A Categorization Theory of Issue Voting: How the Center Divides the Political Space

Jørgen Bølstad*
Elias Dinas†

Abstract

We present a categorization theory of spatial voting, which postulates that voters perceive political issues through coarse classifications. Rather than pursuing utility-maximizing ideal points along ideological continua, voters choose categories, defined by the ideological centre. As a consequence, their preferences are characterized by pronounced discontinuities, rewarding parties on their side of the issue space more than what would be expected on proximity grounds alone. Two further implications of the model are tested. First, projection bias is also driven by discontinuous, category-based effects. Voters misplace the policy stance of parties they like more when this brings them into the same category. Second, these categories are defined by the geometric middle of the scale; not the perceived policy status quo, as a directional logic would imply. Our findings suggest that voters' party evaluations are characterized by a non-trivial identity component, generating in-group biases, not captured by the existing spatial models of voting.

We would like to thank James P. Cross, Jonathan Nagler, Trajche Panov, Pedro Riera, Piero Stanig, Alex Trechsel, Pablo Fernandez-Vazquez, Till Weber, Thomas Winzen, the members of our panels at the 2nd Annual General Conference of the European Political Science Association, Berlin, June 21-23, 2012, and the Annual Elections, Public Opinion and Parties Conference, at the University of Exeter, September 9-11, 2011, as well the attendants of our sessions of the ETH Colloquium on European Politics, and the EUI Colloquium on Political Behavior.

*Post-Doctoral Researcher, Center for Comparative and International Studies (CIS), ETH Zurich, Haldeneggsteig 4, 8092 Zurich, Switzerland (joergen.boelstad@eup.gess.ethz.ch).

†Lecturer, Faculty of Social Sciences, University of Nottingham, Law & Social Science Building, University Park, Nottingham NG7 2RD, UK (elias.dinas@nottingham.ac.uk).

Politics is about sides. It is about knowing your friends and your opponents; it is about groups, sharing goals and values. The most general groups are defined by their side of the center. We thus speak of liberal and conservative voters; left- and right-wing parties.[1] Commentators do so as a matter of course and it would be strange if voters were any different. Yet, none of the existing theories of spatial voting capture this logic. The dominant proximity theory simply posits that voters will prefer the party closest to themselves (e.g., Downs 1957; Westholm 1997). The alternative directional theory (Rabinowitz and Macdonald 1989) divides the political space into two directions of policy change, but, as we show here, its theoretical underpinnings are substantively different and it consequently fails to capture the effect we hypothesize.

We offer a categorization theory of issue voting, starting from the observation that humans routinely categorize the objects they perceive, as a way to simplify the world (e.g., Edelman 1992; Kelly 1955). Accordingly, rather than operating as ideal-point seekers along seemingly continuous policy dimensions, voters work with coarse ideological categories. Several lines of research have shown that categorization tends to influence how objects are perceived. In particular, individuals tend to minimize the differences between observations falling in the same category and maximize the differences between those falling in different categories (e.g., Tajfel and Wilkes 1963). Social identification theory extends this idea to social categorizations, holding that individuals derive their identities from group memberships and therefore exaggerate the differences between group insiders and outsiders (e.g., Tajfel 1982). We argue this also applies to spatial voting: Ideological categorization is not only an information shortcut; self-categorization is also an expression of identity.

This simple model of spatial voting generates a set of testable predictions, which challenge the theoretical foundations of existing spatial theories. First, voters form their party preferences based on whether parties fall into the same broad category as themselves. Thus, parties falling in the same category as the voters receive a bonus, beyond what would be predicted by other spatial theories. However, as categorization is an insufficient selection criterion when voters have multiple parties on their side, voters are often forced to apply more specific criteria. In our analyses, we find a clear proximity pattern in addition to categorization effects. Consistent with our expectations, the proximity effect is almost twice as strong for parties on the same side as voters. Second, voters' efforts to rationalize non-ideological party preferences by perceiving party positions in light of spatial utility functions – a phenomenon known as projection bias – should also be characterized by a category-based discontinuous pattern. Lastly, the middle-category of survey scales does not serve to denote the policy status quo, but to separate the sides of the ideological spectrum.

Our empirical analyses test all three implications of our theory. Before we delve into these tests, however, we elaborate on the theoretical underpinnings of categorization. We begin by presenting the main theories of spatial voting, but only briefly, given the vast existing literature. We then introduce our categorization theory and show how other models fail to capture the effects we predict. This section is followed by our empirical analyses, demonstrating clear discontinuities of the kind we hypothesize. The conclusion elaborates on the implications of our findings.

[1] Employing European data, we focus on parties, but we might as well have presented our argument in terms of individual candidates in a two-party setting.

Existing Theories

Spatial theories of voting share the assumption of rational voters choosing the alternative that gives them the highest utility based on spatial considerations. They differ, however, in the utility functions that translate the policy positions of voters and parties into utility losses. The most straightforward model of vote choice, the "proximity model," holds that individuals vote for the parties whose positions are the most similar to their own (Davis, Hinich and Ordeshook 1970; Downs 1957; Enelow and Hinich 1990). For a given political dimension, we calculate the *Proximity Term* for voter i and party j as the absolute distance between the position of the voter (v_i) and the position of the party as perceived by the voter (p_{ij}), i.e. $|v_i - p_{ij}|$.[2] This term is expected to have a negative coefficient, as it captures distances that voters are expected to penalize. The utility curve implied by the model peaks where voters and parties are at the same position. This is shown in the left panel of figure 1, which displays the utility for parties located at 2, -1 and -3, on a dimension from -5 to $+5$ as a function of an individual's position along the same dimension.

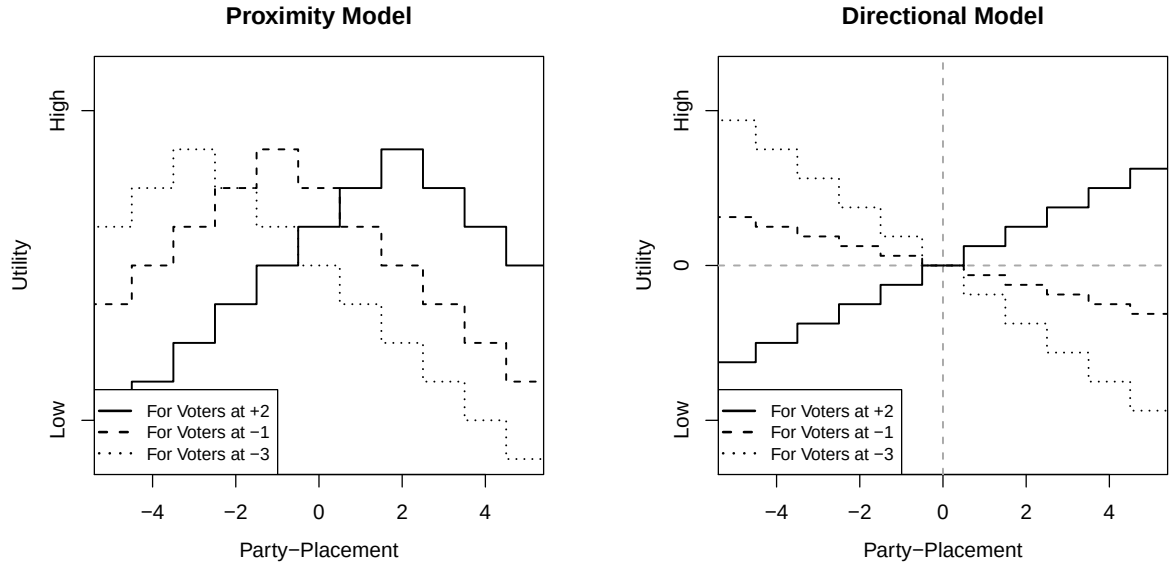
Rabinowitz and Macdonald (1989) present a competing "directional model," drawing on earlier work on issue perception and symbolic politics (Rabinowitz 1978; Sears et al. 1980; Stokes 1963). The authors argue the assessment of political parties or candidates reflects two considerations. The first is "whether the individual and candidate are in agreement about the direction public policy should take" (Rabinowitz and Macdonald 1989, 96). If individuals and parties prefer the same direction, this will contribute positively to party assessment, if they do not, the contribution will be negative. Second, the authors argue that the strength of the contribution to party assessment will be an interaction of the intensities with which the voter and party is emphasizing a given direction. The further they both are from the "neutral point," the stronger the response. We discuss the concept of the neutral point in a later section. For now, suffice it so say that it is the point at which no desired policy change is implied.

Following Rabinowitz and Macdonald (1989), we thus calculate the *Directional Term* as $v_i \times p_{ij}$, where the notation is the same as above, and v_i and p_{ij} are centered on the neutral point. As shown in the right panel of figure 1, for a given party at a given position, an individual's directional utility of voting for the party is a linear function of the individual's own position. If the party is at the neutral point, the utility is constant at 0. If the party is at a given side, the utility will increase linearly as an individual moves towards that side, crossing 0 when the individual crosses the neutral point. The role of the party positions is to change the slope of the function: The further the party moves from the neutral point, the steeper the slope. The same holds for individuals' positions, of course: They change the

[2] An alternative to the absolute or "city-block" distances between v_i and p_{ij} is to use squared "Euclidean" distances, i.e. $(v_i - p_{ij})^2$. However, this alternative tends to give a worse fit than absolute distances. In a study of candidate ratings, for example, Merrill (1995, 283) notes that "the linear proximity function outperforms the quadratic function in all cases ... suggesting that the linear form may be preferable" (see also Lewis and King 1999, 24, fn. 5). As can be seen in figures 4 and 5 below, this is also the case here. Therefore, we focus on the specification with absolute distances. The alternative would not give substantially different results, however.

slope of the utilities as a function of party positions.[3]

Figure 1: Voter Utilities according to the Proximity and Directional Model



Both in theoretical discussions and empirical studies, the intensity aspect of directional theory has overshadowed the directional aspect. The motivation behind most work in this area has been to solve the puzzle of the "empty center:" The question of why parties and candidates appear to be more extreme than voters (Iversen 1994*a*). This emphasis on the intensity part of the model has also motivated the accumulation of numerous mixed models of spatial voting. Perhaps most important among these is Grofman's (1985) discounting model (Merrill and Grofman 1999), further elaborated by Iversen's representation model (Iversen 1994*b*). The key idea is that parties are unable to fully implement their proposals, due to within-party dynamics (Iversen 1994*b*) or due to systemic constraints in multiparty systems with coalition governments (Kedar 2005). Thus, voters are led to prefer parties more extreme than themselves to get the amount of policy change they would like. These models are all based on a proximity calculus, adjusted to take into account the gap between parties' policy proposals and their actual policies (Adams, Bishin and Dow 2004; Adams, Merrill and Grofman 2005; Fiorina 1992).[4] We leave these additional models aside here, as they do

[3] Rabinowitz and Macdonald (1989) also qualified their model, suggesting that parties located outside the region of acceptable policy platforms will be punished by directional voters for being too extreme. However, as Westholm (1997) has noted, it is problematic to conceptualize the region of acceptability within a directional framework: The idea that parties are too extreme is inherently based on a proximity logic. Moreover, few empirical studies have taken this idea into account. Even the originators of directional theory abandoned this idea in their more recent research (Macdonald, Rabinowitz and Brasher 2003; Macdonald, Rabinowitz and Listhaug 2007). We thus leave this issue aside here.

[4] Merrill and Grofman (1997, 1999) follow the alternative strategy of a "unified" model, encompassing a squared proximity term, as well as directional components, separating the intensity part and a purely

not capture the effects we hypothesize to any greater extent than the two main theories that we focus on.

In addition to the development of mixed models, a vast literature has emerged, trying to assess the relative merits of the proximity theory and the directional theory (e.g., Macdonald and Rabinowitz 1998; Macdonald, Rabinowitz and Listhaug 1998, 2001, 2007; Pardos-Prado and Dinas 2010; Westholm 1997, 2001). Lewis and King (1999) argue, however, that arguments about which theory fits best tend be based on assumptions that are hard or impossible to test (see also Merrill and Grofman 1999). Recently, several experiments have brought the debate forward, concluding overwhelmingly in favor of proximity theory. Claassen (2007) reports an experiment, "vindicating Downs's assertion that proximity matters and direction does not." Tomz and Van Houweling (2008) draw a similar conclusion, as do Lacy and Paolino (2010, 469), who find it "remarkable that all three [studies] point to the same conclusion." There is little doubt that proximity theory has considerable predictive power in voting behavior. We argue, however, that the existing theories of spatial voting, including proximity theory, overlook an important pattern, reflecting categorization effects.

Categorization Theory

Research in cognitive science has repeatedly demonstrated that humans use coarsened perceptual schema that simplify information processing (Goldstone 1995; Keil 2003; Mermillod, Guyader and Chauvin 2005). It is also well established that merely placing objects in categories may influence individuals' perceptions and evaluations of these objects (e.g., Krueger and Rothbart 1990; Newcombe and Liben 1982; Stangor et al. 1992; Taylor et al. 1978).[5] More specifically, accentuation theory holds that individuals minimize the differences between observations falling in the same category (assimilation) and maximize the differences (contrast) between those falling in different categories (e.g., Eiser and Stroebe 1972; Tajfel 1959, 1969; Tajfel and Wilkes 1963).[6]

A study by Krueger and Clement (1994) illustrates such effects nicely. When asked to estimate the temperature in Providence, Rhode Island, subjects showed no general pattern of over- or under-estimation. However, they showed a remarkable tendency to shift their estimates disproportionally when the month changed. Thus, between two equally spaced days, the average difference in estimated temperatures was smaller when both days were in same month than when they were in adjacent months. As suggested by Mullainathan (2002, 7), the intuitive explanation of this pattern is that the subjects used the month as a category

directional part. The authors trace the purely directional component back to Matthews (1979), and implement it as the cosine of the angle between voter and candidate.

[5] Such effects have more recently also been formalized and explored in economics (e.g., Mullainathan 2002; Mullainathan, Schwartzstein and Shleifer 2008).

[6] Experimental evidence shows a similar pattern in how categorizations are made: Under conditions of uncertain information, individuals tend to choose the most likely category given the observed data and ignore alternative categories (Malt, Ross and Murphy 1995; Murphy and Brian 1994; Murphy and Andrei 2004).

of reference in their estimates.

Accentuation theory has also been extended to social categorization effects through social identification theory, based on the observation that individuals also categorize people, including themselves (see e.g., Huddy 2001). Because individuals partly derive their identities from self-perceived group memberships, they may attach considerable strong feelings to such memberships. This in turn leads them to focus on, and exaggerate, the differences between group members and outsiders (e.g., Eiser and Stroebe 1972; Tajfel 1959, 1969, 1982; Tajfel and Wilkes 1963). Widespread findings of in-group favoritism support this theory (e.g., Brewer 1979).[7]

We argue that these findings are relevant to spatial voting, because voters operate with basic mental categories representing the sides of the political center. In particular, this applies to the most important political dimension in a given political system, yielding two encompassing categories. In the American setting, this is illustrated by the commonplace categorization of candidates as liberal or conservative. In a two-party setting, such as the American, the distinction between parties and ideological sides may not make much of a difference, as candidates tend to self-select into one of two parties (Levendusky 2009; McCarthy, Poole and Rosenthal 2006). In a multi-party setting, however, the general groups defined by their side of the center may contain several parties and their respective supporters. In such systems, it is thus common to speak of left- and right-wing parties. Such categorizations provide shortcuts to richer descriptions of parties' traits (Mullainathan, Schwartzstein and Shleifer 2008).

Accordingly, the categorization of political actors according to their perceived side of the ideological scale is likely to involve the use of prototypes (Lakoff 1987; Rosch 1978; Spencer et al. 1998; Turner et al. 1987). A prototype left-wing actor, for example, may emphasize social and economic equality and express a willingness to use public policy to promote these values, while a right-wing actor may emphasize individual responsibility and freedom from government intervention. Theories of party branding exemplify this logic, suggesting that voters perceive parties' placements along salient dimensions as signals of what they generally stand for (Lupu 2013).

We expect voters to assess and be conscious of their own side of the ideological center. As ideological positions tend to be highly consistent over time (Sears and Funk 1999; Zuckerman, Kotler-Berkowitz and Swaine 1998), we further assume that these self-categorizations matter for voters' identities, expressing some of their most fundamental values and attitudes. As a consequence, we expect voters to assess whether a given party falls in the same category as themselves, in other words, whether the party is on their side – thus being one they broadly agree with and potentially could vote for. Moreover, allowing for the existence of a neutral center category, we expect voters to penalize parties on the opposite side, more than those in the center. This parsimonious model has several interesting implications. The first relates to the utility functions that voters apply to link political issues with party preferences. As

[7] While categorization effects have generally received little attention in political science, it is possible to trace the idea that social identification plays a role in shaping party preferences back to Campbell et al. (1960). This perspective has also more recently proven useful for understanding American partisanship (Green, Palmquist and Schickler 2002; Greene 1999, 2004). Here, however, we focus on the larger categories defined by their side of the center.

illustrated in the next section, our categorization theory implies effects that are not captured by the dominant theories of spatial voting.

Furthermore, the argument that voters think in terms of categories has implications for the issue of reverse causation from preferences to party perceptions. A common challenge to analyses of proximity voting relates to a phenomenon known as projection or rationalization bias, which entails two processes (van der Brug 2001): Rather than opting for the party closest to their ideal point, individuals might bring the perceived position of their preferred party closer to this point (assimilation effects); or they might themselves move closer to the position of their preferred party (persuasion effects). Given the utility maximization principle of spatial models, these endogenous processes complicate the identification of issue voting (Visser 1994). In the current setting, however, the issue of reverse causation offers an additional opportunity to test our theory, which seeks to identify the lenses through which voters understand politics. While it is possible that some voters bring parties they like over to their side to justify their preferences, this would only confirm that voters do think in terms of these broad categories. In effect, if our theory is correct, we should observe discontinuous categorization patterns of projection bias.

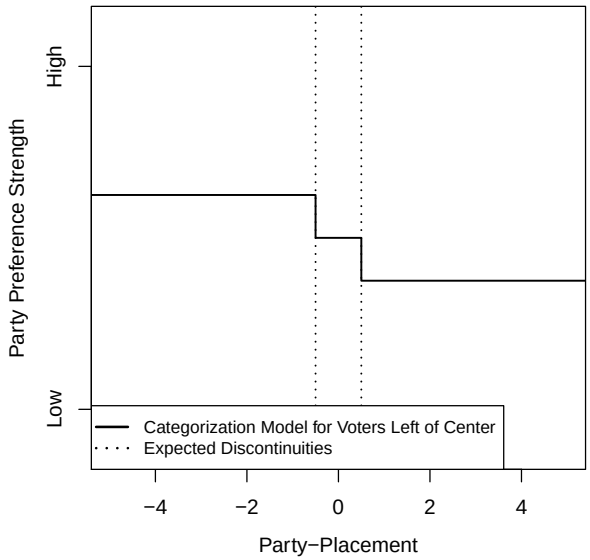
The last implication involves the notion of the neutral point. While both categorization theory and directional theory involves a neutral point, they differ in how this point is conceptualized. The neutral point is a crucial, but also an ambiguous part of the directional model. In his precursor to current directional theory, Matthews (1979) explicitly let the policy status quo define directions of policy change. However, Rabinowitz and Macdonald (1989) refer instead to the neutral point, whose relation to the status quo is less clear. According to their theory, being on a given side of the neutral point signifies the desired direction of policy-making, which seems to imply that the neutral point is equal to the perceived policy status quo. Nevertheless, most studies have followed Rabinowitz and Macdonald in using the geometric center of the scale, at least in part because relevant measures of the status quo hardly exist. The exceptions are a few studies that use the incumbent's policy position as the neutral point (Cho and Endersby 2003; Dow 1998). This may be preferable, but it seems the ideal operationalization according to directional theory would directly capture the policy status quo as perceived by voters (Lewis and King 1999).

In contrast, the policy status quo plays no role in our model. The effects we hypothesize are due to mental categorizations, and we expect voters to apply these to survey scales in a symmetric fashion. The categorization model only requires voters to distinguish between the two sides, representing different categories of political visions or basic values. That is to say, we assume that party- and self-placements along ideological continua capture "absolute" rather than "relative" policy preferences, to use the terms of the dynamic representation literature (Erikson, MacKuen and Stimson 2002; Wlezien 1995). It is quite rare for parties or candidates to be perceived to shift sides along a key political dimension. If it does happen, it is most likely because they signal a change in their position, and not because the status quo moved past them, redefining their position. In the empirical analyses below, we test each of these theoretical implications.

Specification

If voters truly care whether parties are on their side or not, then some steps along the ideological scale will be more significant than others. In particular, we expect party preferences, as functions of party and voter placements, to exhibit discontinuities at the center of the scale. The expected discontinuous effects of being on same- and opposite sides are most easily illustrated keeping either voter or party positions fixed. Figure 2 illustrates the expected pattern for voters who place themselves left of center.

Figure 2: Hypothesized Categorization Effects



Assuming the existence of a neutral category, we allow the effect of being on opposite sides to be different from that of being on the same side. In the parametric set of our analyses, we therefore employ two dummy variables to capture the states of relevance. Indicator S captures *Same Side* status: $S = \{1 \text{ if } v_i \times p_{ij} > 0; 0 \text{ if } v_i \times p_{ij} \leq 0\}$, while indicator O captures *Opposite Side* status: $O = \{1 \text{ if } v_i \times p_{ij} < 0; 0 \text{ if } v_i \times p_{ij} \geq 0\}$, where the voter and party positions (v_i and p_{ij}) are centered on the geometric middle of the scales. Implementing the categorization model as a regression equation, we get:

$$Y_{ij} = \beta_0 + \beta_1 S_{ij} + \beta_2 O_{ij} + \varepsilon_{ij}, \tag{1}$$

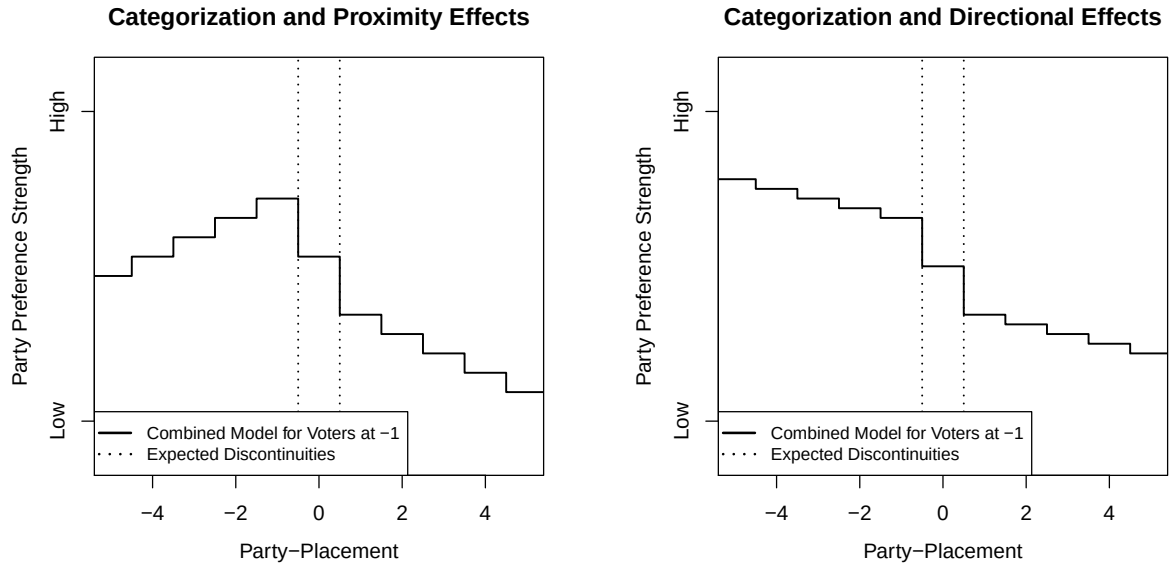
where β_0 denotes the average preference in the neutral category, β_1 and β_2 are the effects of same and opposite side status, and ε_{ij} is an error term.

In a setting with many parties, a pure categorization model is unlikely to be adequate on its own, however. Coarse categories encompassing different underlying types are necessarily insufficient to distinguish between these types (Mullainathan 2002). After a basic categorization in terms of sides, voters may thus have to conduct a more finely grained assessment among several parties that are on their side, applying additional functions of party and voter positions. This implies a model of this kind:

$$Y_{ij} = \beta_0 + \beta_1 S_{ij} + \beta_2 O_{ij} + f(v_i, p_{ij}) + \varepsilon_{ij}, \tag{2}$$

where $f(v_i, p_{ij})$ is an unspecified function providing further distinctions. If voters were to apply a proximity logic based on absolute distances, we would get a pattern like that in the left panel of figure 3, while a directional logic would yield a pattern like that in the right panel. For now, however, we remain agnostic about which other functions voters may apply.

Figure 3: Categorization Effects with Proximity and Directional Effects



We can, however, make one more prediction about the role of any such additional criteria. As already suggested, the need for voters to make further distinctions is greater when several parties are on their side. Voters need to pick a winner of their vote, not a loser. Whichever additional function voters apply, we thus expect its effect to be stronger when voters and parties are on the same side. To incorporate this expectation, equation (2) needs to be augmented by the inclusion of appropriate interaction terms, allowing the impact of other functions to depend on categorization:

$$\begin{aligned} Y_{ij} = \beta_0 \quad &+ \quad \beta_1 S_{ij} + \beta_2 O_{ij} + f(v_i, p_{ij}) \\ &+ \quad \beta_3 S_{ij} f(v_i, p_{ij}) \\ &+ \quad \beta_4 O_{ij} f(v_i, p_{ij}) + \varepsilon_{ij}, \end{aligned} \tag{3}$$

The empirical analysis is divided into five sections. First, without imposing a specific spatial utility function, we explore the presence of categorization effects using specific scenarios of voter- and party placements. Second, we conduct further tests of the categorization model, based on a selection of critical cases, where the predictions of categorization theory differ from the predictions of the proximity and directional model. Third, we run a set of more standard regression analyses. The fourth section addresses the issue of projection bias. In accordance to our predictions, we find significant categorization effects in voters' tendency to misplace parties in accordance with their non-ideological party preferences. Lastly, we examine alternative specifications of the neutral point. Our analyses show that voters tend to apply categories defined by the center of survey scales, as we predict, rather than their perception of the policy status quo, as directional theory implies.

Data and Operationalization

To test the role of categorization as a general feature of spatial voting, we use data from the European Election Study (EES 2011), which covers a wide range of countries. We focus on the dominant ideological dimension in these countries, which is the left-right continuum. The EES includes 11-point measures of left-right positions (scales from 0 to 10) for both voters and parties.[8] To ensure homogeneity in the meaning attached to this scale, we concentrate on established democracies.[9] We thus base our analysis on 15 EU countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

To measure utilities, we use the respondents' ratings of the parties, expressed as their likelihood of ever voting for them. This "propensity to vote"-question (PTV) facilitates cross-national comparison and is often used to capture voters' party preferences (van der Eijk and Franklin 1996; van der Eijk et al. 2006). We refer to the answers to this question as either voter utilities or party preferences. It also needs to be noted that our unit of analysis is neither voters, nor parties, but rather combinations of voters and parties. We thus transform our dataset to one consisting of party $\times$ individual observations.

We expect voters to use category 5 on the 11-point scales as a neutral category defining two broader categories on each side. To ease the construction and interpretation of the relevant terms, we center the scales on 5, giving them a minimum of -5 and a maximum of $+5$. It is important to note, however, the survey questions and answer categories do not in any way involve a neutral point, middle, or sides defined by a threshold. They are presented as continuous scales that would seem more for fit employing a pure proximity logic. Thus, if voters are found to understand such a scale in terms of broader categories, without being asked to do so, this will be valuable evidence against a pure proximity logic.

Non-Parametric Analysis

Choosing to be agnostic about the possible additional utility functions voters apply, we begin with visual analyses, imposing no parametric restrictions. Our analyses are based on local sample means, conditional on party and voter placements. As discussed above, keeping voter positions fixed, the status of being on same or opposite sides becomes a deterministic function of party positions, and vice versa. As explained, we would expect discontinuities on each side of the center.

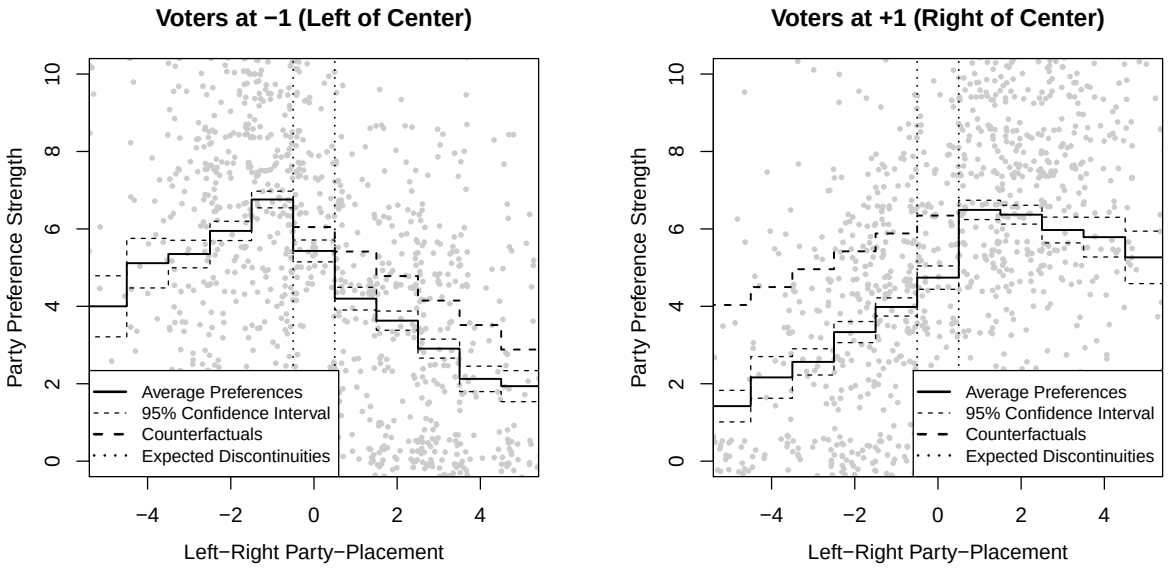
The left panel of figure 4 shows the average party preferences of voters placed at -1 (left of center) over different party positions, while the right panel shows the same for a

[8] 11-point scales have been found to have higher validity than other left-right measures (Kroh 2007). The online appendix reports the actual wording of all questions used in the analyses. Information about the surveys is also provided.

[9] A voluminous literature has emphasized the differences in the content attached to ideological labels in new democracies (Evans and Whitefield 1998; Shabad and Slomczynski 1999; Whitefield 2002; Zechmeister 2006).

voter at +1 (right of center).[10] As the figure shows, there are clear discontinuities as we move from parties on one side of the center to the other side. This would not be expected based on a pure directional or proximity model. The discontinuities come in addition to a pattern of finer distinctions, which in both panels of the figure are almost perfect examples of what the proximity model with absolute distances would predict. We have therefore added "counterfactual" lines, according to an absolute proximity pattern, to illustrate what categorization adds to this pattern.

Figure 4: Categorization Effects for Two Voter Placements

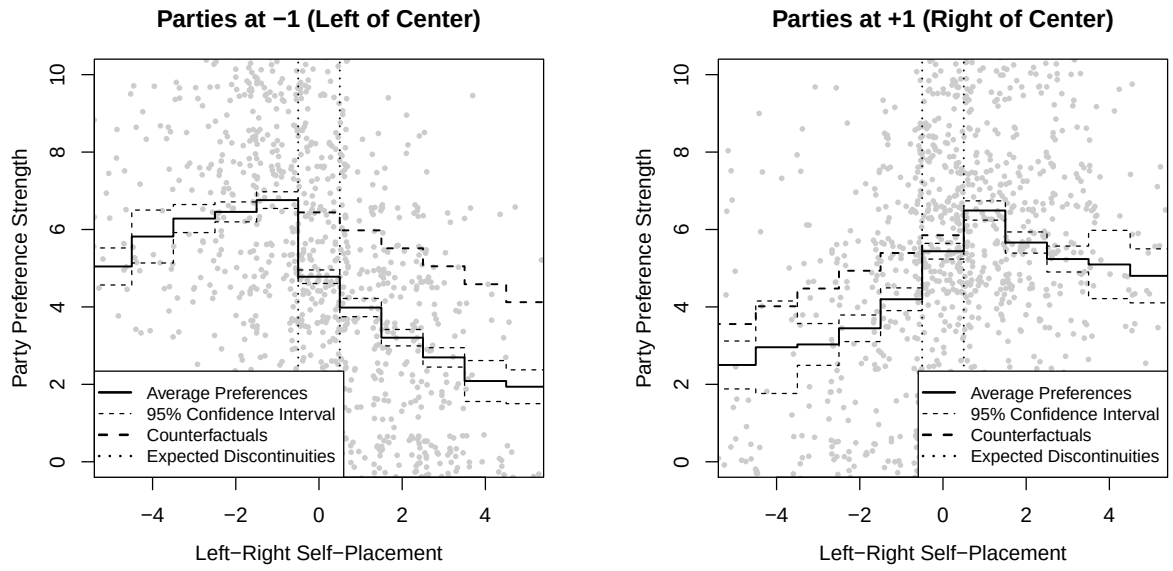


Note: The dots are jittered and represent a random subsample of 1000 observations.

Figure 5 shows the same, but keeping parties fixed rather than voters. The panel on the left shows the average party preferences of voters placing the party in question at −1 (left of center), over voters' own positions. The panel on the right does the same for parties at +1 (right of center). We see clear categorization effects in the left panel, with a particularly large drop moving from a voter on the same side, to one that is neutral. Moving to a voter on the opposite side appears to have less effect in this case, but the strong effect of being on the same side, means the total effect of moving from same to opposite sides is still considerable. For parties at +1, the effects are less clear, but they still seem to be there, albeit with a lower magnitude. In sum, these analyses yield two conclusions: First, we find discontinuous categorization patterns in voters' party preferences. Second, in addition to performing these categorizations, voters apply a proximity function with absolute distances.

[10] In these plots, we only include observations (party × individual combinations) where the parties are placed on the same side as the parties' median placements across their respective survey samples. We further exclude minor parties, defined as parties with an average preference below 3. This makes the pattern somewhat clearer, as observations of minor parties contain more noise. Unless otherwise stated, later analyses include all observations to estimate more general effects.

Figure 5: Categorization Effects for Two Party Placements



Note: The dots are jittered and represent a random subsample of 1000 observations.

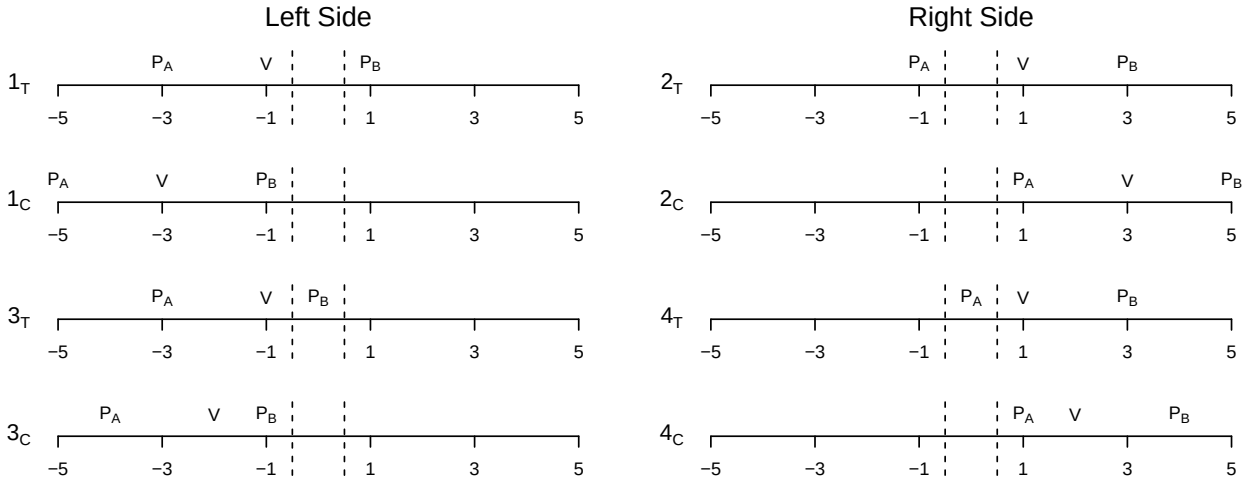
Formalized Tests of Categorization

To strengthen the inference that categorization matters, we also conduct more formalized tests, carefully selecting the observations to be compared. In order to distinguish our model from the directional and the proximity models, we focus on so-called "critical cases" (Tomz and Van Houweling 2008), where the three models produce clearly diverging predictions. We conduct four tests, each involving a pair-wise comparison of two scenarios. We thus have eight scenarios, each involving one voter position, and two party positions. As illustrated in figure 6, the "treatment" scenario of the first comparison (1_T) involves a voter (V) at -1, a party (P_A) at -3, and another party (P_B) at 1. The parties are at an equal distance from the voter, so the proximity model does not predict the voter to prefer one party over the other. According to directional theory, however, V should prefer P_A: The directional scores are 3 and -1 for party A and B, so the difference between them is 4 (in A's favor). The respective "control" scenario (1_C) is generated by moving all positions two steps left on the scale. According to proximity theory, the voter should still be indifferent. According to directional theory, however, things are now much more clear-cut: The directional values are 15 and 3 for party A and B, respectively. While the difference in directional scores for P_A and P_B was 4 in 1_T, it is 12 in 1_C. If directional theory is correct, we should expect V to prefer P_A to P_B to a higher degree in the second rather than the first scenario.

Our categorization model produces a different prediction. In scenario 1_T, party A is on the same side as the voter, while party B is on the opposite side. In scenario 1_C, both parties are on the same side as the voter. Hence, V should prefer P_A over P_B to a greater extent in scenario 1_T than in 1_C. As figure 6 shows, we also investigate scenarios that replicate the ones just presented, but on the right side of the scale (comparison 2). In comparisons 3 and 4, we test the role of categorization, while letting the proximity of the two parties

vary. In each of the scenarios involved, the proximity model predicts voter V to prefer party B over A, while directional theory predicts A over B. However, the distances are kept constant from one scenario to the other, so proximity theory still predicts no difference between the two scenarios. The directional model yields the same prediction as before – a negative difference-in-differences. According to the categorization model, there should be a positive difference-in-differences. However, these tests are more challenging for the categorization argument because the distinction is not between same versus opposite side but rather between same-side versus neutral status.

Figure 6: Four Comparisons of Scenarios with and without Categorization

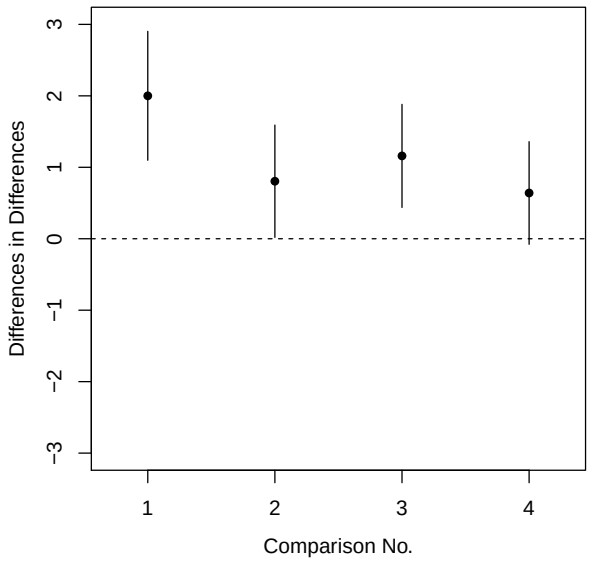


Note: The comparisons are numbered 1 to 4, and consist of a "Treatment" and "Control" Scenario, subscripted T and C, respectively. The voter position is denoted V, while the positions of parties A and B are denoted P_A and P_B.

For each scenario, we select voters who place themselves at point V and have located at least one party at P_A and at least one party at P_B. We create a binary indicator identifying the alternative favored by the directional model (always party A). We then pool the observations for the two scenarios to be compared, create another binary indicator identifying the "treatment" scenarios, and interact this with the indicator identifying party A. The resulting coefficient denotes the difference in the average difference between the preference scores for party A and party B, going from scenario C to T. A negative coefficient would be consistent with directional theory, while a positive coefficient would be consistent with categorization theory. To account for the clustering of preferences within individuals, we include individual fixed-effects, and use robust standard errors, clustered at the individual level.

Figure 7 shows the results, plotting the coefficients of interest along with 95% confidence intervals. As can be seen, the point estimates are all positive; two are clearly significant, while one is barely significant, and one is barely insignificant. As explained above, these estimates are in line with the categorization model, while contradicting directional theory.

Figure 7: Estimated Differences in Differences for Comparisons 1 to 4



Note: The error bars give 95% confidence intervals. The estimations include individual fixed effects and the standard errors are clustered at the individual level.

Parametric Analysis

To obtain more general estimates of the effects, we now turn to a more standard regression framework. Table 1 reports a set of regression models, implementing the categorization model along with other spatial functions. Model 1 includes the Proximity Term, the Directional Term, and indicators of Same Side and Opposite Side status. The estimated effect of Same Side is close to 1-point on the 11-point preference scale, while that of Opposite Side is about -.3, and both estimates are highly significant. The effect of proximity is also highly significant and has the expected sign. The estimate for the Directional Term appears to be statistically significant, but it has the wrong sign, suggesting this model is misspecified. This conclusion is also corroborated by the plots shown above, which indicate no trace of a directional effect. The Directional Term is therefore dropped in Model 2, without a notable loss in explanatory power, or change in the other estimates. The categorization effects are still significant and having a considerable magnitude.

There is one reason for concern with the reported results, however. Using the whole set of observations and a linear implementation of the Proximity Term, the analyses involve some extrapolation. All three side-statuses can only be observed for proximity values of 2, 3 and 4. (It takes 2 steps to move from same to opposite side, while with a distance of 5 or larger, it is not possible to be on the same side. With a proximity value of 1, it is only possible to compare either same or opposite side status to the neutral status.) In other words, there is only common support for the mentioned proximity values. Model 3 in Table 1 reports an analysis only including observations where the Proximity Term is 1, 2, 3, or 4. It further includes proximity-fixed effects, ensuring that proximity effects are fully controlled for. The resulting categorization estimates are only slightly weaker than before, with a Same Side

estimate of about .8 and Opposite Side estimate of about -.3.[11]

Table 1: Models of Spatial Voting with Categorization Effects

	Model 1	Model 2	Model 3	Model 4
Directional Term	-0.027^{***}			
	(0.003)			
Proximity Term	-0.572^{***}	-0.500^{***}		-0.519^{***}
	(0.011)	(0.009)		(0.013)
Same Side	1.030^{***}	0.933^{***}	0.777^{***}	1.196^{***}
	(0.041)	(0.040)	(0.048)	(0.056)
Opposite Side	-0.320^{***}	-0.278^{***}	-0.271^{***}	-0.885^{***}
	(0.043)	(0.042)	(0.052)	(0.068)
Proximity Term				-0.210^{***}
$\times$ Same Side				(0.021)
Proximity Term				0.117^{***}
$\times$ Opposite Side				(0.014)
Constant	4.197^{***}	3.910^{***}	3.230^{***}	4.017^{***}
	(0.042)	(0.039)	(0.055)	(0.045)
Individual-Fixed Effects	Yes	Yes	Yes	Yes
Party-Fixed Effects	Yes	Yes	Yes	Yes
Proximity-Fixed Effects	No	No	Yes	No
Adjusted R^2	0.398	0.396	0.286	0.399
Observations	94833	94833	52979	94833
Individuals	13278	13278	12302	13278

Note: The cell entries are OLS regression estimates, with robust standard errors, clustered at the individual-level, in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

As discussed above, voters need more criteria than side categorizations to distinguish between several parties on a given side. We expect these criteria to play a larger role for parties on the same side as voters, as the voters need to pick a winner of their vote. So far, our analyses show that when categorization in terms of sides does not suffice, voters apply a proximity logic to make finer distinctions. In Model 4, we therefore include an interaction between the Proximity Term and the categorization indicators. The results are in line with our expectations: The effect of the Proximity Term is almost twice as strong for parties on the same side as voters, compared to parties on the opposite side (-.73 versus -.40). Thus,

[11] Given the empirical salience of the proximity model, we focus on this model. However, the issue of common support is even more challenging with regard to directional theory. The online appendix offers several solutions to this challenge.

categorization does not only create discontinuities in what proximity theory suggests is a continuous space, it also qualifies the impact of proximity considerations.

Categorization Effects in Projection Bias

We now turn to another implication of our theory. Rationalization or projection bias presents a considerable challenge for the proximity model, as it is built on the assumption that perceptions precede utilities. A key point for us is that if our theory is correct, projection should reflect the coarse categories examined above. A classic idealized model of projection considers the interaction between individuals' self-placements and their party evaluations. The more a voter likes a party, the more likely she is to perceive this party as being closer to her own position than it really is. As this process has been suggested as an alternative explanation of proximity patterns in voter preferences, it has invariably been assumed to operate in a linear fashion throughout the ideological scale. In contrast to this widespread assumption, the theory presented here implies categorization effects: The incentive to misplace a party's true position is significantly augmented when this means bringing it to the one's own side. Thus, among two individuals with the same distance to their preferred party, projection should be more evident for the individual who would otherwise find the party at the opposite side of the center.

To test this hypothesis, we draw on, but also significantly modify, existing models of projection bias (e.g. Converse and Markus 1979; Johnston, Fournier and Richard 2000). We do so by using parties' sample mean placements as a measure of their "true" positions.[12] Our dependent variable, W_{ij}, is constructed as a binary indicator of "mis-categorization," i.e. party-individual combinations where the respondent placed the party at the opposite side of the sample average. Our measure of party utility, which is the same as before, is now employed as an independent variable, denoted Y_{ij} (for individual i and party j). In out simplest model, this variable is interacted with two binary indicators of same and opposite sides, S_{ij}^M and O_{ij}^M, where mean party placements are used to locate the parties. The first indicator thus identifies observations where respondents are on the opposite side of the mean party placement whereas the second identifies those where respondents are on the same side as the mean party placement. The interaction between party evaluations and these two dummies reveals the impact of categorization-based projection: The more a voter likes a party, the more likely she is to misplace the party so as to find it on her own side. Our simplest model is thus as follows:

$$W_{ij} = \beta_0 + \beta_1 O_{ij}^M + \beta_2 S_{ij}^M + \beta_3 Y_{ij} + \beta_4 O_{ij}^M Y_{ij} + \beta_5 S_{ij}^M Y_{ij} + \epsilon_{ij} \quad (4)$$

In this model, categorization effects in projection are mainly captured by β_4 and β_5, although these coefficients should be combined with the main effects of preference strength (β_5) and side status (either β_1 or β_2) to obtain the complete marginal effects of preference

[12] Although we recognize that our measure of "true" party positions is far from ideal, sample mean placements have been shown to correlate very highly with other, more objective, measures of party positioning, such as those stemming from the coding of manifestos and expert surveys (e.g., Dinas and Gemenis 2010).

strength, conditional on side status. We go one step further, however, and allow for non-linearity by using penalized smoothing splines in a generalized additive model (GAM). We estimate three smooth terms, to capture the effect of preference strength, conditional on whether voters are on the same side as the mean party placement ($S_{ij}^M = 1$), opposite side or ($O_{ij}^M = 1$), or neither ($S_{ij}^M = O_{ij}^M = 0$).

Figure 8 reports the results from this model, and demonstrates considerable categorization effects in projection bias. As we would expect, when a voter strongly dislikes a party on her side ($Y_{ij} = 0$), this increases the probability of miscategorizing the party (moving it to the opposite side). This kind of misplacement becomes less likely as the evaluation of the party grows more favorable. Similarly, a voter strongly liking a party on the opposite side is much more likely to move this party to her own side. In contrast, if she dislikes a party on the opposite side, the probability of making such a miscategorization decreases considerably. These results strongly support the notion that voters categorize parties as well as themselves in terms of their side of the center, and that they find these categories significant. Details on the model in question is reported in the online appendix, along with several other models.[13]

Policy Directions versus Ideological Sides

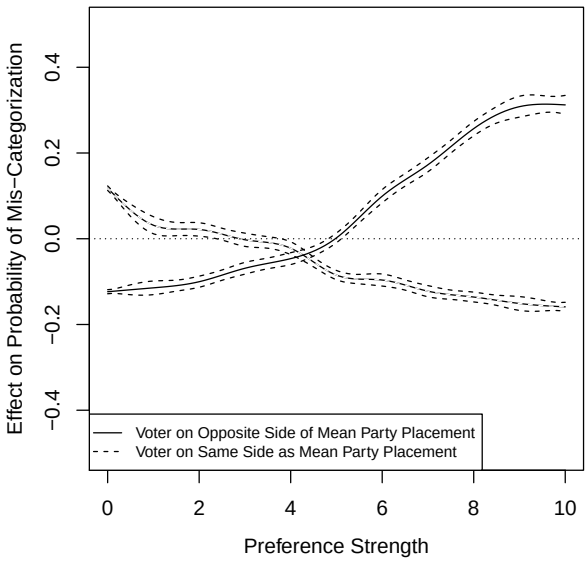
Another important implication of categorization theory relates to the conceptualization of the "neutral point," which differs from that of directional theory. To compare the two conceptualizations, we need data that allow us to measure the neutral point as the policy status quo, defining directions of policy change, as opposed to letting the geometric middle define the ideological center, and its respective sides. To conduct this test, we exploit a unique dataset on issue voting in Spain, produced by the Centro de Investigaciones Sociológicas (2009). For three issues, respondents were not only asked to locate political parties and themselves, but also the status quo of public policy. The three issues are immigration, the process of secularization and the process of regional devolution, and we will analyze all three. For each issue, more than 70% of the respondents placed the status quo off the center of the scale, providing ample unique variance for testing alternative specifications.

From the perspective of categorization theory, analyzing separate issues is not ideal, as its identity-based component might be more pronounced with a dominant ideological dimension such as left-right than with more specific issues.[14] Conversely, directional theory should, according to its proponents, be highly appropriate for separate issues (Lacy and Paolino 2010). If voters ever focus on the status quo and directions of policy change, they

[13] A possible caveat in this analysis is that proximity effects might confound the pattern. Although conditioning on post-projection proximity effects might generate post-treatment bias in the estimates, there is no other way to address this concern but to do so. In the appendix, we therefore report a model including the proximity term as a predictor (Model 3), and, to allow for proximity-based projection effects, we further interact proximity with party preference strength (Model 4). We further report models with individual-level fixed effects (Model 2b and 4b), where the main effects of S_{ij}^M are left out due to collinearity. Across all these models, the combined effects of interest show little change.

[14] That said, the theoretical mechanism driving our argument should also apply to specific issues, so long as individuals perceive them through coarsened mental schemas.

Figure 8: Categorization Effects in Projection Bias



Note: The plot shows the effects of party preference strength on the probability of placing a party on the "wrong side" compared to its sample mean placement, conditional on the mean party placement being on the same or opposite side of the voter. The plot is based on a generalized additive model (GAM) with penalized smoothing splines. The dashed lines report 95% confidence intervals.

should do so for separate policy issues, such as those investigated here. In addition, the respondents were asked to identify the policy status quo before party positions and their own positions and preferences, which means we may also see priming effects favoring a focus on the status quo. In other words, this analysis may be seen as a least-likely case for our theory, and a most-likely case for directional theory.

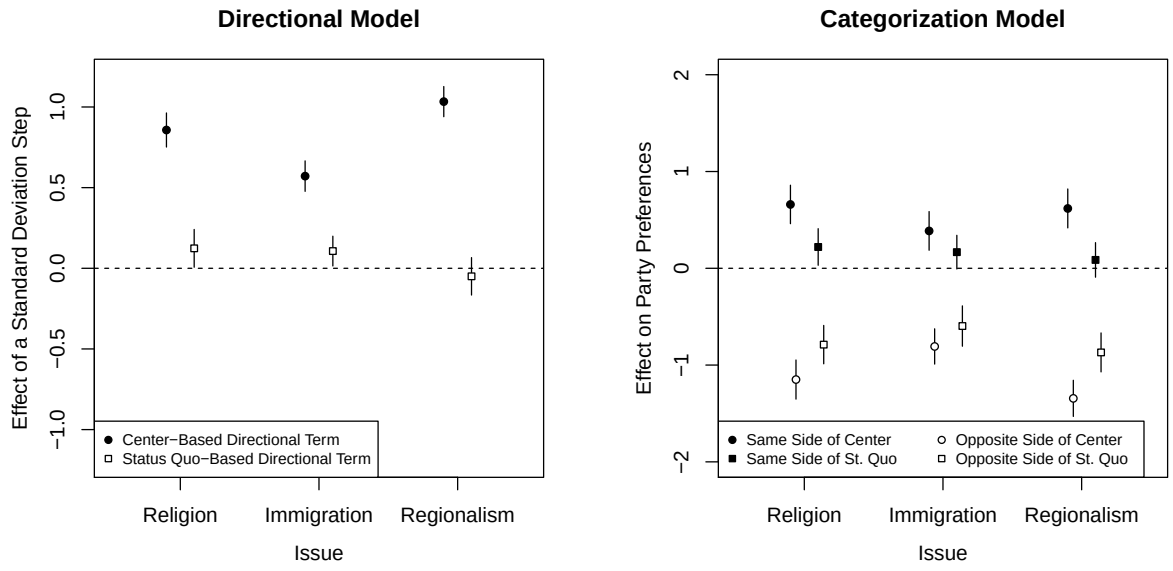
The issue scales all go from 0 to 10, making 5 the middle category.[15] We measure utilities in the same way as in the previous analyses, using "propensity to vote"-questions, with scales from from 0 to 10. As before, we transform our dataset to one consisting of party × individual observations. For each issue, we generate one directional term based on the perceived status quo and another based on the geometric center. That is, we calculate $v_i \times p_{ij}$, centering v_i and p_{ij} on the perceived status quo and the geometric center, respectively. In a similar manner, we generate indicators for same and opposite side using these two alternative neutral points. If the policy status quo truly defines the neutral point, and voters think in terms of directions of change from this point, as directional theory holds, we would expect the terms based on the status quo to perform better. If voters rather perform basic ideological categorizations independent of the status quo, we would expect the center-based measures to perform better.

We first test the alternative directional terms. The left panel of figure 9 reports the

[15] All question wordings are reported in the online appendix.

relevant estimates, while the full results are in the online appendix. For all three issues, the results clearly favor the center-based measures over those based on the status quo. The directional model does not at all work better using the status quo as the neutral point.[16] The right panel of figure 9 reports tests of the categorization model (as presented in equation 1) using the alternative neutral points. Again, the center-based measures consistently outperform those based on the status quo. Of the status quo measures, the opposite side indicators have significant coefficients,[17] but they are all smaller than the center-based ones. Overall, these results undermine the notion that voters think in terms of directions of policy change, while supporting the idea that voters perform coarse ideological categorizations.

Figure 9: Competing Operationalizations of the Neutral Point



Conclusion

Our results confirm that politics is understood in terms of sides, resulting in a discontinuous political space. Even when presented with seemingly continuous ideological scales, voters

[16] It should also be noted, in line with our earlier results, that if we control for both categorization and proximity effects, the directional estimates are substantially reduced.

[17] As mentioned above, a plausible explanation is the presence of priming effects. For all three issues, respondents were first asked to locate the status quo, then their own position, and lastly the party positions. It is well established that the ordering of survey questions, may prime individuals' responses to such questions (Iyengar and Kinder 1987; McFarland 1981). In this case, the initial question invites respondents to interpret the scale with the status quo in mind. In contrast, the middle category is not mentioned, and must be identified by the respondents themselves, who thereby demonstrate that they find this point meaningful.

are conscious of their own side and evaluate parties accordingly, giving significantly higher ratings to the parties they consider to be on the same side as themselves. On average, we find party preferences to be about 1 point higher on an 11-point scale, when parties are on the same side as voters, and about .3 lower when they are on the opposite side. This finding has important implications that merit further elaboration.

First, in contrast to prior theoretical accounts that treated spatial voting as a building block of rational choice models of voting (e.g. Clarke et al. 2004), categorization postulates that spatial voting involves a nontrivial identity-based element that makes voters perceive their political alternatives in a discontinuous fashion. As our results show, for a moderate left-wing voter, a strongly leftist party may be preferable to moderate right-wing party, even when distance alone would predict otherwise. This is not because the former advocates policy change in a leftist direction with higher intensity, as directional theory would suggest, but because one party fits the left as a reference category, while the other does not. In this respect, our study joins the new social-identity based theories of party branding, which reconcile the identity-based Michigan conceptualization of party identification with attitudinal updating and partisan lability (Lupu 2013). By the same token, categorization theory points to the role of group-oriented thinking in issue voting. This coarsened logic is only compatible with the principle of utility loss minimization – underpinning proximity theory – if utilities are themselves partly defined in more coarsened terms.

Our theory thus qualifies the proximity model in two ways: First, the coarse categories of sides lie beneath and cut across the political space, and second, the impact of the more finely grained distinctions afforded by proximity considerations is conditional on these basic categories. In other words, the categorization model does not refute the Downsian paradigm but shows that the smallest-distance criterion applies differently within the subspaces defined by the geometrical center. Categorization is also evident in projection bias, which implies a link from party affinity to perceived party positions. We find misperception on affective grounds to be more frequent when voters like parties on the other side of the ideological spectrum. This is consistent with our argument that such categorization is an important part of the lenses through which voters understand politics.

Research on directional theory is also affected by our argument. Our results suggest that when controlling for categorization, the intensity part of the directional model is no longer important in voter's party preferences. More importantly, categorization questions the theoretical foundation of directional theory as a whole. Voters apply categories defined by the center of the scale, rather than the policy status quo. This is important, as the directional model is commonly operationalized using the geometric center of survey scales as the neutral point, which increases the correlation between the directional measure and the categorization measures. While the directional model still fails to clearly capture the effects we find, prior estimates of directional effects may have benefited from the presence of categorization effects, in the absence of appropriate controls. In short, we show that effects previously attributed to directional models are due to categorization effects.

Finally, the findings shed light on the dynamics of party competition. A common observation among students of party politics is the absence of leapfrogging: When parties change their position, they tend to do so within a limited range, maintaining the overall ranking along the policy dimension in question. Categorization theory adds a prediction to this pattern: That parties will stay on a given side of the center, as they need to convince their

supporters they remain on their side. This may account for the absence of leapfrogging, as it adds a boundary to party movement, and the parties around the center might otherwise have been the most likely to leapfrog each other. Even the most centrist parties tend to have a distribution of supporters that is skewed towards one side of the left-right continuum, and in light of the categorization model, this is likely to give these parties incentives to stay on the side of their traditional voters.

References

Adams, James, Benjamin G. Bishin and Jay K. Dow. 2004. "Representation in Congressional Campaigns: Evidence for Discounting/Directional Voting in U.S. Senate Elections." *The Journal of Politics* 66(2):348–373.

Adams, James F., Samuel III Merrill and Bernard Grofman. 2005. *A Unified Theory of Party Competition: A Cross-National Analysis Integrating Spatial and Behavioral Factors*. Cambridge: Cambridge Univ Press.

Brewer, Marilynn B. 1979. "In-Group Bias in the Minimal Intergroup Situation: A Cognitive-Motivational Analysis." *Psychological bulletin* 86(2):307–324.

Campbell, Angus, Philip E. Converse, Warren E. Miller and Donald E. Stokes. 1960. *The American Voter*. New York: Wiley.

Centro de Investigaciones Sociológicas. 2009. "2799: Modelos Espaciales de Preferencias Políticas." http://www.cis.es (accessed December 5, 2011).

Cho, Sungdai and James W. Endersby. 2003. "Issues, the Spatial Theory of Voting, and British General Elections: A Comparison of Proximity and Directional Models." *Public Choice* 114:275–293.

Claassen, Ryan L. 2007. "Ideology and Evaluation in an Experimental Setting." *Political Research Quarterly* 60(2):263–273.

Clarke, Harold D., David Sanders, Marianne C. Stewart and Paul Whiteley. 2004. *Political Choice in Britain*. Oxford: Oxford University Press.

Converse, Philip E. and Gregory B. Markus. 1979. "A Dynamic Simultaneous Equation Model of Electoral Choice." *American Political Science Review* 73(4):1055–1070.

Davis, Otto A., Melvin J. Hinich and Peter C. Ordeshook. 1970. "An Expository Development of a Mathematical Model of the Electoral Process." *American Political Science Review* 64(2):426–448.

Dinas, Elias and Kostas Gemenis. 2010. "Evaluating Competing Methods of Measuring Parties' Ideological Positions with Manifesto Data." *Party Politics* 16:427–50.

Dow, Jay K. 1998. "Directional and Proximity Models of Voter Choice in Recent US Presidential Elections." *Public Choice* 96(3):259–270.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper & Row.

Edelman, Gerald M. 1992. *Bright Air, Brilliant Fire: On the Matter of the Mind*. New York: Basic Books.

EES. 2011. "European Parliament Election Study 2009, Voter Study, Advance Release, 23/06/2011." http://www.piredeu.eu (accessed July 25, 2011).

Eiser, J. Richard and Wolfgang Stroebe. 1972. *Categorization and Social Judgment*. San Diego, CA: Academic Press.

Enelow, James M. and Melvin J. Hinich. 1990. *Advances in the Spatial Theory of Voting*. Cambridge: Cambridge University Press.

Erikson, Robert S., Michael B. MacKuen and James A. Stimson. 2002. *The Macro Polity*. Cambridge: Cambridge University Press.

Evans, Geoffrey and Stephen Whitefield. 1998. "The Evolution of Left and Right in Post-Soviet Russia." *Europe-Asia Studies* 50(6):1023–1042.

Fiorina, Morris P. 1992. *Divided Government*. New York: Macmillan.

Goldstone, Robert L. 1995. "Effects of Categorization on Color Perception." *Psychological Science* 6(5):298–304.

Green, Donald P., Bradley Palmquist and Eric Schickler. 2002. *Partisan Hearts and Minds: Political Parties and the Social Identities of Voters*. New Haven, CT: Yale University Press.

Greene, Steven. 1999. "Understanding Party Identification: A Social Identity Approach." *Political Psychology* 20(2):393–403.

Greene, Steven. 2004. "Social Identity Theory and Party Identification." *Social Science Quarterly* 85(1):136–153.

Grofman, Bernard. 1985. "The Neglected Role of the Status Quo in Models of Issue Voting." *The Journal of Politics* 47(1):230–237.

Huddy, Leonie. 2001. "From Social to Political Identity: A Critical Examination of Social Identity Theory." *Political Psychology* 22(1):127–156.

Iversen, Torben. 1994*a*. "The Logics of Electoral Politics." *Comparative Political Studies* 27(2):155–189.

Iversen, Torben. 1994*b*. "Political Leadership and Representation in West European Democracies: A Test of Three Models of Voting." *American Journal of Political Science* 38(1):45–74.

Iyengar, Shanto and Donald R. Kinder. 1987. *News That Matters: Television and American Opinion*. Chicago: University of Chicago Press.

Johnston, Richard, Patrick Fournier and Jenkins Richard. 2000. "Party Location and Party Support: Unpacking Competing Models." *Journal of Politics* 62(4):1145–1160.

Kedar, Orit. 2005. "When Moderate Voters Prefer Extreme Parties: Policy Balancing in Parliamentary Elections." *The American Political Science Review* 99(2):185–199.

Keil, Frank C. 2003. "Folkscience: Coarse Interpretations of a Complex Reality." *Trends in Cognitive Sciences* 7(8):368–373.

Kelly, George A. 1955. *The Psychology of Personal Construcs*. Vol. 1 New York: Norton Press.

Kroh, Martin. 2007. "Measuring Left–Right Political Orientation: The Choice of Response Format." *Public Opinion Quarterly* 71(2):204–220.

Krueger, Joachim and Myron Rothbart. 1990. "Contrast and Accentuation Effects in Category Learning." *Journal of Personality and Social Psychology* 59(4):651–663.

Krueger, Joachim and Russell W. Clement. 1994. "Memory-Based Judgments about Multiple Categories: A revision and Extension of Tajfel's Accentuation Theory." *Journal of Personality and Social Psychology* 67(1):35.

Lacy, Dean and Philip Paolino. 2010. "Testing Proximity versus Directional Voting using Experiments." *Electoral Studies* 29(3):460–471.

Lakoff, George. 1987. *Women, Fire, and Dangerous Things: What Categories Reveal About the Mind*. Chicago: University of Chicago Press.

Levendusky, Matthew. 2009. *The Partisan Sort: How Liberals Became Democrats and Conservatives Became Republicans*. Chicago: University of Chicago Press.

Lewis, Jeffrey B. and Gary King. 1999. "No Evidence on Directional vs. Proximity Voting." *Political analysis* 8(1):21–33.

Lupu, Noam. 2013. "Party Brands and Partisanship: Theory With Evidence from a Survey Experiment in Argentina." *American Journal of Political Science* 57(1):49–64.

Macdonald, Stuart Elaine and George Rabinowitz. 1998. "Solving the paradox of non-convergence: valence, position, and direction in democratic politics." *Electoral Studies* 17(3):281–300.

Macdonald, Stuart Elaine, George Rabinowitz and Holly Brasher. 2003. "Policy Issues and Electoral Democracy." In *Electoral Democracy*, ed. Michael B. MacKuen and George Rabinowitz. Ann Arbor, MI: University of Michigan Press.

Macdonald, Stuart Elaine, George Rabinowitz and Ola Listhaug. 1998. "On Attempting to Rehabilitate the Proximity Model: Sometimes the Patient Just Can't Be Helped." *The Journal of Politics* 60(3):653–690.

Macdonald, Stuart Elaine, George Rabinowitz and Ola Listhaug. 2001. "Sophistry versus Science: On Further Efforts to Rehabilitate the Proximity Model." *Journal of Politics* 63(2):482–500.

Macdonald, Stuart Elaine, George Rabinowitz and Ola Listhaug. 2007. "Simulating Models of Issue Voting." *Political Analysis* 15(4):406–427.

Malt, Barbara, Brian Ross and Gregory Murphy. 1995. "Predicting Features for Members of Natural Categories When Categorization Is Uncertain." *Journal of Experimental Psychology* 21:646–661.

Matthews, Steven A. 1979. "A Simple Direction Model of Electoral Competition." *Public Choice* 34:141–156.

McCarthy, Nolan, Keith T. Poole and Howard Rosenthal. 2006. *Polarized America: The Dance of Ideology and Unequal Riches*. Cambridge: MIT Press.

McFarland, Sam G. 1981. "Effects of Question Order on Survey Responses." *Public Opinion Quarterly* 45(2):208–215.

Mermillod, Martial, Nathalie Guyader and Alan Chauvin. 2005. "The Coarse-to-Fine Hypothesis Revisited: Evidence from Neuro-Computational Modeling." *Brain and Cognition* 57(2):151–157.

Merrill, Samuel and Bernard Grofman. 1997. "Symposium. The Directional Theory of Issue Voting: II." *Journal of Theoretical Politics* 9(1):25–48.

Merrill, Samuel III. 1995. "Discriminating Between the Directional and Proximity Spatial Models of Electoral Competition." *Electoral Studies* 14(3):273–287.

Merrill, Samuel III and Bernard Grofman. 1999. *A Unified Theory of Voting: Directional and Proximity Spatial Models*. Cambridge: Cambridge Univ Press.

Mullainathan, Sendhil. 2002. "Thinking Through Categories." Massachusetts Institute of Technology.

Mullainathan, Sendhil, Joshua Schwartzstein and Andrei Shleifer. 2008. "Coarse Thinking and Persuasion." *The Quarterly Journal of Economics* 123(2):577–619.

Murphy, Gregory and Ross Brian. 1994. "Predictions from Uncertain Categorizations." *Cognitive Psychology* 27:148–193.

Murphy, Kevin and Shleifer Andrei. 2004. "Persuasion in Politics." *American Economic Review Papers and Proceedings* 94:435–439.

Newcombe, Nora and Lynn S. Liben. 1982. "Barrier Effects in the Cognitive Maps of Children and Adults." *Journal of Experimental Child Psychology* 34(1):46–58.

Pardos-Prado, Sergi and Elias Dinas. 2010. "Systemic Polarisation and Spatial Voting." *European Journal of Political Research* 49(6):759–786.

Rabinowitz, George. 1978. "On the Nature of Political Issues: Insights from a Spatial Analysis." *American Journal of Political Science* 22(4):793–817.

Rabinowitz, George and Stuart Elaine Macdonald. 1989. "A Directional Theory of Issue Voting." *The American Political Science Review* 83(1):93–121.

Rosch, Eleanor. 1978. "Principles of Categorization." In *Cognition and Categorization*, ed. Eleanor Rosch and Barbara B. Lloyd. Hillsdale, NJ: Lawrence Erlbaum pp. 27–48.

Sears, David O. and Carolyn L. Funk. 1999. "Evidence of the Long-Term Persistence of Adults' Political Predispositions." *Journal of Politics* 61(1):1–28.

Sears, David O., Richard R. Lau, Tom R. Tyler and Jr. Allen, Harris M. 1980. "Self-Interest vs. Symbolic Politics in Policy Attitudes and Presidential Voting." *The American Political Science Review* 74(3):pp. 670–684.

Shabad, Goldie and Kazimierz M. Slomczynski. 1999. "Political Identities in the Initial Phase of Systemic Trans-formation in Poland: A Test of the Tabula Rasa Hypothesis." *Comparative Political Studies* 32(6):690–723.

Spencer, Steven J., Steven Fein, Connie T. Wolfe, Christina Fong and Meghan A. Duinn. 1998. "Automatic Activation of Stereotypes: The Role of Self-Image Threat." *Personality and Social Psychology Bulletin* 24(11):1139–1152.

Stangor, Charles, Laure Lynch, Changming Duan and Beth Glas. 1992. "Categorization of Individuals on the Basis of Multiple Social Features." *Journal of Personality and Social Psychology* 62(2):207–218.

Stokes, Donald E. 1963. "Spatial models of party competition." *The American Political Science Review* 57(2):368–377.

Tajfel, Henri. 1959. "Quantitative Judgement in Social Perception." *British Journal of Psychology* 50(1):16–29.

Tajfel, Henri. 1969. "Cognitive Aspects of Prejudice." *Journal of Social Issues* 25(4):79–97.

Tajfel, Henri. 1982. "Social Psychology of Intergroup Relations." *Annual Review of Psychology* 33(1):1–39.

Tajfel, Henri and A. L. Wilkes. 1963. "Classification and Quantitative Judgement." *British Journal of Psychology* 54(2):101–114.

Taylor, Shelley E., Susan T. Fiske, Nancy L. Etcoff and Audrey J. Ruderman. 1978. "Categorical and Contextual Bases of Person Memory and Stereotyping." *Journal of Personality and Social Psychology* 36(7):778–793.

Tomz, Michael and Robert P. Van Houweling. 2008. "Candidate Positioning and Voter Choice." *American Political Science Review* 102(3):303–318.

Turner, John C., Michael A. Hogg, Penelope J. Oakes, Stephen D. Reicher and Margaret S. Wetherell. 1987. *Rediscovering the Social Group: A Self-Categorization Theory.* Cambridge, MA: Basil Blackwell.

van der Brug, Wooter. 2001. "Perceptions, Opinions and Party Preferences in the Face of a Real World Event: Chernobyl as a Natural Experiment in Political Psychology." *Journal of Theoretical Politics* 13(1):53–80.

van der Eijk, Cees and Mark N. Franklin. 1996. *Choosing Europe? The European Electorate and National Politics in the Face of Union.* Ann Arbor: The University of Michigan Press.

van der Eijk, Cees, Wouter van der Brug, Martin Kroh and Mark Franklin. 2006. "Rethinking the Dependent Variable in Voting Behavior: On the Measurement and Analysis of Electoral Utilities." *Electoral Studies* 25(3):424–447.

Visser, Max. 1994. "Policy Voting, Projection and Persuasion: An Application of Balance Theory to Electoral Behavior." *Political Psychology* 15(4):699–711.

Westholm, Anders. 1997. "Distance Versus Direction: The Illusory Defeat of the Proximity Theory of Electoral Choice." *American Political Science Review* 91(4):865–883.

Westholm, Anders. 2001. "On the Return of Epicycles: Some Crossroads in Spatial Modeling Revisited." *Journal of Politics* 63(2):436–481.

Whitefield, Stephen. 2002. "Political Cleavages and Post-Communist Politics." *Annual Review of Political Science* 5(1):181–200.

Wlezien, Christopher. 1995. "The Public as Thermostat: Dynamics of Preferences for Spending." *American Journal of Political Science* 39(4):981–1000.

Zechmeister, Elizabeth. 2006. "What's Left and Who's Right? A Q-method Study of Individual and Contextual Influences on the Meaning of Ideological Labels." *Political Behavior* 28(2):151–173.

Zuckerman, Alan S., Laurence A. Kotler-Berkowitz and Lucas A. Swaine. 1998. "Anchoring Political Preferences: The Structural Bases of Stable Electoral Decisions and Political Attitudes in Britain." *European Journal of Political Research* 33(3):285–321.

Online Supplementary Information Appendix

Sampling Procedures and Question Wording

European Election Study

The EES data were collected using phone interviews. All samples contain 1000 respondents. Coverage was national, and the sampled universe was the general population, aged 18 and over. The sampling procedure was RDD, selecting the individuals with the most recent birthday within selected households. Fieldwork was carried out between June 5 and July 9, 2009. The response rate was lowest in the Netherlands (.109) and highest in Portugal (.464), while the UK had the median response rate among the relevant countries (.179). These response rates are calculated as RR1, according to the *AAPOR Standard Definitions*: $\frac{I}{(I+P)+(R+NC+O)+(UH+UO)}$.

The question wording for the variables used in the analyses is given below:

Ideological self-placement:
"In political matters people talk of 'the left' and 'the right'. What is your position? Please indicate your views using any number on a scale from 0 to 10, where 0 means 'left' and 10 means 'right'. Which number best describes your position?"

Ideological party placement:
"And about where would you place the following parties on this scale? ... How about the (Party X)? Which number from 0 to 10, where 0 means "left" and 10 means "right" best describes (Party X)?" (The order of the parties was rotated across respondents.)

Propensity to vote:
"We have a number of parties in [this country] each of which would like to get your vote. How probable is it that you will ever vote for the following parties? Please specify your views on a scale where 0 means 'not at all probable' and 10 means 'very probable'." The order of the parties was rotated across respondents.

Spanish Survey on Issue Perceptions

The data used to disentangle the different conceptualizations of the neutral points rely on the #2799 Study of the *Centro de Investigaciones Sociológicas* (CIS), a public survey research center with a long history of promoting social research. The CIS 2799 survey, "Spatial models of political preferences", was conducted in April 2009. This was a face-to-face survey, with special samples for Catalonia and the Basque Country. N=3,255.

The question wording for the variables used in the analyses is given below:

Status-quo questions:
Immigration: "When it comes to the issue of immigration, think of a scale in which 0 represents free entrance of immigrants and 10 represents complete restriction of entrance to immigrants, at which point would you say Spain is currently located?"

Secularization: "It is often debated what the role of religion in politics should be. Thinking about the presence of Catholicism in Spanish politics, if 0 is a completely secular state and 10 means a completely religious state, at which point would you say the Spanish state is currently located?"

Decentralization: "A state can organize its regional structure in various ways. If 0 represents a completely centralized state and 10 represents a completely decentralized state, including the possibility of secession for those regions that wish to become independent, at which point would you say the Spanish state is currently located?"

Propensity to Vote:
"As you know, in every election various Spanish parties compete for our votes. I would like you to tell me the probability that you will ever vote for each of the parties that I mention, using a scale from 0 to 10, where 0 means 'I am completely sure I would never vote for this party' and 10 means 'I am completely sure I will vote for this party'."

Critical Tests: A Classificatory Table

Table A.1 summarizes the configurations of party A, party B and voter placement for each of the comparisons described in the main text. It also reports the predictions of the competing models for each scenario involved.

Table A.1: Summary of Critical Tests and Model Implications

				Difference in Model Terms: $f(V, P_A) - f(V, P_B)$			
						Categorization	
Scenario	P_A	V	P_B	Direction	Proximity	Same Side	Opposite Side
1_T	-3	-1	1	4	0	1	-1
1_C	-5	-3	-1	12	0	0	0
2_T	3	1	-1	4	0	1	-1
2_C	5	3	1	12	0	0	0
3_T	-3	-1	0	3	1	1	0
3_C	-5	-3	-2	9	1	0	0
4_T	3	1	0	3	1	1	0
4_C	5	3	2	9	1	0	0

Note: P_A and P_B refer to party A and B of a given scenario. Direction refers to the difference in the directional term calculated for P_A and P_B; the columns labeled Proximity, Same Side and Opposite Side report similar differences for the proximity model and the categorization model.

Categorization Effects Controlled for Directional Effects

If we operationalize directional theory using the status quo as the neutral point, there is also additional scope for testing the categorization model while controlling for directional effects. This is achieved by employing the Spanish survey and exploiting the fact that more than 70% of the voters perceive the status quo to be off the geometric middle of the scale. One option is to use a regression model controlling for a directional term based on the status quo. Another is to keep this directional term fixed at a specific value, while estimating categorization effects. The results of these approaches are reported in table A.2. The first three columns of the Table present the results from the first approach for each of the three issues for data are avaiable. The last three columns keep the directional term at its modal value, i.e. zero. As shown in the table, both approaches yield categorization effects of remarkable magnitude.

Table A.2: Categorization Effects Controlled for the SQ-Based Directional Term

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Issue	Religion	Immigr.	Regions	Religion	Immigr.	Regions
Directional Term				$= 0$	$= 0$	$= 0$
Same Side	0.675^{***}	0.346^{***}	0.643^{***}	0.885^{***}	0.606^{***}	0.698^{***}
	(0.102)	(0.104)	(0.104)	(0.152)	(0.168)	(0.161)
Opposite Side	-1.419^{***}	-0.923^{***}	-1.651^{***}	-1.314^{***}	-1.000^{***}	-1.672^{***}
	(0.097)	(0.089)	(0.088)	(0.147)	(0.133)	(0.137)
Directional Term	0.017^{***}	0.012^{***}	0.010^{*}			
	(0.004)	(0.003)	(0.004)			
Constant	3.427^{***}	3.524^{***}	3.625^{***}	3.486^{***}	3.607^{***}	3.803^{***}
	(0.068)	(0.064)	(0.061)	(0.091)	(0.091)	(0.082)
Adjusted R^2	0.096	0.037	0.096	0.062	0.038	0.073
Observations	7030	7129	6640	2733	2877	2714
Individuals	2485	2608	2386	1349	1595	1444

Note: The cell entries are OLS regression estimates, with robust standard errors, clustered at the individual-level, in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Full Results for the Projection Bias Models

Table A.3 presents the full results corresponding to figure 8 in the main text.

Table 2: Table A.3: Categorization Effects in Projection Bias

	Model 1	Model 2	Model 2b	Model 3	Model 4	Model 4b
Same Side		0.110***		0.107***	0.108***	
		(0.007)		(0.006)	(0.006)	
Opposite Side		−0.120***	−0.207***	−0.147***	−0.152***	−0.203***
		(0.005)	(0.006)	(0.006)	(0.007)	(0.009)
Preference		−0.001	−0.001	0.001	0.003**	0.015***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Same Side		−0.028***	−0.024***	−0.028***	−0.028***	−0.059***
× Preference		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Opposite Side		0.042***	0.038***	0.045***	0.046***	0.025***
× Preference		(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Proximity				0.010***	0.012***	−0.042***
				(0.001)	(0.001)	(0.001)
Proximity					−0.001**	0.000
× Preference					(0.000)	(0.000)
Constant	0.202***	0.189***	0.259***	0.161***	0.155***	0.562***
	(0.001)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)
$s(Y\|S^M = 1)$	$p = 0.000^{***}$					
$s(Y\|O^M = 1)$	$p = 0.000^{***}$					
$s(Y\|S^M = O^M = 0)$	$p = 0.000^{***}$					
Individual F.E.	No	No	Yes	No	No	Yes
R_2	0.072	0.067	0.055	0.070	0.070	0.111
Observations	94833	94833	94833	94833	94833	94833
Individuals	13278	13278	13278	13278	13278	13278

Note: The cell entries are OLS regression estimates, with standard errors in parentheses. Model 1 is a generalized additive model (GAM), employing penalized smoothing splines for the effect of party preferences (Y) conditional on whether voters are on the same or opposite side of the sample mean party placement ($S_{ij}^M = 1$ and $O_{ij}^M = 1$), or neither ($S_{ij}^M = O_{ij}^M = 0$); the p-values of the splines are reported under model 1. Models 2-4b employ robust standard errors, clustered at the individual-level. Models 2b and 4b include individual-level fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Full Results for the Tests of Alternative Neutral Points

Table A.4 presents the full results corresponding to figure 9 in the main text.

Table A.4: Models with Competing Operationalizations of the Neutral Point

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Issue	Religion	Immigr.	Regions	Religion	Immigr.	Regions
Directional Term	0.857***	0.571***	1.033***			
Center	(0.054)	(0.048)	(0.048)			
Directional Term	0.124*	0.107*	−0.050			
Status Quo	(0.060)	(0.047)	(0.059)			
Same Side				0.660***	0.386***	0.618***
Center				(0.101)	(0.102)	(0.103)
Same Side				0.220*	0.167	0.087
Status Quo				(0.096)	(0.089)	(0.091)
Opposite Side				−1.150***	−0.808***	−1.344***
Center				(0.103)	(0.093)	(0.095)
Opposite Side				−0.789***	−0.597***	−0.869***
Status Quo				(0.101)	(0.106)	(0.103)
Constant	3.215***	3.396***	3.458***	3.518***	3.575***	3.733***
	(0.037)	(0.043)	(0.040)	(0.076)	(0.075)	(0.069)
R^2	0.086	0.038	0.099	0.101	0.039	0.104
Observations	7030	7129	6640	7106	7189	6736
Individuals	2485	2608	2386	2516	2634	2427

Note: The cell entries are OLS regression estimates, with robust standard errors, clustered at the individual-level, in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.