, P. C. (1968). A theory of the calculus of voting. *American Political Science Review, 62*, 25-42.

Riker, W. H., & Ordeshook, P. C. (1973). *An introduction to positive political theory.* Englewood Cliffs, NJ: Prentice-Hall.

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. Chicago, IL.

Westholm, A. (1997). Distance versus direction: The illusory defeat of the proximity theory of electoral choice. *American Political Science Review, 91*, 865-883.
Westholm, A. (2001). On the return of epicycles: Some crossroads in spatial modeling revisited. *Journal of Politics, 63*, 436-481.

Ryan L. Claassen is an assistant professor of political science at Kent State University. His research interests include public opinion, elections, and voting behavior. His recent work has appeared in *American Politics Research*, *The Journal of Politics, Political Behavior*, and *Political Research Quarterly*.