The Formation of Attitudes toward Presidential Candidates and Political Parties:

An Asymmetric Nonlinear Process

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Abstract

Most models of how citizens combine information about political candidates into attitudes toward them presume that symmetric linear processes are at work. We propose a model predicting asymmetric nonlinearity (the ANM) in the impact of favorable and unfavorable beliefs on attitudes. Cross-sectional NES data (1972-1996) show that this model describes attitudes toward presidential candidates and political parties better than a symmetric linear model (SLM) among respondents high and low in political involvement. Longitudinal NES data (1980-1996) show that the ANM outperforms the SLM in describing the impact of beliefs on changes over time in attitudes toward presidential candidates. And the ANM revealed that voter turnout is enhanced by a stronger preference for one preferred candidate, as long as at least one candidate is disliked, whereas the SLM failed to detect this effect. These findings have important implications for understanding the impact of election campaigns on citizens' preferences and actions.

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During this century, most scholars of voting have shared a vision of the process by which democratic citizens derive their candidate preferences. Whether manifested explicitly in discussions of information processing (e.g., Kelley and Mirer 1974; Kelley 1983), or implicitly in the forms of hundreds of linear regression equations estimated over the years (for a review, see Kinder 1998), we have presumed that people add up positive considerations and subtract negative ones to yield their overall attitudes toward candidates. And as these years have passed, we have identified increasing numbers of considerations that enter into the mix, from locations within the social structure (Berelson, Lazarsfeld, and McPhee 1954) to party affiliations and stands on policy issues (Campbell, Converse, Miller, and Stokes 1960), perceptions of candidates' personalities and emotional responses to the candidates (Abelson, Kinder, Peters, and Fiske 1982), retrospective assessments of the nation's economy and international status (Kinder and Keiwiet 1979), prospective judgments of candidates' performance (Fiorina 1981), and much more (see, e.g., Kinder and Sears 1985; Miller and Shanks 1996).

The last ten years, however, have seen a number of challenges to conventional wisdom about voter decision-making. For example, Lodge, McGraw, and Stroh (1989) challenged the presumption that voters canvass their considerations on election day with the notion that overall candidate evaluations are built on-line, updated regularly throughout a campaign. Rabinowitz (1989; MacDonald, Rabinowitz, and Listhaug 1995) challenged the widely popular spatial model of policy voting (e.g., Enelow and Hinich 1984) with a directional model (see also Westholm 1997). And Gelman and King (1993) used the inconsistency between the volatility of candidate popularity across campaigns and the predictability of election outcomes from facts measurable long before election day to generate a new vision of what voters learn and think as campaigns unfold.

In this paper, we offer yet another challenge to conventional wisdom, by reconsidering the simple model of information combination that voting researchers have so widely taken for granted. A great deal of research in psychology suggests that amendments should be made to this model, and we offer these amendments in the form of what we will call the asymmetric nonlinear model (ANM) of attitude formation (Cacioppo and Gardner 1993;

Cacioppo, Gardner and Berntson 1997; Cacioppo and Berntson 1994). We begin below by outlining traditional

models in the voting literature and explaining how the ANM differs from them. We then report survey evidence

pitting traditional models against the ANM in attempts to describe the origins of attitudes toward candidates and

political parties, as well as voter turnout. In the end, as we shall see, the ANM outperforms the traditional model

quite consistently, a conclusion that has interesting and important implications for understanding the conduct of

politics.

Two Models of Attitude Formation

The widely accepted, traditional model of candidate evaluation might best be called the symmetric linear

model (SLM), stated most explicitly 25 years ago by Kelley and Mirer (1974). They proposed that people form

an attitude toward a candidate by subtracting the number of unfavorable beliefs they have about a candidate from

the number of favorable beliefs they have. This model can be represented as follows:

$$A = \alpha_1 (F - U) \tag{1}$$

where A is a person's attitude toward a candidate, F is the number of favorable beliefs the person has about the

candidate, U is the number of unfavorable beliefs the person has about the candidate, and α_1 is the impact of each

favorable or unfavorable belief. According to the SLM, α_1 should be positive. Using data on presidential

elections between 1952 and 1980, this rule correctly explained 78% of respondents' post-election reported vote

choices. Linear multiple regression equations likewise presume that considerations are added together to yield

overall attitudes, though they permit some categories of considerations to be weighted more heavily than others.

Work in psychology adopting a behavioral adaptive perspective suggests a number of amendments to this

simple model (Peeters 1971; Peeters and Czipanski 1990). According to this literature, human cognitive and

behavioral processes develop because they facilitate survival and reproduction in a potentially hostile world.

Stated most bluntly, if people are to survive, they must acquire food and avoid predators. So approaching any

new and unfamiliar object with favorable expectations is worthwhile, because it could be food or could facilitate

acquisition of food. However, one must vigilantly scan for any signs of danger an object might pose, so that one

can extricate oneself from potentially lethal situations. When one's favorable expectations about an object are

violated, one must be especially sensitive and react promptly, before it is too late to avoid potential danger.

In the absence of any information about an object, then, attitudes toward it should be slightly positive. And people should be especially attentive to the first information they receive about an object, in order to form an accurate first impression. Then, if the object appears to pose no great and immediate threat, vigilance can taper off, so the impact of each additional piece of information acquired about the object may diminish. However, because of the relative survival value of threat avoidance in comparison to reward acquisition, unfavorable information should have especially powerful impact, more powerful than favorable information – and indeed, vigilance to additional unfavorable information should not taper off to the same degree as attention to additional favorable information.

Drawing upon this perspective, the ANM's description of the attitude formation process can be represented by the following equation:

$$A = \alpha_1\,(F)^{\,m} + \alpha_2\,(U)^{\,n} + I \qquad\qquad\qquad (2)$$

The coefficient α_1 represents the impact of the first piece of favorable information a person acquires about a candidate. The exponent m represents the rate of deceleration in the impact of each additional piece of favorable information as the total amount of favorable information increases. Likewise, α_2 represents the impact of the initial piece of unfavorable information the person acquires, and the exponent n represents the rate of deceleration in the impact of each additional piece of unfavorable information acquired. The intercept I represents the person's attitude in the absence of favorable and unfavorable information.

According to the ANM, the coefficient α_1 is presumed to be positive, such that favorable information increases the positivity of attitudes, whereas α_2 is presumed to be negative, because unfavorable information presumably decreases the positivity of attitudes. The exponents m and n are expected to be less than one, reflecting the decelerating impact of additional pieces of information. The positivity offset, or the tendency to feel slightly positive in the absence of information, should be expressed by a slightly positive value for I. The negativity bias, the tendency for negative information to have greater impact than positive information, should be expressed in one of two ways. First, the absolute value of α_2 may be greater than that of α_1, representing hyper-

sensitivity to initially acquired unfavorable information. Second, the value of n may be larger than the value of

m, demonstrating slower deceleration of the impact of unfavorable information, as compared to that of favorable

information.

Separate lines of research in psychology attest to the validity of each of these three elements of the ANM.

For example, when people are asked to evaluate an unknown, hypothetical person, they tend to be slightly

favorable (Adams-Weber 1979; Benjafield 1985).[1] Numerous psychological studies of impression formation

have shown that unfavorable information has more impact than favorable information (e.g., Fiske 1980; Gardner

and Cacioppo 1996; Ronis and Lipinski 1985; Van der Pligt and Eiser 1980; Vonk 1993; 1996). And numerous

impression formation studies have also shown that impressions are more powerfully shaped by initially-acquired

information (e.g., Anderson 1965a, 1967, 1973; Belmore 1987; Hendrick, Constantini, McGarry, and McBride

1973). Furthermore, integrated tests of the ANM's predictions have yielded strong support for it in describing

the origins of attitudes toward a range of different objects (e.g., Cacioppo and Berntson 1994; Cacioppo,

Gardner, and Berntson 1997; Gardner and Cacioppo, 1996).

If these processes are indeed basic to the human organism, then they should describe the processes by

which citizens evaluate political candidates and political parties. In doing the research described below, we set

out to test this assertion. Using survey data on U.S. presidential elections collected during a 24-year period, we

compared the fit of the ANM and the SLM. The analyses presented below represent an investigation of the ANM

across a variety of tests; we examined cross-sectional associations between beliefs and attitudes toward

Presidential candidates and political parties, generality across various subgroups of the electorate differing in

political involvement, demonstrations of causal influence of beliefs on subsequent changes in attitudes, and the

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[1] Some readers might be inclined to think that evidence reported by Lau and Sears (1979), showing that people are generally

inclined to evaluate politicians favorably, is a test of the positivity offset hypothesis. However, the positivity offset

hypothesis refers specifically to situations in which a perceiver has no information at all about a target. Lau and Sears

(1979) focussed on evaluations of politicians about whom respondents had a great deal of information, so their study did not

test the positivity offset.

explanation and prediction of voter turnout. Across all of these tests, we expected asymmetry and non-linearity to better model the relations between beliefs and attitudes, as well as those between beliefs and political behavior.

National Election Study Data

We analyzed National Election Study (NES) surveys conducted during presidential election campaigns between 1972 and 1996.[2] During pre-election interviews, respondents were asked: "Now I'd like to ask you about the good and bad points of the Democratic and Republican candidates for President. Is there anything in particular about <candidate's name> that might make you want to vote for him? What is that? Anything else?" Respondents were also asked: "Is there anything in particular about <candidate's name> that might make you want to vote against him? What is that? Anything else?" Up to five responses were recorded for each question for each respondent. We counted the number of favorable and unfavorable beliefs each respondent articulated about each candidate in each year. Attitudes toward the candidates were measured during the pre-election interviews by asking respondents to rate each candidate on a 101-point feeling thermometer (for the question wordings, see the Appendix).

Attitudes Toward Presidential Candidates

Using 23,125 sets of favorable and unfavorable beliefs and feeling thermometer scores, mean attitudes were calculated for each cell in a six by six matrix defined by the number of favorable and unfavorable beliefs each respondent had about each candidate (see Table 1).[3] The ANM anticipates that the mean in the (0,0) cell will be greater than 50, reflecting the positivity offset. And indeed, the mean of the 4,272 attitudes in that cell

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[2] Pre-election face-to-face interviews with nationally representative samples of American adults were conducted mostly in September and October, and post-election interviews were conducted during the four months after each election. The sample sizes were 2,705 in 1972, 2,248 in 1976, 1,614 in 1980, 2,257 in 1984, 2,040 in 1988, 2,485 in 1992, and 1,714 in 1996.

[3] Many respondents contributed two sets of responses to this analysis - one for the Democratic candidate and one for the Republican candidate. Because we obtained similar results when candidates from only one party were analyzed, we report results for Republican and Democratic candidates combined.

was 56.48, significantly larger than 50 (t(4271)=20.90, p<0.0001). Also in line with the ANM's notion of decelerating impact, the difference in attitudes caused by the addition of a favorable or unfavorable belief generally decreased in magnitude as the total number of beliefs increased. For example, the average difference between attitudes based on one favorable belief and those based on two favorable beliefs was 7.19, whereas the difference between respondents with four favorable beliefs and those with five favorable beliefs was only 2.01 (see the last row of Table 1). Similarly, the average difference between attitudes based on one unfavorable belief and those based on two unfavorable beliefs was 8.50, whereas the difference between attitudes based on four unfavorable beliefs and those based on five unfavorable beliefs was only 6.09 (see the last column of Table 1).

Surprisingly, the negativity bias was not apparent among people who held very few beliefs about a candidate. For example, the average difference between attitudes based on no favorable beliefs and those based on one favorable belief was 22.87 (see the first column of the last row in Table 1), whereas the average difference between attitudes based on no unfavorable beliefs and those based on one unfavorable belief was only 13.94 (see the last column of the first row in Table 1). However, among people who had more than one belief about a candidate, the negativity bias did appear. For example, the average difference between attitudes based on one favorable belief and those based on two favorable beliefs was 7.19 (see the second column of the last row in Table 1), whereas the average difference between attitudes based on one unfavorable belief and those based on two unfavorable beliefs was larger: 8.50 (see the second row of the last column in Table 1). And the average difference between attitudes based on four favorable beliefs and those based on five favorable beliefs was 2.01 (see the fifth column of the last row in Table 1), whereas the average difference between attitudes based on four unfavorable beliefs and those based on five unfavorable beliefs was again larger: 6.09 (see the fifth row of the last column in Table 1). Similar evidence for the negativity bias was found in every case except when comparing attitude differences between respondents with no favorable beliefs and those with one favorable belief and attitude differences between respondents with no unfavorable beliefs and those with one unfavorable belief. Thus, Table 1 offers evidence mostly confirming the ANM, with one conspicuous exception (i.e., the negativity effect did not appear among people who had very few beliefs about a candidate).

To generate a benchmark against which to compare the ANM, we estimated the parameters of the SLM in Equation (1):

$$A = 7.92 \ (F - U) - 57.69 \tag{3}$$
$$\quad\ \ (.05) \qquad\quad (.19)$$

where A is the attitude toward the candidate, F is the number of favorable beliefs, and U is the number of unfavorable beliefs, (N=26,490, R^2=0.45).[4] Standard errors for the parameters are shown in parentheses underneath. Although the SLM predicts that the intercept for this model will be 50, the intercept for this model is significantly greater than 50 (z=64.08, p<.001).

Next, we used nonlinear regression to estimate the parameters of Equation (2), representing the ANM:[5]

$$A = 19.66 \ (F)^{0.36} - 12.27 \ (U)^{0.61} + 54.82 \tag{4}$$
$$\quad\ \ (.29) \quad\ (.01) \quad (.26) \quad\ \ (.02) \quad\ \ (.23)$$

According to a comparison of R^2s, the ANM (N=26,490, R^2=0.50) predicted respondents' attitudes significantly better than the SLM (F(3,26484)=850.00, p<.001). This comparison of the SLM and ANM is particularly compelling because it is biased against finding a difference between the ANM and SLM for two reasons. First, the SLM predicts that the intercept for this model would be 50, and the significant deviation from 50 found in the parameter estimates for this model improves its apparent fit to the data. Second, the fit of the model to each data point affects R^2 equally. Consequently, the fit of the model in cells of Table 1 containing more respondents has more impact on R^2 than does the fit of the model in cells with fewer respondents. Yet the cells containing the most respondents (in the upper left quadrant of Table 1) are cells in which the SLM and ANM make similar predictions. The cells where the models' predictions differ contained fewer respondents and therefore had less impact on R^2. Thus, the R^2 measure is likely to have understated differences between the fit of the models.

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[4] We also estimated all the equations reported in the paper controlling for respondents' educational attainment as a way of controlling for differences in the tendency to be talkative and therefore to report more likes or dislikes (Geer 1988). The results obtained were nearly identical to those reported here.

[5] Nonlinear regression estimates model parameters using iterative estimation algorithms. The researcher inputs suggested starting values for all parameter estimates, and final parameter estimates are calculated using the Levenberg-Marquardt algorithm to minimize the sum of squared residuals.

In order to compare the fit of the models weighting all cells equally, we created a new goodness-of-fit measure. This measure was simply the square root of the sum of the squared discrepancies between the mean attitude observed in each cell of Table 1 and the mean attitude for that cell predicted by the model:

$$GOF = \sqrt{\sum_{q=1}^{p} (A_q - O_q)^2 / (p)} \qquad (5)$$

where A_q is the predicted mean attitude for cell q, O_q is the observed mean attitude for cell q, and p is the number of cells in Table 1. Smaller numbers represent better fit of the model to the data, weighting all cells equally. The GOF of the ANM was 2.85, compared to 6.46 for the SLM, more than two times worse. Clearly, the ANM represents a substantial improvement.

The intercept of Equation (4) is significantly greater than 50 (z=20.96, p<.001), confirming the expected positivity offset. Both exponents were significantly less than 1.0 (favorable beliefs: z=64.00, p<.001; unfavorable beliefs: z=19.50 p<.001) and significantly greater than 0 (favorable beliefs: z=36.00, p<.001; unfavorable beliefs: z=30.50, p<.001), confirming the expected nonlinearity.

Although the negativity bias is also apparent, it was expressed as a difference in the exponents rather than as a difference in the coefficients. The coefficient for favorable beliefs (b=19.66) is significantly larger in magnitude than the coefficient for unfavorable beliefs (b=12.27; z=18.95, p<.001), meaning that the first favorable belief acquired had more impact on attitudes than the first unfavorable belief. However, the exponent for unfavorable beliefs (0.61) is significantly larger than the exponent for favorable beliefs (0.36; z=12.50, p<.001), meaning that the impact of unfavorable beliefs decelerated less quickly than that of favorable beliefs. Thus, as the number of beliefs increased, the impact of unfavorable beliefs increased relative to that of favorable ones. So when people held more than a few beliefs, the impact of unfavorable beliefs exceeded that of favorable beliefs.

Generalization Across Elections

When we estimated the parameters of the ANM for attitudes toward candidates in each election year separately, the results were quite consistent with those shown in Equation (4) (see Table 2). In each year, the intercept was greater than 50, the favorable beliefs coefficient was greater than the absolute value of the

unfavorable beliefs coefficient, the exponents were less than 1, and the unfavorable beliefs exponent was larger than the favorable beliefs exponent, representing the modified negativity bias.

Generalization Across Subgroups of Citizens

Much research in psychology has shown that people who are highly involved in a domain form attitudes toward relevant objects differently than people less involved (e.g., Petty and Cacioppo 1986). In particular, highly involved people tend to form attitudes through effortful processes, focusing their thinking on the attributes of the objects, whereas low involvement people form their attitudes through simpler mechanisms, less focussed on object attributes. One might therefore imagine that the relatively complex process posited by the ANM might be most likely to appear among people highly involved in politics. In contrast, less involved citizens might execute simpler integrative processes, perhaps more along the lines of the SLM. On the other hand, the ANM is thought to describe a basic, behaviorally adaptive, and universal process, so it might well apply across the range of involvement.

To assess the generalizability of the ANM across subgroups of respondents, we estimated its parameters separately for people high and low in political involvement, operationalized in four different ways: voters vs. nonvoters, people who formed their candidate preferences early in a campaign vs. people who formed their preferences late, people high and low in factual political knowledge, and people high and low in education (see Table 3; see the Appendix for question wordings and codings). In every group, the favorable beliefs coefficient was positive, the unfavorable beliefs coefficient was negative, the two exponents were less than one and greater than zero, the favorable beliefs coefficient was larger than the unfavorable beliefs coefficient, the favorable beliefs exponent was smaller than the unfavorable beliefs exponent, and the intercept was greater than 50. The model explained less variance in attitudes among respondents who were less politically involved (i.e., non-voters, late deciders, low knowledge, and low education), presumably reflecting the fact that these individuals derived their attitudes less from the attributes of the object involved. Nonetheless, even among these people, the ANM was superior to the SLM in describing the origins of attitudes.

Attitudes Toward Political Parties

To further explore the generalizability of the ANM, we estimated its parameters predicting attitudes toward the two major political parties with data from all the NES studies providing the necessary data: 1980, 1984, 1988, 1992, and 1996. During the pre-election NES interviews in those years, respondents were asked to describe what they liked and disliked about the Democratic and Republican parties and were asked to rate the parties on the feeling thermometer.

The estimated parameters of the SLM were:

$$A = 7.62 \, (F - U) + 57.47 \tag{6}$$
$$ (.09) (.15)$$

(N=17,568, R^2=0.29). Estimates of the parameters of the ANM were:

$$A = 17.04 \, (F)^{0.37} - 13.27 \, (U)^{0.54} + 56.36 \tag{7}$$
$$ (.36) (.02) (.35) (.02) (.22)$$

(N=17,568, R^2=.33). This model fit significantly better than the linear additive model using both the R^2 measure, (F(4,17344)=325.00, p<.001) and our GOF measure (SLM=6.37; ANM=3.12). The intercept in both these models are significantly greater than 50 (SLM: z=49.80, p<.001; ANM: z=28.90, p<.001), again confirming the positivity offset. The favorable beliefs coefficient was significantly larger than the unfavorable beliefs coefficient (z=7.85, p<.001). Both exponents were significantly smaller than 1 (favorable beliefs: z=31.50, p<.01; unfavorable beliefs: z=23.00, p<.01) and significantly larger than 0 (favorable beliefs: z=18.50, p<.01; unfavorable beliefs: z=27.00, p<.01). In addition, the unfavorable beliefs exponent was significantly larger than the favorable beliefs exponent (z=5.67, p<.01). Thus, these results replicate all aspects of those for attitudes toward candidates.

Generalization across Elections and Subgroups of Respondents

When we estimated the ANM for attitudes toward the parties in each election year separately, the results were quite consistent with those shown in Equations (4) and (7) (see Table 4). This was also true among respondents high and low in political involvement (see Table 5). Again, the model explained less variance in attitudes among respondents who were less politically involved, suggesting that attitudes were based less upon the attributes of the parties.

Documenting the Direction of Causality

Although the results thus far document consistent relations of attitudes to favorable and unfavorable beliefs, we cannot be sure from this cross-sectional evidence about the causal process(es) that yielded these relations. The ANM presumes that they reflect the influence of favorable beliefs and unfavorable beliefs on attitudes, but it is also possible that attitudes shaped people's reports of their favorable and unfavorable beliefs through processes of rationalization (e.g., Rahn, Krosnick, and Breuning 1994). It seems unlikely that people rationalize through as complex a process as that documented above, but it is nonetheless possible in principle.

In order to assess more directly whether favorable beliefs and unfavorable beliefs shaped attitudes according to the ANM's account, we employed a procedure outlined by Kessler and Greenberg (1981; Finkel 1995). Using panel data, we assessed whether favorable and unfavorable beliefs measured at one point in time predicted subsequent changes in attitudes as the ANM proposes. More specifically, we regressed post-election attitudes on pre-election attitudes and favorable and unfavorable beliefs measured before the election. If beliefs predict subsequent changes in attitudes, these associations cannot be due to later attitude change having caused prior beliefs. And we can assess whether these lagged associations of beliefs with attitude change are best described by the SLM or the ANM.

In the 1980, 1984, 1988, 1992, and 1996 NESs, respondents were asked the favorable and unfavorable beliefs questions about the major party candidates during pre-election interviews, and they were asked the feeling thermometer question about these candidates during both the pre-election and post-election interviews. Using these data, we regressed post-election attitudes (A_2) on pre-election attitudes (A_1), and pre-election beliefs (F_1 and U_1), and obtained the following parameter estimates:

$$A_2 = .30\, A_1 + .24\, (F_1)^{0.47} - .19\, (U_1)^{0.62} + .40 \tag{8}$$
$$\quad\;\; (.01) \qquad (.01) \quad\; (.02)\; (.01) \quad\; (.03) \quad\; (.01)$$

(N=16,488, R^2=.48). Both favorable and unfavorable beliefs were significant predictors of post-election thermometer scores (favorable beliefs: z=12.0, p<.001; unfavorable beliefs: z=9.50, p<.01), suggesting that attitudes were indeed derived from beliefs. The favorable beliefs coefficient was significantly greater than the unfavorable beliefs coefficient (z=8.33, p<.01). Both exponents were significantly smaller than 1 (favorable

beliefs: z=26.50, p<.01; unfavorable beliefs: z=12.67, p<.01) and significantly larger than 0 (favorable beliefs: z=23.50, p<.01; unfavorable beliefs: z=20.67, p<.01). And the unfavorable beliefs exponent was significantly greater than the favorable beliefs exponent (z=3.75, p<.01). All this is reassuring evidence that the ANM indeed describes the processes by which beliefs about candidates influenced attitudes.

Turnout

Having established that the ANM appears to consistently model the ways in which political beliefs are transformed into overall attitudes, we next turned to the investigation of political behavior. We wished to explore whether and how beliefs about candidates influence people's decisions about whether or not to vote. Rosenstone and Hansen (1993) found that the more a citizen prefers one candidate over the other, the more likely the citizen is to turn out, presumably because he or she has more to lose if the undesired candidate should win the election.

We suspected that the impact of attitudes toward candidates might be more complex than described by this hypothesis. A citizen who likes both candidates will presumably be happy no matter which one wins, has little to gain by turning out, and is therefore unlikely to do so, no matter how much he or she prefers one candidate over the other. In contrast, a citizen who likes one candidate and dislikes the other has a lot of incentive to turn out, because he or she will presumably be pleased if the first candidate wins and unhappy if he or she loses. For this citizen, the election poses a threat, and this threat may instigate cognitive and behavioral engagement in the campaign (Marcus and MacKuen 1993). The threat of a potential loss (i.e., the disliked candidate being elected) is likely to be more motivating than a potential gain alone (if both candidates are liked; Kahneman and Tversky 1988; 1990; Tversky and Kahneman 1981). And the stronger a person's preference for a liked candidate over a disliked candidate, the more likely this person is to vote.

It is more difficult to make a prediction about people who dislike both candidates. On the one hand, such a citizen presumably perceives the election to pose a substantial threat, which may motivate engagement. But there is nothing this citizen can do to avoid being unhappy with the election's outcome, so disengagement may be the most effective way to minimize disappointment, regardless of how much one candidate if preferred to the other.

To test these hypotheses, we conducted two logistic regressions predicting turnout, including a set of previously documented predictors of turnout and five variables calculated using respondents' favorable and unfavorable beliefs: (1) the absolute value of the difference between attitudes toward the Republican and Democratic candidates, (2) a variable coded 1 if the respondent's calculated attitudes toward both candidates were favorable and 0 otherwise, (3) a variable coded 1 if the respondent's calculated attitudes toward both candidates were unfavorable and 0 otherwise, (4) the interaction between the absolute value of the difference between attitudes toward the two candidates and whether or not attitudes toward both candidates were favorable, and (5) the interaction between the absolute value of the difference between attitudes toward the two candidates and whether or not attitudes toward both candidates were unfavorable.[6] These attitude variables were designed to test whether the strength of preference for one candidate over the other determines turnout differently for respondents who like one candidate and dislike the other, those who like both candidates, and those who dislike both candidates.

When these attitude variables were computed according to the parameters of Equation (3), the SLM, most control variables in the model had significant effects in the expected directions (see column 1 of Table 6).[7]

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[6] Previously documented predictors of turnout included economic resources (e.g., education, employment, and home ownership), cognitive resources (e.g., education, age, and internal efficacy), social resources (e.g., home ownership, age, time lived in the community, and being contacted by a political party), race, region of residence, involvement in politics (e.g., strength of party identification), and perceptions of the election (e.g., caring about the outcome, and belief about the closeness of the major race) (Campbell et al. 1960; Milbraith and Goel 1977; Rosenstone and Hansen 1993; Verba and Nie 1972; Weisberg and Grofman 1981).

We treated a respondent as having voted if official records indicated that he or she had voted, and we treated a respondent as having not voted if official records did not indicate that he or she voted. Because turnout was only validated for the 1976, 1980, 1984, and 1988 NESs, 5,101 respondents were included in these analyses.

[7] Two indicators of economic resources were significant predictors: income and home ownership were both positively related to turnout. Several indicators of cognitive resources were also significant predictors: education was a positive predictor of turnout, and the relation between age and turnout was monotonically increasing but decelerating, such that older

Also, replicating Rosenstone and Hansen's (1993) finding, people were more likely to vote the more they preferred one candidate over the other (see the first row in the first column of Table 6: 0.84; z=3.82, p<.01). Contrary to our expectations, neither of the interactions was statistically significant when the parameters of Equation (3), the SLM, were used to calculate respondents' attitudes toward the candidates (see column 1 rows 4 and 5 of Table 6).

A different story emerged when we used the ANM calculation method shown in Equation (4) instead. For the most part, the results with the ANM, in column 2 of Table 6, resemble those with the SLM. But here, the interaction of the gap between attitudes toward the two candidates with whether or not attitudes toward both candidates were favorable was statistically significant (see the fifth row of the last column of Table 6: probit coefficient=-1.06; z=1.73, p<.10). Among people who disliked one or both candidates, a stronger preference for the preferred candidate yielded greater turnout (probit coefficient=0.71, z=2.84, p<.01). But among people who liked both candidates, the strength of preference for one candidate over the other had no significant effect on turnout (probit coefficient=-0.42, z=0.92, n.s.). Thus, the ANM identified a theoretically sensible interaction that the SLM did not.

Furthermore, attitudes calculated using the ANM explained more variance in turnout than did attitudes calculated using the SLM. Compared to a model including the control variables alone, a model adding the attitude variables calculated using the SLM significantly improved the fit of the model (change in Pearson goodness-of-fit χ^2=5.50, p<.01), but a model adding the attitude variables calculated using the ANM instead improved the fit of the model by over three times as much (change in Pearson goodness-of-fit χ^2=17.09, p<.001).

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adults were more likely to vote, but a year had less impact as age increased. Two measures of social resources, being contacted by a political party, and the number of years a respondent had lived in the community, were both positive predictors of turnout. African-Americans were less likely to vote than Whites, Mexican-Americans or Puerto-Ricans. Southerners were less likely to vote than northerners. Finally, strength of party identification, how much a citizen cared about the outcome of a presidential election, and the impact that a respondent believed voting would have on the election outcome (i.e., external political efficacy) were positive predictors of turnout.

Breadth

Our final analysis concerned a possible alternative explanation for the difference between favorable and unfavorable beliefs– the breadth of those beliefs. The lack of negativity bias when comparing the impact of the first favorable belief acquired with the impact of the first unfavorable belief acquired, for example, was unexpected. One potential explanation for this is that the first favorable and unfavorable beliefs that NES respondents mentioned differed in their breadth. Breadth of a belief refers to the diversity of characteristics implied by it; broad beliefs encompass many different characteristics of a person or group (e.g., "He supports wise policies."), whereas very narrow beliefs refer to single characteristics (e.g., "He favors the Brady Bill."). In general, broader beliefs would presumably have more powerful impact on attitudes.

McGraw, Fischle, Stenner, and Lodge (1996) found that people used broad positive personality traits and narrower negative personality traits to describe politicians they liked, and people used broad negative personality traits and narrower positive personality traits to describe politicians they disliked. If this is true of NES respondents' descriptions of their beliefs about candidates' personality traits and other characteristics, it would introduce a confound in our analyses. In the NES studies we analyzed, 58% of the candidate feeling thermometer ratings were above 50, meaning that respondents liked the candidates, whereas only 28% were below 50, indicating dislike. Likewise, 56% of party feeling thermometer ratings were above 50, and only 25% were below 50. McGraw et al.'s (1996) findings therefore imply that the positive beliefs expressed in these surveys might have been broader on average than the unfavorable beliefs expressed, leading the apparent impact of the former to appear stronger than the apparent impact of the latter.

We therefore set out to conduct an after-the-fact investigation to measure and control for belief breadth in these NES surveys. To do so, we asked 195 adults attending Ohio State University to rate (on a 7-point scale) the breadth of each belief each NES respondent had mentioned about each candidate over the years. Each respondent rated a randomly-selected one-quarter of the 1,968 beliefs, so approximately 50 people provided ratings of each belief. To eliminate bias due to different respondents interpreting the meanings of the rating scale points differently (Ostrom and Upshaw 1968), we divided each respondents' rating of each belief by his or her

mean rating of all the beliefs, so the resulting scores for each respondent would have a mean of 1.0. The resulting data had substantial face validity, because beliefs that seemed likely to be broad were rated as being much broader than beliefs that seemed likely to be narrow.[8]

Favorable beliefs mentioned by the NES respondents were not broader than the unfavorable beliefs they mentioned on average (means = 1.03 and 1.05, respectively). In fact, the observed difference in the opposite direction was statistically significant (t(23187)=10.00, p<.01). In order to re-estimate the parameters of Equations (3), (4) and (8) controlling for belief breadth, we replaced the numbers of favorable and unfavorable beliefs with the total of the breadth ratings of the mentioned favorable beliefs and the total of the breadth ratings of the mentioned unfavorable beliefs, respectively. The resulting parameter estimates did not change meaningfully, reinforcing the apparent validity of our findings thus far. Thus, the evidence that the negativity bias appears only after acquiring more than one piece of favorable or unfavorable information does not seem to have been the result of differences in the breadth of favorable and unfavorable beliefs.

<div align="center">Discussion</div>

Model Comparison

Across a variety of tests, the ANM emerged here as a better descriptor of the process by which citizens form attitudes toward political agents than the SLM. This was apparent in attitudes toward Presidential candidates and political parties, in cross-sectional associations between beliefs and attitudes, in various subgroups of the electorate differing in political involvement, in longitudinal effects of beliefs on subsequent changes in attitudes, and in the prediction of voter turnout. Thus, it appears that favorable and unfavorable beliefs about political agents do not simply balance each other out in a symmetric fashion and combine together in a simple linear way. Rather, asymmetry and non-linearity appear to be hallmarks of this process.

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[8] For example, very broad statements such as "I don't like him." and "He's a bad President." received the highest breadth ratings (1.45 and 1.42 respectively), whereas very narrow statements such as "I agree with his position on the Tennessee Valley Authority." and "He has a good attendance record in Congress." received the lowest breadth ratings (.67 and .70, respectively).

Kelley and Mirer (1974) noted when they first suggested application of the symmetric linear model to voting decisions that the model did not describe all citizens equally well. In particular, these scholars noted that the model's ability to predict vote choices declined as the number of favorable and unfavorable beliefs held by a survey respondent increased. In light of the ANM, this finding makes perfect sense: the more beliefs a person holds, the more different become the predictions of the SLM and the ANM. Thus, the warning signs pointing to inadequacy of the SLM have been in front of us for some time, and the present findings help to overcome these limitations.

Although the positivity offset and nonlinearity components of the ANM were consistently evident across our analyses, the negativity bias was not apparent in the weighting of the first piece of favorable and unfavorable information acquired, but rather was expressed as a difference in the exponents. Unfavorable beliefs did have more impact than favorable beliefs when people held more than one of each type of belief about a candidate, but an initially acquired favorable belief had more impact than an initially acquired unfavorable belief. One potential explanation for this pattern involves the order in which citizens typically learn information about candidates during a campaign.

Our findings suggest that information learned initially about candidates (i.e., early in a campaign) is likely to have more impact on attitudes toward candidates than information learned later, a notion consistent with experimental studies of impression formation (Anderson 1965b). And recent political campaigns have typically begun with positive assertions by candidates building their own credibility and offering solutions to problems and ended with candidates attacking their opponents (Devlin 1981; Greenblatt 1998; Hagstrom and Guskind 1986). Thus, favorable beliefs may typically be learned earlier in campaigns than unfavorable beliefs. This sort of confounding of valence of beliefs with the order in which they are learned would minimize the apparent impact of unfavorable beliefs, thus perhaps explaining our failure to observe the expected negativity bias. And if people generalize from candidates to the political parties they represent, this could explain the wrinkle in the negativity effect in evaluations of parties as well. We look forward to future research exploring this possibility.

Our research is the first to properly test the negativity bias in attitudes toward political candidates, by

measuring the impact of favorable and unfavorable beliefs independently. Like us, Lau (1982) explored

negativity bias in attitudes toward presidential candidates using the likes and dislikes questions, but his measures

of positivity and negativity were not independent. A measure of positivity was calculated by subtracting the

number of unfavorable beliefs from the number of favorable beliefs and assigning a value of zero to respondents

with more unfavorable beliefs than favorable ones. A measure of negativity was calculated by subtracting the

number of favorable beliefs from the number of unfavorable beliefs and assigning a value of zero to respondents

with more favorable beliefs than unfavorable ones. These measures of positivity and negativity are problematic

because they are net, not gross measures of favorable and unfavorable beliefs (i.e., respondents could only be

favorable or unfavorable about the candidate, not both).

Klein (1991, 1996) examined respondent ratings of how well each of a series of favorable personality

traits terms described candidates, on a scale ranging from "not well at all" to "extremely well." Traits on which a

candidate was rated below the mean of all the trait ratings were considered "negative" traits, and Klein compared

the impact of "negative" traits with the impact of other traits on attitudes toward candidates. This measure of

negativity is problematic because low ratings could simply have reflected neutrality rather than negativity. Thus,

our research is the first in which positivity and negativity have been properly gauged independently as

components of attitudes toward political candidates and parties, and we found a more complex negativity effect

than Lau (1982) or Klein (1991, 1996) claimed to have uncovered.

Nuance in the Turnout Calculus

The ANM uncovered evidence of nuance in decisions about whether to turn out to vote that was not

apparent with the SLM's portrayal of attitudes. Specifically, it appears that people are more motivated to turn out

as the strength of their preferences for one candidate over the other increases. However, this was only true among

people who disliked at least one of the candidates. These are people who have something to lose by an

undesirable outcome. The more substantial these potential losses, the more motivated people were to turn out. In

contrast, among people who had only something to gain (i.e., seeing one of two liked candidates win), stronger

preference for one candidate over the other did not motivate increased turnout. Not only does this finding

reinforce confidence in the ANM, but it also adds to our understanding of the processes by which turnout decisions are made, suggesting a more nuanced process driven by perceived threats.

This finding suggests possible reasons for changes in turnout rates from election to election. Many of the predictors of turnout (e.g., education) are fairly stable across elections, but attitudes toward candidates can vary substantially from one election to the next. Therefore, our research suggests a possible contributor to changes in voter turnout. Voter turnout in U.S. presidential elections remained fairly constant between 1952 and 1960 and declined steadily between 1960 and 1988 (Teixeira 1992). Turnout increased slightly in 1992 but declined again in 1996 (Germond and Witcover 1996). Our research suggests a possible reason for this general decline, supplementing other likely culprits, including the declining average age of the electorate, declining political efficacy, less exposure to newspapers, and shifts in partisan identification (Abramson and Aldrich 1982; Shaffer 1981; Lipset and Schneider 1987). Specifically, attitudes toward candidates may have shifted in ways that yielded the decline.

In order to test whether this was so, we examined changes over time in the attitude variables calculated from the ANM. Although we were not able to estimate parameters for the ANM and SLM before 1972 (because respondents were not asked to rate candidates on the feeling thermometer), we were able to use the parameter estimates generated by subsequent years' data to generate predicted attitudes during those years and thereby document predicted attitudes toward the major party presidential candidates between 1952 and 1996. The size of the gap between predicted attitudes toward the two candidates competing each year was positively related to the year of the study (b=.0004, p<.001). Given this result alone, one might conclude that this would have yielded increased voter turnout during this time. However, among respondents who had unfavorable attitudes toward one or both candidates (i.e., those among whom the gap had an effect on turnout), the gap between attitudes toward the two candidates was negatively related to year (b=-.0004, p<.001). This trend could have contributed to declining voter turnout during these years. That is, people may be less likely to vote now because their attitudes toward the competitors are more similar than those attitudes were years ago.

Derivation vs. Rationalization

A few years ago, Rahn, Krosnick, and Breuning (1994) reported evidence suggesting that Ohio residents' descriptions of what they liked and disliked about gubernatorial candidates in 1990 were mostly rationalizations of their attitudes toward those candidates. Beliefs about candidates caused attitudes toward them (a process they dubbed "derivation") only among voters who settled on their candidate preferences late in the campaign. Our longitudinal evidence used the same statistical approach and showed that changes in Americans' attitudes toward presidential candidates were in fact directed by pre-existing favorable and unfavorable beliefs. And when we obtained Rahn, Krosnick, and Breuning's (1994) data and reanalyzed them, we found evidence of reliable derivation when we conducted separate analyses for each of the two gubernatorial candidates, rather than combining the two candidates in a single analysis, as Rahn et al. (1994) had done. Therefore, although rationalization appears to be quite a real phenomenon, derivation is real as well. As Lodge and his colleagues have argued (Lodge, McGraw, and Stroh 1989; Lodge, Steenbergen, and Brau 1995), candidate evaluations appear to be formed "on-line," being updated throughout a campaign as new information is learned. And this updating appears to occur according to the ANM.

A Changing Electorate

Although we found that the parameters of the ANM have been remarkably consistent since 1972, an interesting trend appeared in one of the model's parameters: the intercept. As shown in Table 2, the intercept in models predicting attitudes toward candidates increased from 1972 to 1976 and decreased until it hit bottom in 1992 and stayed about the same in 1996. The same decline is apparent in the intercept in the model of attitudes toward parties (see Table 4), though this intercept increased slightly in 1996. For both types of attitudes, OLS regressions showed that the year of the study was significantly and negatively related to the attitudes of respondents who reported no favorable or unfavorable beliefs: these attitudes became more negative over time (candidates: $b=-.18$, $SE=.04$, $p<.001$; parties: $b=-.15$, $SE=.05$, $p=.001$). Indeed, what may be remarkable is that the ANM's prediction of a positivity offset was supported at all in the nineties. Given trends in American political attitudes and behavior over these years (e.g., Ansolabehere, et al. 1994; Teixeira 1992; Wattenberg,

1984) that seem to suggest decreasing positivity toward these political agents, the decrease in the positivity offset is to be expected, and its continued existence points to the robust nature of the ANM.

Reconsidering Campaigns

Our results have to several implications for understanding how campaigns unfold and affect citizens' opinions and behavior. For example, our research suggests that information learned at the beginning of a campaign, when little information is known about candidates, will have greater impact than information learned later. During most elections, the volume of advertising purchased on behalf of candidates and their efforts to attract news attention increase as the campaign progresses. This approach may be based upon the notion that voters will be most influenced by information they learn closer to election day, because they are most likely to remember that information when entering the voting booth. Our findings suggest that in fact, each piece of information acquired early in a campaign may have more impact than each piece of information acquired late. Moreover, the difference between the exponents in the ANM reflecting the negativity bias might imply that, late in a campaign, adding positive information about a candidate may have little impact upon overall attitudes, but that adding negative information would continue to be damaging. Models of voter decision-making seeking to document the impact of various considerations on candidate preferences might therefore do better if they were to take into account order of acquisition. Most notably, voters probably learn candidates' party affiliations long before they learn about the candidates' positions on issues, which may partly explain the apparently weaker impact of the latter than of the former (Campbell, Converse, Miller, and Stokes 1960).

Conclusion

Although simple models of political attitude formation are appealing because of their parsimony, our research demonstrates that the complexity of the ANM adds to our understanding of and our ability to predict attitudes toward both individual political actors and parties. Furthermore, the more complex account of how attitudes are formed also helps to clarify the impact of campaigns and the forces shaping political action.

Appendix

Question Wording and Coding

Candidate Feeling Thermometers

1972 Wording. "As you know, there were many people mentioned this past year as possible candidates for

president by political parties. We would like to get your feelings towards some of these people. I have here a

card on which there is something that looks like a thermometer. We call it a "feeling thermometer" because it

measures your feelings towards these people. Here's how it works. If you don't feel particularly warm or cold

toward a person, then you should place them in the middle, at the 50 degree mark. If you have a warm feeling

toward a person or feel favorably toward him, you would give him a score somewhere between 50 degrees and

100 degrees depending on how warm your feeling is toward that person. On the other hand, if you don't feel very

favorably toward a person -- if you don't care too much for him -- then you would place him somewhere between

0 degrees and 50 degrees.   Of course, if you don't know too much about a person, just tell me and we'll go on to

the next one."

1976 Wording. "As you know, many people were mentioned this year as possible candidates for president or

vice-president by the political parties. We would like to get your feelings toward some of these people. I'll read

the name of each person and I'd like you to rate that person with what we call a feeling thermometer. Ratings

between 50 and 100 degrees mean that you feel favorably and warm towards the person; ratings between 0 and

50 mean that you don't feel favorably toward the person and that you don't care too much for that person. If you

don't feel particularly warm or cold toward a person, you would rate them at 50 degrees. If we come to a person

you don't know much about, just tell me and we'll move on to the next one."

1980 and 1984 Wording. "I'd like to get your feelings toward some of our political leaders and other people who

are in the news these days. I'll read the name of a person and I'd like you to rate that person using the feeling

thermometer. Ratings between 50 and 100 degrees mean that you feel favorably and warm toward the person;

ratings between 0 and 50 degrees mean that you don't feel favorably toward the person and that you don't care too

much for that person. If we come to a person whose name you don't recognize, you don't need to rate that person.

 Just tell me and we'll move on to the next one. If you do recognize the name, but you don't feel particularly

warm or cold toward the person, then you would rate the person at the 50 degree mark."

1988 and 1992 Wording. "I'd like to get your feelings toward some of our political leaders and other people who

are in the news these days. I'll read the name of a person and I'd like you to rate that person using the feeling

thermometer. Ratings between 50 and 100 degrees mean that you feel favorably and warm toward the person.

Ratings between 0 and 50 degrees mean that you don't feel favorable toward the person and that you don't care

too much for that person. You would rate the person at the 50 degree mark if you don't feel particularly warm or

cold toward the person. If we come to a person whose name you don't recognize, you don't need to rate that

person. Just tell me and we'll move on to the next one."

1996 Wording. "I'd like to get your feelings toward some of our political leaders and other people who are in the

news these days. I'll read the name of a person and I'd like you to rate that person using something we call the

feeling thermometer. Ratings between 50 degrees and 100 degrees mean that you feel favorable and warm

toward the person. Ratings between 0 and 50 degrees mean that you don't feel   favorable toward the person and

that you don't care too much for that person. You would rate the person at the 50 degree mark if you don't feel

particularly warm or cold toward the person. If we come to a person whose name you don't recognize, you don't

need to rate the person. Just tell me and we'll move on to the next one."

Political Knowledge Questions

Political knowledge was measured as the percentage of knowledge questions answered correctly. Four such

questions were used: which party controlled the House and Senate before the election, which party had elected

the most representatives to Congress, and which party was more conservative. Each of these questions was not

asked in all the NES surveys we used. Knowledge scores for respondents in each survey were calculated as the

percentage of correctly answered knowledge questions asked in that survey. For each of the questions we used

(see wordings below), the years in which each question was asked are listed. Low and high knowledge

respondents were those with scores below and above the median knowledge score, respectively.

House Majority before Election. "Do you happen to know which party had the most members in the House of

Representatives in Washington before the elections (this/last) month? (IF NECESSARY) Which one?" (asked in

1972, 1976, 1980, 1984, 1988, 1992, and 1996; Coding: 0 if incorrect and 1 if correct).

Senate Majority before Election. "Do you happen to know which party had the most members in the U.S. Senate

before the election this/last month? (IF NECESSARY) Which one?" (asked in 1984, 1988, 1992, and 1996;

Coding: 0 if incorrect and 1 if correct).

House Members Elected. "Do you happen to know which party elected the most members to the House of

Representatives in the elections this/last month?" (asked in 1972, 1976, 1980, and 1984; Coding: Coded 0 if

incorrect and 1 if correct).

Party Ideology. a. "Would you say that one of the parties (1972: either party) is more conservative or more liberal

than the other at the national level? (IF YES) Do you think that people generally consider the Democrats or the

Republicans more conservative or wouldn't you want to guess about that?" (asked in 1972 and 1976; Coding: 0 if

incorrect and 1 if correct).

b. "Would you say that either one of the parties is more conservative than the other at the national level?

(IF YES) Which party is more conservative?" (asked in 1984 and 1988; Coding: 0 if incorrect and 1 if correct).

Voter Turnout Analyses

Turnout. Whether a respondent voted was determined using checks of official voting records. People sometimes

claim to have voted when they didn't (Clausen, 1968; Traugott & Katosh, 1979). Respondents were treated as

voters if official records showed that they voted and respondents were treated as nonvoters if official records did

not show that they voted. Because the NES validated turnout reports only in 1976, 1980, 1984, and 1988, only

data from those surveys were used to compare voters and non-voters.

Education. "What is the highest grade of school or year of college you have completed? Did you get a high

school diploma or pass a high school equivalency test? What is the highest degree you have earned?" (Coding: 0

if 8 grades or less, .25 if 9-12 grades with no diploma or equivalency, .50 if 12 grades, diploma, or equivalency,

.75 if some college, 1 if college degree and/or advanced degree).

External Political Efficacy. "Now I'd like to read some of the kinds of things people tells us when we interview

them. Please tell me if you agree or disagree with these statements: 'I don't think public officials care much about what people like me think.' and 'People like me don't have any say about what government does.'" (Coding: For each item, coded 0 if agree, 1 if disagree, .5 if missing or don't know, then summed and rescaled to a zero-one interval).

Internal Political Efficacy. "Now I'd like to read some of the kinds of things people tells us when we interview them. Please tell me if you agree or disagree with these statements: 'Sometimes politics and government seem so complicated that a person like me can't really understand what's going on.'" (Coding: 0 if agree, 1 if disagree, .5 if missing or don't know).

Age. "What is the month, day and year of your birth?" (Coding: Age in years rescaled to range from 0 to 1).

Black. "Observed by interviewer." (Coding: 1 if black, 0 otherwise).

Mexican-Americans and Puerto-Rican. "In addition to being an American what do you consider your main ethnic or national group? Are you of Spanish or Hispanic origin or descent? (If yes) Please look at the booklet and tell me what category best describes your Hispanic origin?" (Coding: 1 if Mexican-America or Puerto Rican, 0 otherwise).

Southern. Observed by interviewer. (Coding: Coded 1 if lives in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, or Virginia, 0 otherwise).

From a Border State. Observed by interviewer. (Coding: Coded 1 if lives in Missouri, Kentucky, Maryland, Oklahoma, or West Virginia, 0 otherwise).

Income. "Please look at this page and tell me the letter of the income group that includes the combined income of all members of your family living here in [year] before taxes. This figure should include salaries, wages, pensions, dividends, interest, and all other income." (Coding: 0 if 0-16th percentile, .25 if 17th-33rd percentile, .5 if 34th-67th percentile, .75 if 68th-95th percentile, 1 if 96th-100th percentile, respondents with missing data were coded as .5).

Home Owner . "Do you / Does your family own your home, pay rent or what?" (Coding: 0 if not owner, 1 if a owned).

Years in Community. "How long have you lived here in your present (city/town)?" (Coding: Number of years rescaled to range from 0 to 1).

Employed. "We'd like to know if you are working now, temporarily laid off, or are unemployed, retired, permanently disabled, a homemaker, a student or what?" (Coding: 1 if employed, 0 otherwise).

Unemployed. "We'd like to know if you are working now, temporarily laid off, or are unemployed, retired, permanently disabled, a homemaker, a student, or what?" (Coding: 1 if unemployed, 0 if otherwise).

Party Identification Strength. "Generally speaking, do you usually think of yourself as a Republican, a Democrat, an independent, or what? (If Republican or Democrat) Would you call yourself a strong (Republican/Democrat) or not very strong (Republican/Democrat) (If Independent, other or no preference) Do you think of yourself as close to the Republican or Democratic party? (Coding: 0 if independent or apolitical, .33 if independent leaning towards a party, .5 if independent, don't know, apolitical, or missing, .67 if weak partisan, 1 if strong partisan).

Perception of Closeness of Election. "Do you think the presidential race will be close or will one candidate win by quite a bit? (Coding: 0 if will win by quite a bit, 1 if close race, .5 if missing).

Contacted by a Political Party. "The political parties try to talk to as many people as they can to get them to vote for their candidates. Did anyone from one of the political parties call you up or come around to talk to you about the campaign? Which party was that?" (Coding: 0 if not contacted, 1 if contacted).

Care Which Party Wins the Presidential Election. "Generally speaking, would you personally care a great deal which party wins the presidential election this fall, or don't you care very much which party wins?" (Coding: 0 if don't care very much, 1 if care a good deal, .5 if missing).

Time of Vote Choice Decision

During post-election interviews, respondents who claimed to have voted in the election were asked when they had decided for whom to vote. We divided people who were asked this question into those who reported they decided before the last two weeks of the campaign and those who reported they decided during the last two weeks of the campaign. Only self-reported turnout was used to select the respondents who were asked this question. Our interest was when respondents made their choice about which candidate they preferred, not

whether or not that decision was acted upon. Therefore, our comparisons of early and late deciders included all respondents who were asked the question.

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Table 1

Attitudes Toward Candidates for Each Combination of Favorable and Unfavorable Beliefs.

Number of Between Unfavorable Beliefs	Number of Favorable Beliefs						Row Means	Difference Between Adjacent Row Means
	0	1	2	3	4	5		
0	56.48 (4,272)	74.39 (2,099)	80.16 (1946)	82.42 (1432)	84.11 (687)	86.10 (668)	70.84	
								13.94
1	40.85 (2,459)	61.74 (1111)	69.89 (1007)	73.09 (597)	76.46 (276)	78.13 (281)	56.90	
								8.50
2	35.04 (2,338)	55.23 (658)	64.27 (566)	67.56 (397)	70.67 (214)	74.86 (203)	48.40	
								7.38
3	30.45 (1,650)	49.82 (335)	56.01 (316)	61.39 (188)	69.40 (105)	70.44 (100)	41.02	
								4.66
4	26.12 (831)	46.04 (156)	50.84 (135)	57.98 (96)	64.20 (44)	67.55 (56)	36.36	
								6.09
5	22.89 (846)	33.64 (137)	44.46 (112)	49.90 (83)	54.52 (42)	58.44 (55)	30.27	
Column Means	41.54	64.41	71.60	75.09	77.75	79.76		
Difference Between Adjacent Column Means		22.87	7.19	3.49	2.66	2.01		

Note: Values in parentheses are the numbers of respondents in each cell.

Table 2

Parameters of the ANM for Individual Elections: Attitudes toward
Candidates

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Parameters

_____

Year	α_1	α_2	m	n	Intercept	R^2	N
1972	21.58	-15.95	0.37	0.48	54.78	.51	2,602
	(1.04)	(0.97)	(0.04)	(0.05)	(0.83)		
1976	17.93	-11.98	0.39	0.55	56.98	.45	4,308
	(0.69)	(0.64)	(0.03)	(0.04)	(0.58)		
1980	18.99	-12.72	0.39	0.63	56.37	.49	3,057
	(0.84)	(0.78)	(0.04)	(0.04)	(0.73)		
1984	18.99	-10.86	0.40	0.71	57.27	.53	4,353
	(0.72)	(0.63)	(0.03)	(0.04)	(0.55)		
1988	21.78	-12.08	0.33	0.59	54.34	.48	3,919
	(0.79)	(0.70)	(0.03)	(0.04)	(0.56)		
1992	17.70	-12.01	0.37	0.57	52.67	.49	4,866
	(0.66)	(0.60)	(0.03)	(0.03)	(0.52)		
1996	20.55	-12.13	0.34	0.64	52.96	.55	3,385
	(0.81)	(0.71)	(0.03)	(0.04)	(0.60)		

_____

Note: Values in parentheses are standard errors. The figures reported in this table are based upon data regarding both major party presidential candidates running in each year, so each respondent contributed two sets of data points.

Table 3

Parameters of the AMN for Subgroups of Respondents: Attitudes toward Candidates

			Parameters				
Group	α_1	α_2	m	n	Intercept	R^2	N
Non-Voters[a]	17.92 (0.72)	-11.74 (0.66)	0.40 (0.03)	0.63 (0.04)	56.61 (0.54)	.44	4,348
Voters	20.45 (0.49)	-11.65 (0.44)	0.36 (0.02)	0.65 (0.03)	55.50 (0.42)	.53	8,888
Late Deciders[b]	14.66 (0.73)	-7.10 (0.67)	0.36 (0.04)	0.79 (0.06)	55.12 (0.64)	.32	3,282
Early Deciders	21.87 (0.43)	-12.77 (0.38)	0.33 (0.01)	0.61 (0.02)	54.02 (0.37)	.58	13,306
Low Knowledge[c]	19.27 (0.50)	-12.52 (0.46)	0.34 (0.02)	0.54 (0.03)	55.33 (0.35)	.44	9,045
High Knowledge	20.85 (0.47)	-12.19 (0.42)	0.36 (0.02)	0.64 (0.02)	53.29 (0.42)	.57	10,365
Low Education	20.45 (0.39)	-13.01 (0.36)	0.33 (0.02)	0.54 (0.02)	55.42 (0.28)	.47	15,799
High Education	19.10 (0.44)	-10.47 (0.40)	0.40 (0.02)	0.70 (0.02)	52.57 (0.40)	.53	10,692

Note: Values in parentheses are standard errors.
[a]Only respondents who were interviewed in the post-election wave in 1976, 1980, 1984, and 1988 were included in these analyses.
[b]Only respondents who were interviewed in the post-election wave and who said they voted were asked about their time of decision, so only those respondents are included in these analyses.
[c]Only respondents who were interviewed in the post-election wave were included in these analyses. These questions were not included on Form II, III, or IV of the 1972 questionnaire or in abbreviated post-election telephone interviews in 1984.

Table 4

Parameters of the ANM for Individual Elections: Attitudes toward Parties

	Parameters						
Year	α_1	α_2	m	n	Intercept	R^2	N
1980	15.98	-12.00	0.35	0.52	56.80	.26	3,031
	(0.86)	(0.85)	(0.05)	(0.07)	(0.52)		
1984	19.82	-14.03	0.30	0.56	57.02	.38	4,281
	(0.71)	(0.68)	(0.03)	(0.04)	(0.41)		
1988	18.43	-12.05	0.33	0.56	56.36	.32	3,857
	(0.80)	(0.77)	(0.04)	(0.05)	(0.51)		
1992	15.15	-14.38	0.41	0.48	55.79	.33	4,771
	(0.67)	(0.65)	(0.04)	(0.04)	(0.67)		
1996[a]	14.61	-12.66	0.47	0.58	54.82	.33	1,629
	(1.16)	(1.13)	(0.06)	(0.07)	(0.78)		

Note: Values in parentheses are standard errors.
[a]In 1996, only half of respondents were asked questions about their favorable and unfavorable beliefs about the parties.

Table 5

Parameters of the ANM for Subgroups of Respondents: Attitudes toward Parties

Group	α_1	α_2	m	n	Intercept	R^2	N
			Parameters				
Non-Voters[a]	18.34 (0.90)	-11.90 (1.00)	0.34 (0.05)	0.61 (0.07)	56.60 (0.49)	.29	2,974
Voters	17.81 (0.58)	-13.40 (0.56)	0.35 (0.03)	0.53 (0.03)	57.34 (0.39)	.36	6,512
Late Deciders[b]	10.70 (0.88)	-9.70 (0.87)	0.45 (0.07)	0.52 (0.08)	57.48 (0.97)	.19	2,212
Early Deciders	17.65 (0.50)	-14.68 (0.47)	0.37 (0.02)	0.53 (0.03)	56.84 (0.52)	.39	9,081
Low Knowledge[c]	17.68 (0.57)	-13.20 (0.57)	0.31 (0.03)	0.42 (0.04)	56.65 (0.30)	.28	7,699
High Knowledge	16.52 (0.52)	-13.32 (0.49)	0.41 (0.02)	0.57 (0.03)	56.02 (0.39)	.38	7,824
Low Education	19.21 (0.51)	-13.58 (0.51)	0.30 (0.03)	0.48 (0.04)	56.72 (0.28)	.31	9,851
High Education	15.02 (0.50)	-11.92 (0.48)	0.45 (0.03)	0.60 (0.03)	55.06 (0.36)	.36	7,718

Note: Values in parentheses are standard errors.
[a]Only respondents who were interviewed in the post-election wave in 1980, 1984, and 1988 were included in these analyses.
[b]Only respondents who were interviewed in the post-election wave in 1980, 1984, and 1988 and who said they voted were asked about their time of decision, so only those respondents are included in these analyses.
[c]Only respondents who were interviewed in the post-election wave in 1980, 1984, and 1988 were included in these analyses. These questions were not asked in abbreviated post-election telephone interviews in 1984.

Table 6

Probit Analyses Predicting Turnout Using SLM and ANM
Scores: Attitude Variables

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Predictors	Model Used to Compute Attitude Scores	
	SLM	ANM
$|Attitude_1-Attitude_2|$	0.84**	0.62*
	(.22)	(.28)
Both Positive[a]	-0.02	0.08
	(.11)	(.13)
Both Negative[b]	0.10	-0.11
	(.18)	(.25)
$|Attitude_1-Attitude_2|$ x Both Positive	-0.92	-1.06*
	(.60)	(.52)
$|Attitude_1-Attitude_2|$ x Both Negative	-0.42	-0.08
	(1.28)	(2.60)
Education	1.23**	1.28**
	(.12)	(.12)
External political efficacy	0.52**	0.52**
	(.08)	(.08)
Internal political efficacy	-0.06	-0.05
	(.07)	(.07)
Age	0.06**	0.06**
	(.01)	(.01)
Age^2	-0.00**	-0.00**
	(.00)	(.00)
Black	-0.23*	-0.23*
	(.10)	(.10)
Mexican-American or Puerto-Rican	-0.06	-0.07
	(.14)	(.14)
Southern	-0.70**	-0.71**
	(.07)	(.07)
From a border state	-0.30**	-0.32*
	(.11)	(.10)
Income	0.47**	0.47**
	(.13)	(.13)
Home owner	0.63**	0.64**
	(.07)	(.07)
Years lived in community	0.00**	0.00**
	(.00)	(.00)
Employed	-0.01	-0.02
	(.07)	(.07)
Unemployed	-0.20	-0.20
	(.15)	(.15)
Party identification strength	0.65**	0.67**
	(.13)	(.13)
Perception of the closeness of election	0.08	0.08
	(.07)	(.07)
Contacted by a party	0.22**	0.22**
	(.07)	(.07)
Care about the election	0.38**	0.41**
	(.06)	(.06)
N	6,582	6,582

+ p<.10 * p<.05 **p<.01
[a]This variable was coded 1 if both attitudes were above 50 (i.e., both were positive), and 0 otherwise.
[b]This variable was coded 1 if both attitudes were below 50 (i.e., both were negative), and 0 otherwise.