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Political Belief Networks. Socio-cognitive Heterogeneity in American Public Opinion

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Socio-cognitive Heterogeneity in American Public Opinion. *

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Abstract

Most research in public opinion and political sophistication relies on the assumption that Americans organize their political belief system according to the liberal and conservative categories. Yet not all of them do. We hypothesize that citizens' sociodemographic profiles make them disposed to espouse different understandings of the political debate, and document systematic heterogeneity in Americans' organization of their political attitudes over the last two decades. We interpret this diversity as the coexistence of multiple belief systems.

Relational class analysis (RCA), a network-based method for detecting heterogeneity in collective patterns of opinion, is used to identify distinctive opinion structures – or *belief networks* – that are shared within different groups of respondents. The analysis of ANES data between 1984 and 2004 leads to the identification of three stable groups of American citizens: of the ANES data over the 1984-2004 period leads to the identification of three stable groups of respondents: Ideologues, whose political attitudes strongly align with either liberal or conservative categories; Alternatives, who are instead morally conservative but economically liberal, or vice versa; and Agnostics, who exhibit weak associations between political beliefs.

Respondents' sociodemographic profiles, particularly their income and religiosity, stand at the core of the different ways in which they understand politics. When their social identities and related political interests are incompatible with the prescriptive liberal-conservative polarity (i.e., high earners with weak religious commitments), individuals gravitate toward alternative ways of conceptualizing the political debate. These results raise important methodological questions concerning the limitations of traditional analytical techniques that assume population homogeneity in the organization of political beliefs.

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1 Introduction

Studies in public opinion traditionally assume the existence of a singular system of interconnected beliefs. In the U.S., such a political belief system is assumed to be structured on a clearly defined polarity between conservative and liberal views. Converse's seminal research on this topic (1964), as well as the work of numerous scholars following him, demonstrate that only a small proportion of the public can appreciate the political debate using abstract categories such as 'liberal' and 'conservative', while the large majority of citizens exhibit limited levels of constraint and coherence in the overall organization of their political beliefs. According to this framework, citizens greatly differ in their levels of political sophistication, thus in their capacity to understand politics using established ideological categories. Most citizens are, in fact, "innocent of ideology" (Converse 1964; see also Campell, Converse, Miller and Stokes 1960; Luskin 1987).

While the validity of these findings has not been challenged on empirical grounds – results are in fact very robust and stable over time and across cultures (Delli Carpini and Keeter 1991; Popkin 1991; Popkin and Dimoch 1999) – scholars, in the last two decades, have nevertheless begun to question the assumption of homogeneity that underlies these analyses (namely, the presupposition that there exists a single way of making sense of the political debate) in favor of the possibility that "people make up their minds in different ways" (Sniderman et al. 1991, 8). Scholars working in this vein start from the premise that individuals qualitatively differ in the ways they think about politics and rely on different schemata or cognitive shortcuts (heuristics) to make decisions about political matters (Kinder e Sears 1985; Popkin 1991; Sniderman, Brody and Tetlock 1991; Zaller 1992; Lupia, McCubbins and Popkin 2000; Kuklinski 2001; Baldassarri 2005). Research in political cognition has relaxed the assumption of homogeneity by focusing on different *schemata* (Lodge, McGrawn, Conover, Feldman, and Miller 1991), or levels of *political expertise* (Fiske and Kinder 1981; Krosnick 1990), modalities of *information processing* (Lodge and McGraw 1995; Campus 2000), and the use of *heuristics* (Fiorina 1981; Sniderman, Brody and Tetlock 1991; Popkin 1991; Lupia 1994; Kuklinski and Quirk 2000), some of which also focus on *affective elements* as complements to cognitive components of political decision-making (i.e., the "likeability heuristic" proposed by Sniderman et al. 1991).

In this paper we move the research on political heterogeneity a step forward in two major respects. First, we demonstrate the coexistence of multiple belief systems. Rather than assuming that the political debate can be interpreted exclusively in terms of the

liberal-conservative divide, we explore the possibility that individuals qualitatively differ in the ways in which they structure their political preferences, and document the coexistence of alternative belief systems in the American population.

Second, we show that people's social identities are implicated in generating these alternative ways in which they understand the political debate. Namely, different *sociodemographic profiles* (which are combinations of relevant sociodemographic characteristics) are correlated with distinct ways of understanding politics. The relationship between sociodemographic characteristics and political beliefs is not always straightforward. When devising their political allegiances, citizens are often required to balance complex, and sometimes contradictory interests and identities (see Fischer and Hout 2006 for a rare attempt to map political attitudes sociodemographically). This has presumably become even more challenging a task in recent decades with the growing salience of 'cultural values' in American political discourse. Within the dominant political framework, how can a low-income, highly religious African-American voter, for example, reconcile liberal tendencies on economic redistribution and civil rights with moral conservatism? We argue that people whose social identities are incompatible with the prescriptive liberal-conservative polarity gravitate toward alternative ways of conceptualizing the political debate that accommodate their seemingly "contradictory" political preferences. At the same time these alternative political logics are systematic: our goal is not to capture individual idiosyncrasies, rather, we identify political *Weltanschauungs* that are shared within different social groups and shaped by the political offer and macro-institutional arrangements (Lupia, McCubbins and Popkin 2000; Kuklinski 2001; Baldassarri and Schadee 2006).

In order to detect heterogeneity in collective patterns of opinions we apply a network-based method, Relational Class Analysis (RCA, Goldberg 2010),[1] to Americans' political attitudes, analyzing data from the American National Election Studies over a period of twenty years extending from 1984 to 2004. First, we construct an attitudinal proximity matrix between all respondents that captures the extent to which they exhibit similar pattern of association between political preferences. Second, we partition the matrix into groups that exhibit distinctive *belief networks* (patterns of relationships between beliefs), each subscribing to a distinctive political logic that makes certain opinions congruent with one another. Unlike previous research, this approach does not require any presuppositions about how political beliefs are organized, or how sociodemographic attributes (i.e., educa-

[1]We use network analytical techniques to identify relationships among beliefs, as opposed to people, for which the method is conventionally used (DiMaggio 2010).

tion) or cognitive capabilities (i.e., political knowledge) structure political opinion.

Our method produces robust findings which are consistent over the twenty year period. In each year that we analyze, we identify three groups of respondents: Ideologues, who organize their political attitudes according to the prevalent liberal-conservative polarity; Alternatives, who reject the traditional prescriptive association between moral and economic attitudes, and are instead morally conservative and economically liberal, or vice versa (e.g. they tend to be pro-abortion but against economic redistribution); and Agnostics, who exhibit weak associations between political beliefs (Analysis I). We then establish the consistency of this partition over time, and its capacity to distinguish respondents according to their level of political sophistication (Analysis II).

Our contribution extends beyond a simple descriptive account of how people's political preferences are cognitively organized. We do show the intricate connection between belief systems and sociodemographic profiles, and add to the understanding of the relationship between sociodemographic characteristics, political beliefs, and partisanship. First, we show that the relationship between education, income and religiosity on the one hand, and individual preferences on political issues on the other is contingent on the belief system to which individuals subscribe. For instance, high income individuals tend to be morally conservative in the Ideologue group, while they are morally liberal in the Alternative group. Second, we find that Alternatives' unusual composition of issues, in which conservative and liberal elements combine, is the by-product of the tension between conflicting identities and political interests that they experience. The Alternative group is disproportionately composed of high earners with weak religious commitments, and low income individuals who are very religious. For these 'rich but secular' or 'poor but religious' citizens, it must be particularly difficult to be consistently conservative (or liberal) on both moral and economic issues. Indeed they deviate from the orthodox understanding of politics, adopting an Alternative view in which conservatism and liberalism are not at odds. Finally, we find that when faced with seemingly competing opinions, individuals are more likely to be influenced by their conservative tendencies: the co-presence of conservative and liberal preferences is more often than not resolved in favor of the Republican Party (Analysis III).

These results raise important methodological questions concerning the limitations of traditional analytical techniques that assume population homogeneity in the organization of political beliefs. Failing to recognize the heterogeneity of political beliefs systems might lead to biased evaluations of the impact of sociodemographic factors and political preferences on political behavior.

2 Conceptualizing and Measuring Multiple Belief Systems

Converse defines a belief system as a "configuration of ideas and attitudes in which the elements are bound together by some form of constraint or functional interdependence" (Converse 1964, 207). One way of conceptualizing constraint is to imagine a multidimensional 'belief space' in which each dimension measures opinion on one political issue. Individuals' positions in this space correspond to their political preferences. Constraint refers to the extent to which positions on various issues are bound together, thus leaving certain areas of the space largely unoccupied (Martin 2002). A belief system does not prescribe the adoption of certain opinions; rather it defines which opinions go with one another. People may frame their understanding of politics in similar terms, even if they take different substantive positions. Conservative and liberal pundits such as Rush Limbaugh or John Stewart, for example, despite their vehement disagreements nevertheless subscribe to very similar logics of conceptualizing the political debate in the US. To have a shared understanding therefore does not imply having identical attitudes or behaviors but being in agreement on the structures of relevance and opposition that make actions and symbols meaningful. Empirically, this means focusing on the *relationships* between political preferences, thus on political belief networks, rather than examining them discretely (Goldberg 2010; DiMaggio 1997; 2010).

In the US, political discourse is commonly assumed to be constrained by a belief system that is structured along the liberal-conservative continuum. Despite the fact that most Americans exhibit limited levels of constraint in their political opinions (DiMaggio et al. 1996; Baldassarri and Gelman 2008), established public discourse has little room for opinion configurations that depart from the liberal-conservative rationale, and scholars have the tendency to consider those who diverge from the mainstream to be less sophisticated in their ability to reason politically (Converse 1964). Yet, it is important to make an analytical distinction between divergences that are the result of weak opinion constraint and those that present an alternative yet internally coherent system of belief organization. Consider a group of hypothetical respondents who were asked about their opinions on three issues: affirmative action, gay rights and health care reform. We would expect those subscribing to a liberal ideology to express positive attitudes on all three issues, and those defining themselves as conservative to express negative attitudes. Figure 1 plots these respondents on a stylized belief space. Respondents plotted in red, and marked with a plus sign, seem to follow the conventional liberal-conservative logic: they either support or oppose (to varying

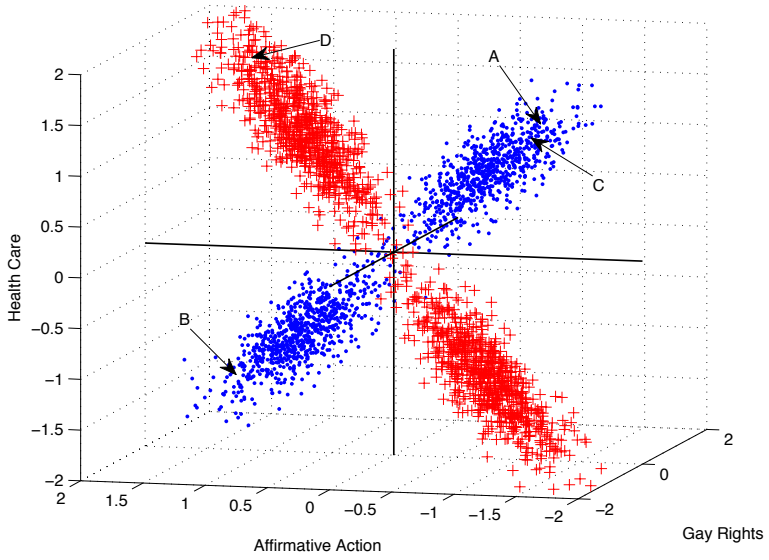

Figure 1: Hypothetical Belief Space. Respondents plotted in red, and marked with a plus sign (i.e., subjects A, B, and C), organize their preferences according to the liberal-conservative divide on all three issues, while respondents plotted in blue, and marked by a dot (i.e., subject D), structure their preferences on an opposition between health care and the other two issues.

degrees) all three issues. Those plotted in blue, and marked by a dot, deviate from this pattern: their position on health care is oppositional to their positions on the two other issues. Examined individually, these deviations might seem like misunderstandings of what the political debate is about. Yet observed from afar, these supposedly unsophisticated individuals exhibit a coherent pattern of political attitudes; their organization of preferences constitute an alternative to the dominant belief system.

Our expectation is that not all respondents who depart from the liberal-conservative belief system are necessarily misinformed about politics. Rather, we argue that when such heterogeneity is systematic, namely when it is consistent within groups of respondents, it can be understood as indication of multiple belief systems. To explore this possibility, we use Relational Class Analysis (RCA, Goldberg 2010). RCA divides a sample of respondents into groups that exhibit distinctive belief networks. Group members do not necessarily hold the same opinions. For example, respondents A and B in Figure 1 express opposing opinions on all three issues. Nevertheless, they both exhibit the same pattern of interdependences between opinions, suggesting that they organize their beliefs using the same rationale (even if deployed in opposite directions). RCA, by examining patterns of responses in the aggregate,

tells apart different groups of respondents that follow distinctive patterns of opinions, such as the two groups depicted in Figure 1.

Technically, RCA constructs a proximity matrix between all pairs of respondents. The value of each cell in the matrix corresponds to the degree of relationality between the two respondents it relates to. Relationality captures similarity in the organization of political preferences by measuring the extent of dissimilarity between the overall differences between all pairs of these two respondents individual opinions. Formally, relationality R_{ij} between observations i and j in dataset X of N observations and K variables is defined as follows:

$$R_{ij} = \frac{2}{K(K-1)} \sum_{k=l}^{K-1} \sum_{l=k+1}^{K} (\lambda_{ij}^{kl} * \sigma_{ij}^{kl}) \tag{1}$$

where:

$$\sigma_{ij}^{kl} = 1 - \left| |\Delta X_i^{kl}| - |\Delta X_j^{kl}| \right| \tag{2}$$

is the relational similarity for the variable pair k, l between observations i and j,

$$\Delta X_i^{kl} = X_i^k - X_i^l \tag{3}$$

is the distance between the values of variables k and l for observation i, and

$$\lambda_{ij}^{kl} = \begin{cases} 1 & \Delta X_i^{kl} * \Delta X_j^{kl} \geq 0 \\ -1 & \Delta X_i^{kl} * \Delta X_j^{kl} < 0 \end{cases} \tag{4}$$

is a binary coefficient that changes the sign of the relational similarity if both distances are in opposite directions.

Like correlation, relationality is bounded by -1 and +1. Values close to either extreme indicate that the patterns of responses of the two individuals are strongly similar, either in the same (such as respondents A and C in Figure 1) or opposing (respondents A and B) directions. Values in between these extremes are of less interest as they indicate that the two respondents (such as A and D) exhibit different patterns, and therefore subscribe to different belief systems. RCA therefore transforms the matrix into a network by retaining only those cells that are close to either extreme, and transforms them by their absolute value. It then uses a spectral algorithm in order to partition the network into groups that maximize within-group relationality (cfr. Goldberg 2010 and part A.2 of the Supplemental

Material for additional information). Each group presumably corresponds to a different and distinctive belief system.[2]

To conclude, accounting for heterogeneity in the organization of political beliefs requires addressing three methodological limitations that are endemic of common analytical strategies employed in studies of public opinion and political cognition. First, as the underlying logic of a political belief system inheres in the relationships between political opinions, it necessitates *examining beliefs in relation to one another, not independently.* Second, because these relationships diverge across groups of individuals, it is imperative that *we avoid a priori assumptions about how people organize their political belief systems.* Otherwise, we risk privileging dominant understandings of the political debate, to the neglect of others. Finally, *the relationship between sociodemographic variables and political attitudes can vary across political belief systems.* Decomposing the population into predetermined sociodemographically homogenous groups might actually mask these variables divergent predictive effects.

Our analytical strategy is particularly suited for detecting individual heterogeneity in the composition of political beliefs as it overcomes these limitations. It both induces the organization of coexisting political belief systems and assigns respondents into different groups without relying on assumptions concerning how issues or individuals are interrelated. Other existing methods that explore underlying latent variables, such as factor analysis or latent class analysis, either look at the respondents in the aggregate to group variables together (as is the case with factor analysis), or look for groups of individuals who provided identical responses while overlooking the relationships between variables. Neither examines intra-variable and intra-respondent variability simultaneously like RCA does.

3 Analysis

We apply RCA to data from the American National Election Studies and replicate the analysis for all the years available over the period 1984-2004.[3] ANES includes a consistent number of attitudinal questions on political issues, ranging from state economic intervention

[2]RCA is particularly designed to detect heterogeneity in response patterns in ordinal attitudinal data. Though similar to correlation, relationality outperforms correlation for this purpose because it is less sensitive to outliers and therefore does not overweigh responses by opinionated respondents. For more details about the method, see Goldberg 2010.

[3]Unfortunately, substantial changes in the survey instrument made it impossible to replicate the analysis for 2008. Moreover, years 1990, 1998, and 2002 had too many missing answers to be included. See supporting materials for a detailed description of the data included in the analysis.

and spending to civil rights, morality, and foreign policy.[4] We classified attitudinal questions by four different issue domains: Economic; Civil Rights; Morality; and Security/Foreign Policy. Examples of Economic issues are government involvement in the provision of health insurance and jobs, or federal spending on the poor, welfare, and food stamps. Civil Rights issues concern the treatment of African Americans and other minorities, as well as opinions on affirmative action and equality of opportunities and chances. Moral issues range from abortion to gay rights, women's role in society, traditional values, and new lifestyles. Finally, Security and Foreign Policy issues (hereafter referred to as Foreign Policy issues) comprise, among others, international cooperation, federal spending on defense, the space program and international aid.

The analysis unfolds as follows. First, we present in great detail RCA results for the year 2004. We provide a substantive interpretation of three different emergent political belief systems by examining, among other things, the belief network within each system (which also serves as 'tangible' proof for the effectiveness of our analytical strategy). Second, we present results from all years, demonstrating that the same underlying three belief systems have been consistently structuring understandings of the political debate during the twenty year period between 1984 and 2004. Finally, we explore the sociodemographic makeup of each group to examine both what attributes make individuals more likely to subscribe to a particular belief system, and how sociodemographic attributes relate to political behavior in each of the groups.

3.1 Analysis I: Ideologues, Alternatives, and Agnostics

We begin by closely examining responses from 2004. Our application of RCA to the data resulted in a partition of respondents into three groups of comparable sizes (that include 33%, 40%, and 27% of the population respectively). For each group, we represent the belief network by looking at the correlations between political preferences. The strength and directionality of the correlation coefficients are visualized in Figure 2. In the right column we show this information in matrix form (political issues are grouped by issue domain), while in the left column we rely on a network visualization to better reveal the overall structures of the three political belief systems: each node corresponds to a political attitude (nodes are color-coded by issue domain), and we draw edges connecting political attitudes for correlation coefficients that are statistically significant (at $\alpha = 0.05$). Solid

[4] We considered all the attitude questions that were asked at least three times and received a sufficient number of responses (cfr. Baldassarri and Gelman 2008 for a discussion of temporal comparability problems).

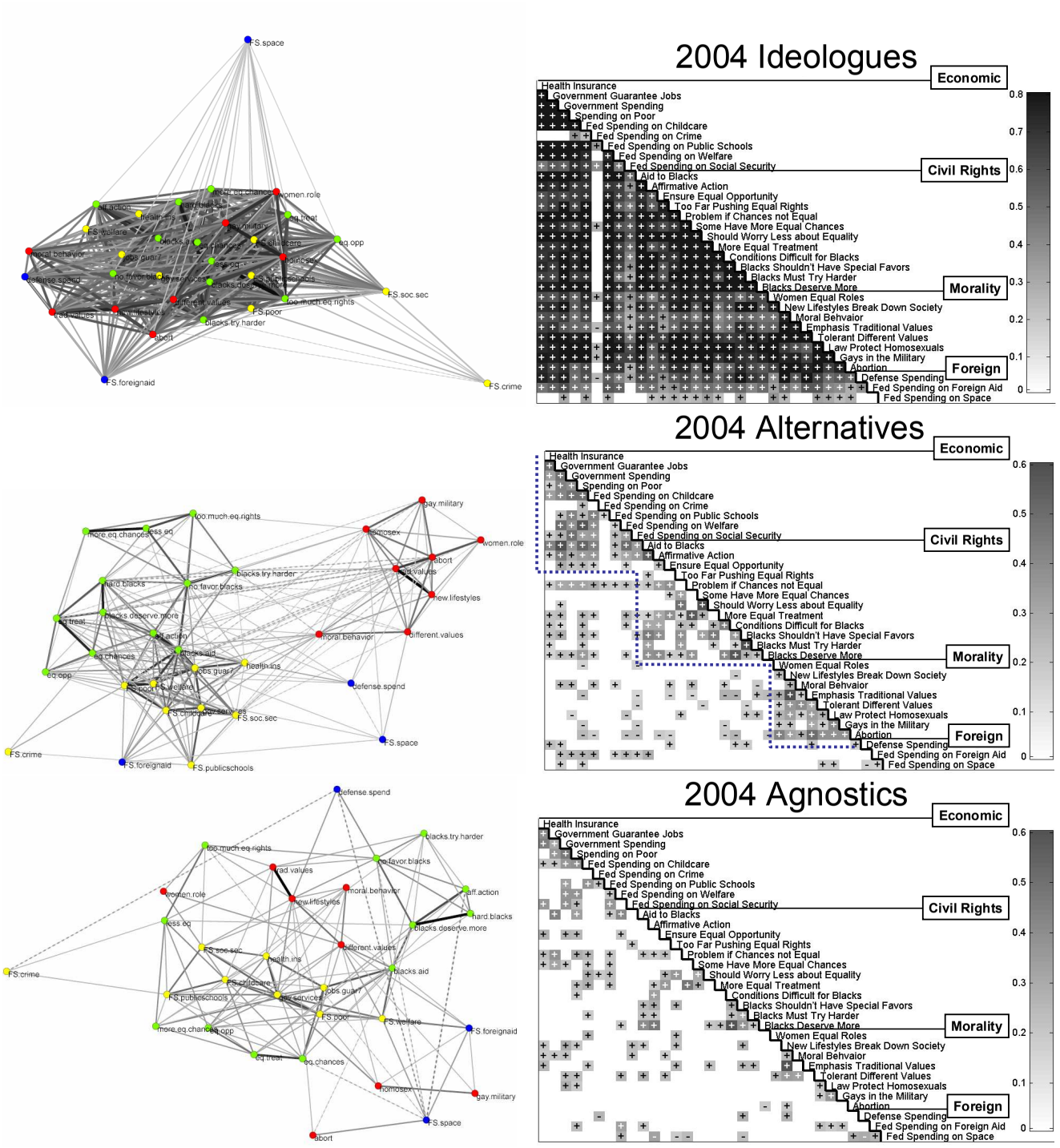

Figure 2: Belief Networks and Correlation Matrices.

lines represent positive correlations, and dashed lines negative correlations. Line shades and widths are proportional to the strength of the correlation.[5]

Members of the first group exhibit a densely interconnected belief network. Following Converse, we call them *Ideologues*. Ideologues organize their political attitudes according to the liberal-conservative ideological continuum and show very high levels of constraint between issues across all four issue domains. Conversely, members of the second group – the *Alternatives* – do not fully adopt the liberal-conservative framework. They reject the association between economic and civil rights attitudes, on the one hand, and moral issues, on the other. As the negative correlations suggest, Alternatives tend to be morally conservative and socially liberal, or vice versa (i.e., a member of this group who is pro-choice, is likely to oppose economic redistribution and the promotion of civil rights). Finally, members of the third group exhibit weak associations between political beliefs: their network is relatively sparse. Unlike in the two other groups, correlations within issue domains in this group are sporadic and weak; no coherent pattern of belief organization is readily apparent. It seems that members of this group are, generally, not as politically opinionated as their peers are. For lack of a better term, we characterize them as *Agnostics* throughout the remainder of the analysis. Further analyses, which are not reported, provide suggestive evidence that this group is characterized by a subtle decoupling between attitudes specifically relating to African-Americans, and those relating to economic and civic inequality. Members of this group are systematically more conservative than their peers on issues pertaining explicitly to race. We suspect that these individuals thinking about politics is, perhaps unconsciously, shaped by racial intolerance, but do not pursue this line of investigation further. The remainder of this analysis mostly focuses on the two other, more clearly ideologically structured groups.

3.2 Analysis II: Temporal Stability, Validity, and Change

A political belief system is a fundamental and stable component of the political landscape, which, bar unusual exceptions, remains resilient to campaigns or other political events. While at any moment in time the political discourse tends to concentrate on a few salient issues and neglects others, the overall organization of beliefs is the "shared grammar" that guarantees continuity over time. Thus, if our findings describe Americans belief systems,

[5]All the diagrams are standardized such that the widths and shades of all the edges/cells on the graphs/matrices correspond to the exact same levels. Networks are spatially drawn using the Furchtman-Reingold algorithm such that distances between nodes correspond to the edge weights connecting them. Otherwise, the spatial position of each node is insignificant.

as we argue, they should be temporally consistent. We applied RCA over a period of twenty years and found staggering similarities in the results. For all years but one, the RCA algorithm detected three groups, which clearly exhibited Ideologue, Alternative and Agnostic patterns. Only 1996 RCA produced a partition into four groups. Yet collapsing this additional group into one of the three other groups insignificantly decreased within-group relationality. This allowed us to maintain a tripartite division throughout the twenty year period. For a more detailed description of how the RCA procedure was implemented, consult the supporting materials.

The belief structure of each of the three groups remained surprisingly stable over time. Since different questions were asked in different survey years, we cannot compare correlations between specific pairs of questions over time. Nevertheless, we are able to examine the overall correlation structure between the four issue domains. These are reported in Figure 3. Each of the matrices in this figure summarizes the correlations between issues domains in one survey year, for each of the three groups. Each matrix cell represents the average weighted correlation between all pairs of variables in the two issue domains the cell corresponds to (see supporting materials A.3 for more details). For instance, the top cell in each matrix reports the intensity and sign of the average weighted correlation between economic and civil rights issues: in the Ideologue group in 2004, the average correlation between pairs of economic and civil rights variables was 0.43. Over the entire period, the Ideologue groups are characterized by extremely high correlation coefficients for all issue domain pairs. In the Alternative groups there is no relationship between economic and civil rights issues, on the one hand, and moral issues, on the other, for most years, with the exception of the period 1992-1996. This relationship is significantly negative in 1988, and more strongly in 2004. Finally, the Agnostic group is a pale version of the Ideologue group, showing comparatively weak positive or insignificant correlations between issue domains.

A deeper examination of the level of political sophistication that characterizes group members provides additional support for the validity of our partition. Converse's study, as well as work in his tradition, have repeatedly demonstrated that the consistency and constraint in ones political beliefs are related to ones level of political sophistication: individuals with high levels of education, interest in politics, and political knowledge show, on average, greater levels of political coherence. Scholars who follow the cognitive heuristics approach use this supposition as a starting point for an analysis that classifies individuals by their levels of education or political knowledge. In line with both scholarship traditions, we find that our partition effectively captures inter-group differences in levels of political

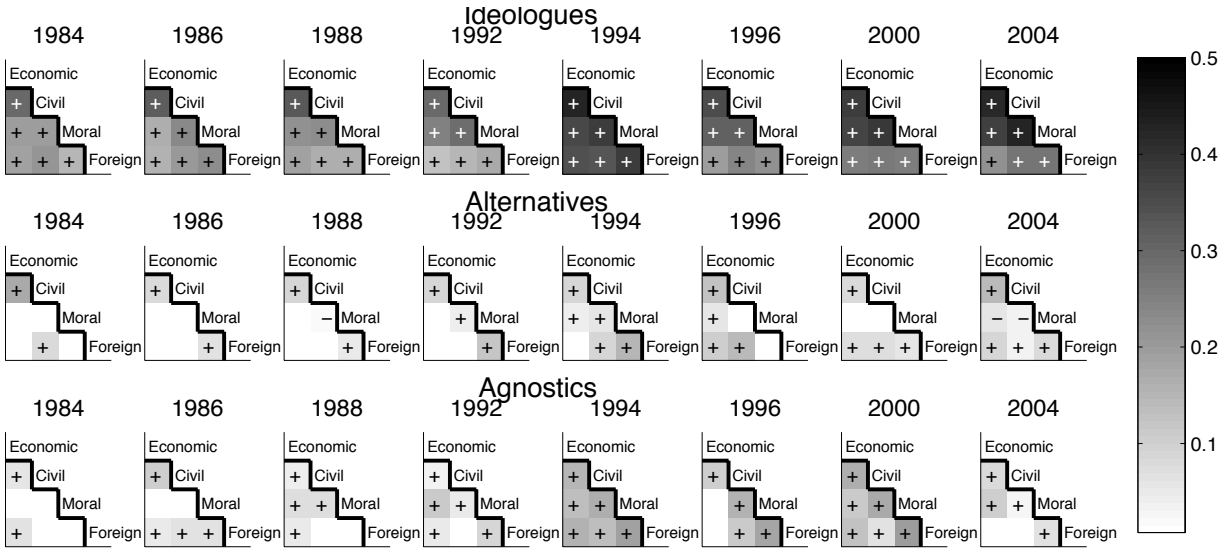

Figure 3: Time Consistency: Correlation Matrices by Group over Time. Each cell represents the average correlation between all pairs of variables in the two issue domains the cell corresponds to. Each matrix corresponds to a particular survey year in one of the three RCA groups. Cell shades correspond to correlation strengths, and the plus/minus signs to the correlation direction. A t-test was performed for each correlation average in order to determine the extent to which it is significantly different from zero. Insignificant correlations at the $\alpha = 0.05$ level are represented by an empty white cell.

sophistication.

The plots in Figure 4 report group means for four variables that are commonly used as measures of political sophistication: education, political interest, political activism, and political discussion. Circles indicate that the group mean is significantly different from the mean of those not in the group. With respect to all four measures, Ideologues and Agnostics are placed on opposite ends of the sophistication spectrum: Ideologues have consistently higher levels of education, political interest, activism and discussion than Agnostics, while Alternatives occupy a position in between these two extremes. This result is consistent over time. Unlike previous studies, that presuppose that political sophistication relates to belief constraint, our partitioning strategy makes no such a priori assumption, thus providing a test for the usefulness of this concept. While other scholars assume differences based on political sophistication, we provide tangible proof for this assumption.

Finally, we relate our results to changes in American public opinion since the 1970s. Recent scholarship on political partisanship and public opinion polarization has shown that, along with the increase in political partisanship (Abramowitz and Saunders 1998; Bartels

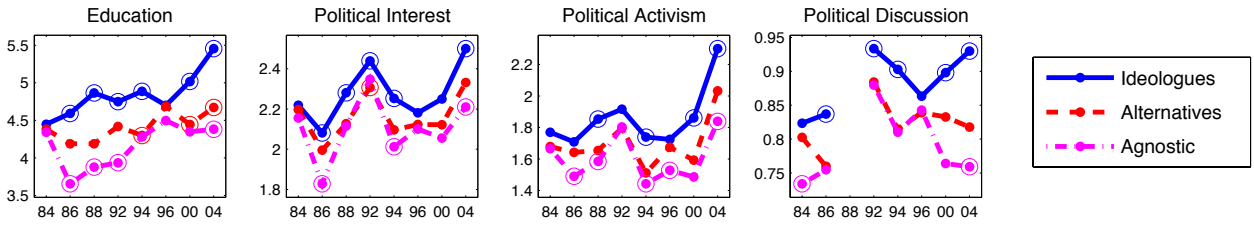

Figure 4: Group Membership by Various Measures of Political Sophistication. Plots report group average levels of education, political interest, political activism, and political discussion. A circle suggests the mean is significantly different from the means in the other two groups.

2000; Hetherington 2001; Bafumi and Shapiro 2009), there has been a process of realignment on moral issues which has occurred disproportionately among individuals with high levels of income, and those who are more educated, politically active, and interested in politics (Baldassarri and Gelman 2008). The RCA partition captures this process, and contributes to its understanding. We find that the alignment along moral issues has occurred exclusively within the Ideologue group, and that, in the last ten years in particular, Alternatives have experienced a process of decoupling between moral issues on the one hand, and economic and civil rights issues on the other. This further explains why, while political discourse has become increasingly polarized, studies find little evidence for it.

Figure 5 displays the same results reported in Figure 3, with an emphasis on change over time. Each plot reports the average correlation between all pairs of issues in two given domains over the twenty year period. In the Ideologue group, the average correlation between civil rights and moral issues more than doubled over time from less than 0.2 in 1984 to more than 0.4 in 2004. A similar trend is visible for the relationship between economic and moral issues. In the Alternative group, however, the average correlation between these issues remained insignificantly different from zero during this time period. Moreover, by 2004 both pairs of issue domains became significantly negatively correlated in this group, suggesting that those expressing conservative opinions on economic or civil rights issues tended to express liberal opinions on moral issues, and vice versa. In sum, the increasing salience of moral issues seems to reflect an intensifying ideological bifurcation whereby Ideologues increasingly integrate moral issues into their liberal-conservative framework, whereas Alternatives reinforce their refusal to incorporate morality into their ideological thinking.

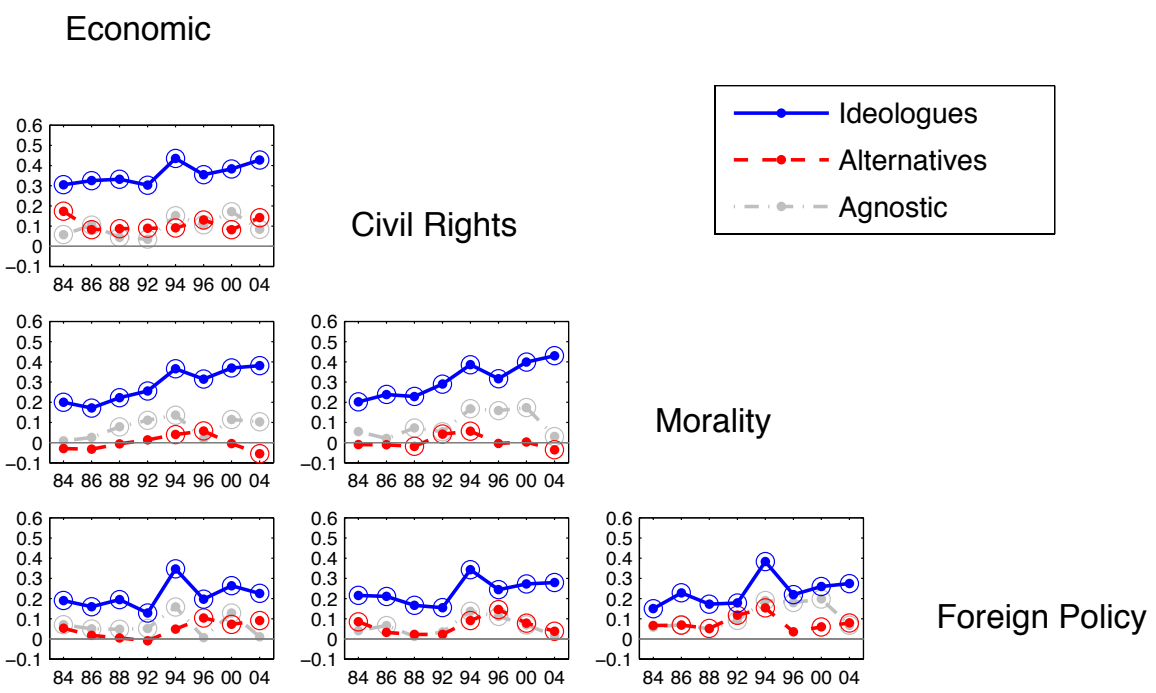

Figure 5: Trends in Pair Correlations between Issue Domains by Group. Each figure plots the average correlation between all pairs of issues in two given issue domains over the twenty year period. The uppermost figure, for example, plots the average correlations between economic and civil rights issues. A circle indicates that the average correlation is statistically different from zero at the α=0.05 level.

3.3 Analysis III: The Socio-demographics of Belief Spaces

Can sociodemographics account for heterogeneity in the ways people organize their thinking about politics? Scholars have long been examining how different social attributes such as class, gender and racial identities are related to voting behavior. Yet they have mostly limited their analyses to considering, independently, relationships between particular political preferences and sociodemographic characteristics. Though informative, this strategy might be misleading if this relationship is contingent on how individuals organize their political beliefs: if different people understand politics in different ways, the relationship between their socio-demographic profiles and political beliefs might not be consistent across cognitive frameworks. Consider again the two hypothetical groups depicted in Figure 1. We should expect that something about who these people are makes them systematically think about politics in coherently different ways. Suppose respondent A was a working-class, white Kansan male of the kind Frank (2004) writes about. His modest means might make

him likely to support health care reform, while his small-town roots steer him toward racial and moral conservatism. His mirror image, respondent B, might be a high-earning urban cosmopolitan who holds progressive opinions about racial and gender equality, but who nevertheless vehemently opposes health reform and its potential detrimental effects on his income. Income might therefore be positively associated with moral liberalism in this group. In the other group, however, where support for health reform is also associated with moral and racial liberalism, it is possible that income would be negatively related with moral liberalism. In other words, different social positions might push people to adopt different belief systems. Within each ideational group, social attributes might have different relationships with particular opinions. Indeed, this is what we demonstrate in this part of our analysis where we examine the sociodemographic organization of the belief space.

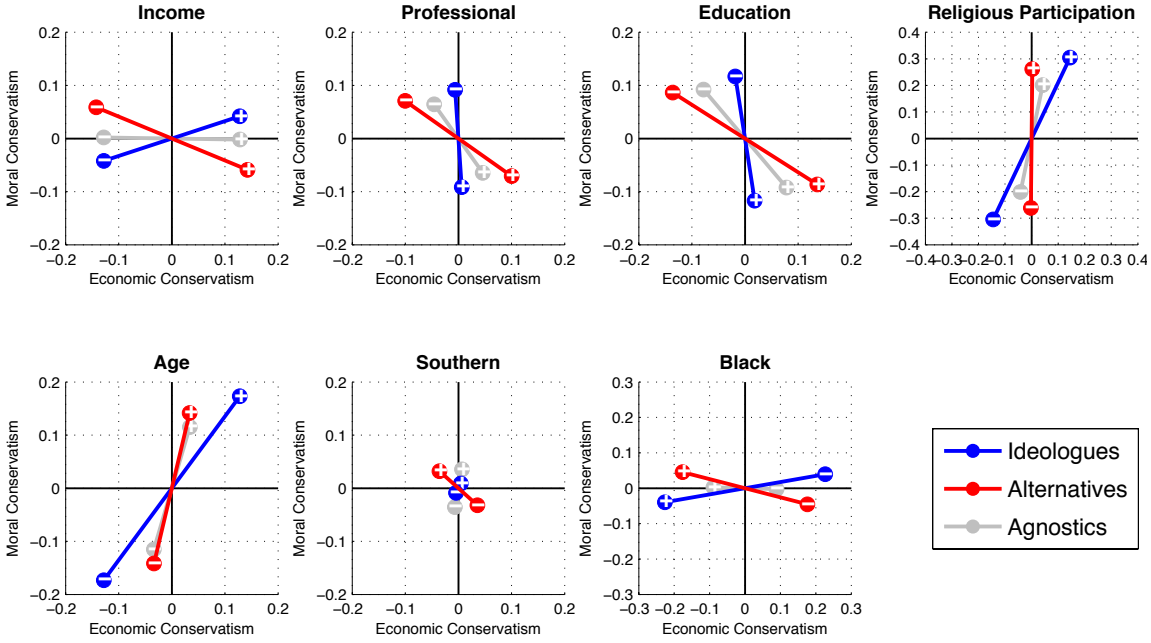

Figure 6: Belief Spaces. Each of the seven diagrams in this figure represents the location of one sociodemographic attribute in a two-dimensional belief space (the economic dimension on the X axis, the moral dimension on the Y axis). For each RCA group we draw a line in this two-dimensional space. The coordinates that define the two extremes of the line correspond to the mean correlation between the sociodemographic attribute in question and the variables that make up either the economic or moral opinion categories, averaged over the twenty year period. The plus and minus signs represent high and low sociodemographic values respectively. The lines connecting these coordinates outline the direction and magnitude of the relationship between the sociodemographic variable and opinions on economic and moral issues.

Figure 6 visualizes the belief space along the economic and moral dimensions.[6] Each panel examines how one sociodemographic attribute relates to positions in this space. Each of the three RCA groups is represented by a line in this two-dimensional space. The coordinates that mark the two extremes of the line correspond to the mean correlation between the sociodemographic attribute in question and the variables that make up either the economic or moral opinion categories, averaged over the twenty year period. The plus and minus signs represent high and low sociodemographic values respectively. The lines connecting these coordinates outline the direction and magnitude of the relationship between the sociodemographic variable and opinions on economic and moral issues. For example, the upper left diagram plots the belief space for high and low income in each of the RCA groups. In the Ideologue group, high income is, on average, positively correlated both with economic and moral conservatism, as indicated by the blue line. In the Alternative group, high income is similarly correlated with economic conservatism but is negatively correlated with moral conservatism. In the Agnostic group, high income is correlated only with economic conservatism, while there is no relationship with opinions on morality. High-earners tend to be economically conservative in all groups, but they have opposing views when it comes to moral issues: while high-income Ideologues are also morally conservative, their Alternative peers tend to be morally liberal.

The diagrams also illustrate that the professional and educated tend to be morally liberal in both the Ideologue and Alternative groups. However only amongst the Alternatives these two attributes are also strongly associated with economic conservatism. Similarly, religious participation and age are strongly associated with moral conservatism in both groups, but with economic conservatism only in the Ideologue group. In fact, as one would expect, religiosity has a substantially strong correlation with moral conservatism in all three groups. Surprisingly, however, living in the south accounts for almost no variability in opinions on both dimensions in either group; Alternative southerners are only slightly inclined to be morally conservative and economically liberal. Finally, African-Americans tend to be economically liberal in both the Ideologue and Alternative groups. While they tend to be slightly morally liberal in the Ideologue group, they lean toward moral conservatism in the Alternative group.

On the whole, the sociodemographic decomposition of the belief space suggests that the relationship between social positions and political beliefs is contingent on the overall

[6]Similar results are obtained considering civil rights instead of the economic dimension. The two dimensions can be in fact considered interchangeable for this part of the analysis.

organization of beliefs. In particular, class, as measured by income, and religious participation, play different roles in the Ideologue and Alternative groups: whereas in the former both are associated with moral and economic conservatism, in the latter their associations are oppositional. High-income individuals who subscribe to the Alternative belief system are, like their Ideological peers economically conservative, but unlike them morally liberal; similarly, religious Alternatives are, like their Ideologue peers, morally conservative, but economically moderate (on average).

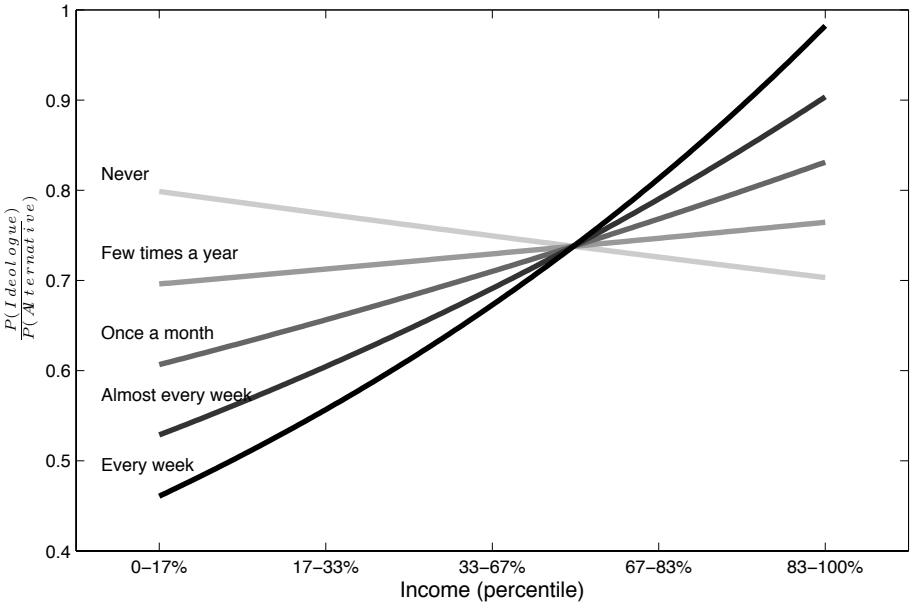

Figure 7: Multinomial Logistic Regression for RCA Group Membership: Plot of the interaction between Income and Religious Attendance. This diagram plots the odds ratio of being assigned to the Ideologue group, compared to being assigned to the Alternative group, as a function of an interaction between income and religious participation, as modeled by a multinomial logistic regression. The data are pooled across the twenty year period. The model is described by the following formula: $log(\frac{P(RCA)=I}{P(RCA)=A}) = \alpha_0 + \alpha_1 * income + \alpha_2 * religious + \alpha_3 * (income * religious) + \beta^T X + \epsilon$

where X represents control variables (sociodemographic and year dummies, see Supporting Materials), and α and β are regression coefficients. Each of the five lines plotted in the diagram corresponds to one of the five religious participation categories. The income variable is categorized by percentile, to make it comparable across years.

These results suggest that the interplay between income and religiosity has a bearing on how people understand politics. To investigate this possibility, we modeled the odds ratio of being assigned to the Ideologue group, compared to being assigned to the Alternative group,

as a function of an interaction between income and religious participation. Figure 7 plots the odds from a multinomial logistic regression (cfr. the caption for further details) demonstrating that high income individuals who often attend religious services are more than twice as likely to be Ideologues as their low income counterparts. High income individuals who never attend religious services, on the other hand, are 10% less likely to be Ideologues than their low income counterparts. The slope of the line changes from positive to negative as a function of religious attendance. In other words, high-income and religious or working-class and non-religious individuals are more likely to align with the liberal-conservative ideology. In contrast, non-religious high earners and religious low earners orient toward the Alternative group. Our interpretation of these results is that the latter two groups occupy social positions that push them to take ideological stances that are seemingly at odds with one another. To reconcile this tension they deviate from the orthodox view (the liberal-conservative framework) to adopt an alternative way of understanding politics.

In sum, the organization of the political belief system is related in a non trivial way to individuals' sociodemographic profiles. This raises the question of how citizens define their partisan allegiances in the presence of competing interests and political views. The political debate, at least insofar as it is represented in the media, is primarily organized around a liberal-conservative framework. How do Alternatives strike a balance between their political preferences? Do their economic worldviews indeed trump their opinions about morality when ultimately deciding on whom to vote for? We modeled party self-identification and found that when alternatives' conservatism on the moral, and even more significantly on the economic dimension is strong, they tend to disregard their other preferences and identify with the Republican Party. In Figure 8.a we plot Ideologues' (blue line) and Alternatives' (red line) party self-identification, modeled using OLS regression, as a function of the difference between their degree of conservatism on economic and moral issues, controlling for additional relevant sociodemographic characteristics (see caption and Supporting Materials A.5 for further details). The independent variable, the economic-moral delta, corresponds to the difference between respondents mean level of economic conservatism and their mean level of moral conservatism. Alternative respondents who are either strongly economically conservative but morally moderate or liberal, as well as those who are strongly morally conservative but economically moderate or liberal, are significantly more likely to identify as Republicans compared to those whose moral and economic opinions are congruent. When faced with seemingly competing opinions, Alternatives are more likely to be influenced by their conservative opinion, and identify with the Republican Party. This is not the case in

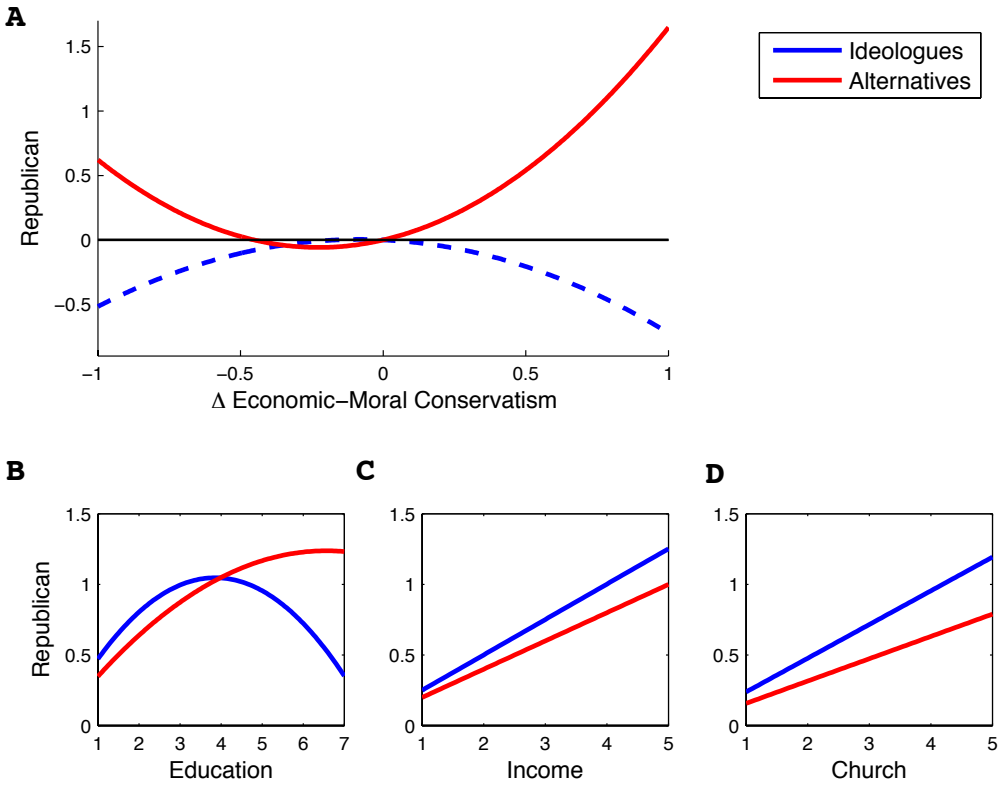

Figure 8: Party Identification by RCA group. These diagrams plot OLS predictions of party self-identification on a 7-point scale, ranging from strong Democrat to strong Republican, as a function of (A) the difference between one's degree of conservatism on economic and moral issues, (B) education, (C) income, and (D) religious participation. The economic-moral delta $\Delta EM_i = \overline{E}_i - \overline{M}_i$ which is plotted on the X-axis of panel A, corresponds to the difference between respondent i's mean level of economic conservatism, $\overline{E}_i$, and mean level of moral conservatism, $\overline{M}_i$, both scaled over a zero to one range. A ΔEM value close to 1 corresponds to high economic conservatism and high moral liberalism, whereas a value close to -1 corresponds to the opposite. The data are pooled across the twenty year period, and fitted using the following model:

$$y = \alpha_0 + \alpha_1 * \Delta EM + \alpha_2 * \Delta EM^2 + \beta_1^T * R * X + \beta_2^T Z + \epsilon$$

where X represents sociodempgraphic variables and Z year dummies (see SI), and α and β are regression coefficients. R represent interaction terms that disaggregate varaibles by the three RCA groups. The lines plotted in the diagram correspond to the modeled probability of self-identifying as a Democrat for the respondent with average control values in each of the two groups. While in the Ideologue group the economic-moral delta has an insignificant ($p(\alpha_1)$=0.754, $p(\alpha_2)$=0.395) effect on party self-identification, in the Alternative group identification as Republican significantly ($p(\alpha_1)$=0.016, $p(\alpha_2)$=0.038) increases as the respondent expresses opposing opinions on economic and moral issues. In other words, controlling for their sociodemographic attributes, Alternative respondents who are either strongly economically conservative but morally moderate or liberal, as well as those who are strongly morally conservative but economically moderate or liberal, are significantly more likely to identify as Republicans compared to those whose moral and economic opinions are aligned.

the Ideologue group, however, where the economic-moral delta is insignificantly consequential for party self-identification, and where, conversely, opinion incongruence is related with less support for the Republican Party. In other words, the different relationships between holding particular political attitudes and party identification in each group suggest that the effect of political preferences on voting behavior is mediated by the overall organization of beliefs.

The same can be said for the relationship between sociodemographic characteristics and partisanship. In fact, while for Ideologues self-identification has a curvilinear relationship with education, with high education leading to identification with the Democratic Party, in the Alternative group identification with the Democratic Party strongly decreases as a function of education (Figure 8.b). Education predicts different voting behaviors depending on context: educated Ideologues tend to vote Democrat, but in the Alternative group, the educated lean toward economical conservatism, and are ultimately drawn to the Republican Party. Unlike education, the likelihood of self-identifying as Republican increases with income and religious participation in both groups (Figure 8c-d).

Taken together, the results reported in Figures 7 and 8 suggest a complex interplay between sociodemographic attributes – particularly income, religious participation and education – and partisanship, which is mediated through diverse understandings of the political debate. On the one hand, an interaction between income and religiosity accounts for the different belief systems individuals subscribe to. On the other, education predicts different partisan orientations in each group. To support our argument concerning the complex relationship between sociodemographic profile and political partisanship, we show that these findings are not a mere by-product of our classification of respondents into groups. We obtain the same results conducting an ordinary least squares regression on the entire sample, where the dependent variable is a 7-point party identification scale, and the independent variables include a three way interaction between religious participation, income and education, as well as an economic-moral delta (and additional control variables, see Supporting Materials A.5 for details). Because, as Figure 7 summarizes, the likelihood of being assigned to the Ideologue group is U-shaped – it increases either with low income and low religiosity or with high income and high religiosity – we use a quadratic term for the interaction between these two variables. The predicted effect on party identification as a function of education is plotted in Figure 9. Each line in this figure corresponds to a fixed value of the interaction between religious participation and income, ranging from minimum (light gray) to maximum (black). The slope of this function changes direction

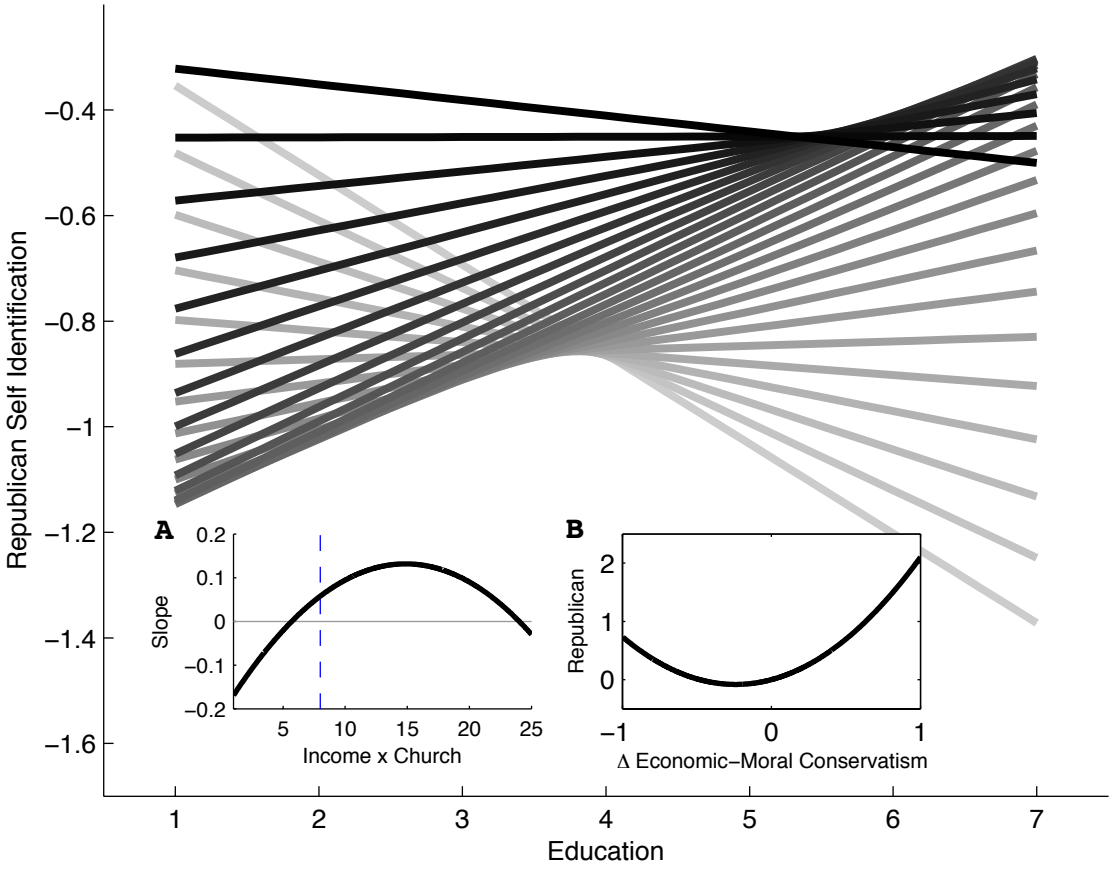

Figure 9: Party Identification. OLS prediction of party identification as a function of a three-way interaction between income, religious participation and education. Data are pooled across the twenty year period. Each line corresponds to the expected party identification as a function of education, constrained to a fixed level of an interaction term between religious attendance and income. These levels range from low, whereby income and religious attendance are minimal (light gray), to high, whereby both religious attendance and income are maximal (black). For example, when both religious attendance and income are minimal, identification as Republican decreases by roughly one point as education increases from minimum to maximum. Inset A plots the slope of the line as a function of change in the interaction term. The dashed blue line corresponds to the median respondent. Inset B plots the predicted degree of party identification as a function of the economic-moral delta, ΔEM.

and magnitude as the interaction term changes; it is plotted in inset A. For those on either extreme of this range – namely the high earning religious and low earning non-religious – education increases identification with the Democratic Party. For those in between, that is, the low earning religious or the high earning non-religious who tend to adopt an alter-

native belief system, education increases support for the Republican Party. Inset B plots self-identification with the Republican Party as a function of the economic-moral delta.

These results complicate contemporary debates on the effects of class, education and religiosity on party identification, and how they are mediated through political perceptions. They suggest that voting behavior cannot be explained in terms of whether or not the working class has 'abandoned' the Democratic Party or whether or not 'values trump economics'. The story that emerges from this analysis cannot be reduced to such one-dimensional sweeping statements. Working class religious Americans are indeed more likely to support the Republican Party, but so are high earning, educated and non-religious Americans. Moreover, economic conservatism trumps moral liberalism, but moral conservatism similarly trumps economic liberalism, both in favor of the Republican Party. Those who are aligned with the dominant left-right ideological polarity, on the other hand, are more likely to be Democrats. Examining each of these components in isolation, while assuming homogeneity in their aggregate effects, draws an incomplete, and potentially misleading picture about how Americans decide on their political allegiances.

4 Conclusion

"Belief systems have never surrendered easily to empirical study and quantification" (Converse 1964, 206). The opening line of Philip Converse's influential study succinctly captures the gap between theories of public opinion and how they are borne out in empirical studies. Indeed, the study of belief systems, as well as more recent research on political sophistication and heterogeneity, developed amid discussions concerning analysis and measurement. Our research contributes to the study of public opinion by overcoming a few important analytical limitations that previous research suffers from, thus better fulfilling its theoretical objectives.

Though a belief system is characterized by a "functional interdependence" between attitudes and ideas (Converse 1964, 207), empirical analyses of public opinion are usually based on models that assume independence between individual attitudes or summary indices, whereas the analysis of issue constraint is mostly limited to dyadic interdependence, measured with Pearson's correlation coefficient. Using novel network analysis techniques, we capture the interconnected nature of political beliefs and fully map their interdependencies. Our analytical strategy induces emergent collective belief networks without making any presuppositions about how beliefs relate to one another. It also allows for the detection of multiple and competing belief systems, thus providing a test for the hypothesis of

political heterogeneity. While previous studies of political cognition assume the existence of a singular political belief system or, alternatively, a multiplicity of ways in which people understand politics, we use RCA to induce coexisting political belief systems and assign respondents to different groups without relying on assumptions concerning how issues or individuals are combined.

The substantive payoff has been the identification of three distinctive ways in which American citizens interpret the political debate: Ideologues, who organize their political attitudes according to the prevalent liberal-conservative polarity; Alternatives, who reject the traditional prescriptive association between moral and economic attitudes; and Agnostics, who exhibit weak associations between political beliefs. These findings, which are consistent throughout the twenty year period, cast a new light on previous scholarship: Ideologues and Agnostics capture Converse's argument that individuals differ with respect to the level of sophistication in their organization of political beliefs. Nonetheless, the identification of the Alternative group challenges the assumption that there is only one correct way of thinking about politics by demonstrating that there exist competing, and equally coherent ways of organizing political beliefs. These findings strongly support the political heterogeneity approach while bringing its social underpinnings to the fore. We demonstrate that the heterogeneity of understandings does not merely derive from differences in individuals' levels of political interest, information, or cognitive capabilities. Rather, people of different sociodemographic profiles understand the political debate in systematically different ways. Indeed, Alternatives' deviation from the orthodox political view 'makes sense' in that it effectively accommodates their otherwise irreconcilable interests and social identities. Given the predominance of moral and economic issues in the political discourse and their relationships with religious and class identities, it is difficult for those whose class and religiosity steer them in different ideological directions to find a comfortable position along the liberal-conservative continuum. In fact, their solution has been to reject the association between economic and moral conservatism, and adopt a political worldview that makes room for their seemingly opposing political interests.

We argue that the belief network that distinguishes Alternatives derives from the tension these individuals face in combining their economic and religious social identities. Of course, there are plenty of other, potentially conflicting identities. It is therefore worth asking why only one has crystallized in a shared system of beliefs, while others have not. We speculate this has to do with the growing importance of moral issues and the structure of the political offer. The last three decades have seen a change in the US political discourse in which

issues of morality, such as those manifest in controversies over abortion and sexual orientation, have come to the fore, at times overshadowing traditional economic disagreements (Hunter 1991). The process of partisan alignment along moral, civil rights, and economic issues has made it particularly difficult for certain socio-demographic profiles to define their political allegiance: Will a wealthy, non-religious individual identify with the Republican party's economic views, or with the Democratic party's moral views? Traditional analyses of public opinion offer little insights into this and related questions. In contrast, we show that when faced with seemingly competing opinions, Americans are more likely to privilege their conservative views, and identify with the Republican Party. We believe, the political offer plays an important part in building the cognitive framework within which people operate. In the last four decades both neo-liberal and ultra-conservative advocates have found voice in the Republican Party. To the eyes of political commentators neo-liberal support for economic deregulation and ultra-conservative support for moral restrictions might appear at odds; nonetheless, these views have found a way to co-exist in the Republican Party, thus making the party more appealing to "ideologically heterodox" voters, and contributing to the crystallization of an alternative belief system.

The existence of alternative belief systems also complicates the relationship between sociodemographic characteristics and voting behavior. Traditional models of political behavior assume (often implicitly) the following causal pattern:

Sociodemographic characteristics → *Political preferences* → *Voting behavior*

Such models conceive of sociodemographic attributes and their relationships with political preferences, and consequently partisanship, in "statistical isolation". Religious commitments, for example, are assumed to increase conservative preferences on issues pertaining to morality, and therefore the likelihood of voting Republican, net of other effects. Our core findings suggest that belief systems mediate the effects of sociodemographic attributes on partisanship. If different belief systems embody different understandings of the relationships between political issues, people who subscribe to different belief systems might have different motivations for their voting decisions. Consequently, the same sociodemographic attributes might predict different voting patterns in different ideational groups. Failing to recognize the heterogeneity of political beliefs systems might lead to biased evaluations of the impact of sociodemographic factors and political preferences on political behavior. Take for instance the debate triggered by the growing relevance of cultural values in U.S. political

discourse in recent decades: scholars and pundits frame it in terms of whether moral issues such as abortion or gay rights trump more traditional economic factors in shaping voters partisan orientations and they often rely on class and religiosity as a means to tease out the different influences that economic and moral issues exert on political behavior (Brooks and Manza 1997; Manza and Brooks 1999; Leege, Wald, Krueger, and Mueller 2002; Frank 2004; Bartels 2006; 2008; Gelman, Shor, Bafumi, Park, and Cortina 2008).[7] Yet if the relationship between voting and sociodemographic attributes is mediated by ones belief system, then income, or religiosity might have different effects on partisanship for different people. Examining these relationships in the aggregate potentially obscures such differences.

Indeed, our research has shown that the interaction between religious convictions and income gives rise to alternative ways of organizing political preferences, that education has opposite effects depending on whether individuals belong to the Ideologue or Alternative group, and that the co-presence of seemingly opposing conservative and liberal preferences is often resolved in favor of the Republican party. To our knowledge, these are all novel findings. Nonetheless, one might wonder whether one needs RCA to come to these conclusions. Technically, as the OLS model summarized in Figure 9 demonstrates, the answer is no. Why, then, has no one reached these conclusions? Clearly, without the insights offered by RCA concerning the composition of preferences, the relationship between individual cognition and sociodemographic profiles, and voters' biases in favor of conservative views, we would not have come up with such a complex model specification. Moreover, even though the regression model is successful in capturing the relationship between sociodemographic traits and partisanship, and between issue preferences and partisanship, it does not provide a hint about how beliefs are organized, thus for understanding the cognitive heuristics that people use to make sense of politics in their own lives.

[7] For example, in his excellent study, Bartels (2006) thoroughly demonstrates that, contra received wisdom promoted by pundits and media commentators, white working-class Americans have not overwhelmingly forsaken economic concerns in favor of moral ones. He shows that economic issues have had a roughly similar impact on the voting behaviors of low and high income individuals, while cultural issues have become increasingly more relevant for among the wealthiest part of the population.

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A Supporting Materials

A.1 Data

The data used in the analysis are drawn from the American National Election Studies (ANES) cumulative dataset that includes variables from each of the biennial cross-sectional studies conducted between 1948 and 2008. We used a subset of this dataset that includes variables from each of the studies conducted between 1984 and 2004. Public opinion variables that were asked in less than three different studies since 1948 were removed from the dataset. Our dataset focuses exclusively on variables that fall under one of our four issue categories: economic, civil rights, morality and foreign policy. Studies conducted before 1984 included too few variables pertaining to moral issues, and were therefore not included. Wording and variable scaling were changed significantly in 2008. As a result, this year was not included in our analysis.

To facilitate a relational class analysis (RCA), it is necessary that all respondents provide answers for all questions. We therefore list-wise deleted respondents who had missing answers per given year. For years 1990, 1998 and 2002, the list-wise deletion of respondents resulted in either the removal of the whole year subset, or retaining a very small number of variables for that year. Consequently, these study years were excluded from the analysis. Moreover, binary variables have no mid-range values and are therefore inappropriate for the purpose of RCA; they were consequently also removed from the dataset. Two additional variables that had high levels of missing data (VCF9043 and VCF0818) were also removed from the dataset.

This procedure resulted in retaining 43 variables that are listed in Table S1, and that were used for the relational analysis. Table S2 indicates which variables were available in each year, as well as the number of respondents used for the analysis in each year. The amount of variables used in each year ranges from 24 to 40. The median study year included 32 variables. The average variable was available in six of the eight years analyzed. Sociodemographic and political sophistication variables were used for multivariate analyses reported in sections 3.2 and 3.3. These included variables that are reported in Table S3.

A.2 Relational Class Analysis

The RCA analysis was conducted for each year independently, each with different variables as summarized in Table S2. For a detailed description of RCA, its theoretical and methodological assumptions and motivation, and its application, see Goldberg (2010). We provide

a short summary of RCA as means to succinctly explain how we applied it to the ANES data. The RCA procedure is based on the following three-stage sequence:

1. Relationality is calculated for all pairs of respondents, using the formula described in section 2. This results in a proximity matrix whereby cell values range from -1 to +1.

2. The statistical significance of each cell value is determined using a bootstrapping procedure that relies on 10,000 re-samples. Cell values are normalized by the sample mean and standard deviation. Insignificant cell values (for $\alpha = 0.05$) are set to zero, resulting in a sparse network.

3. A spectral algorithm using eigenvalues is used to partition the network into discrete groups. The spectral algorithm maximizes modularity, which is the difference between observed and random within-group edge weights (assuming the distribution of node degrees remains fixed). See Newman and Girvan (2004) for a discussion on modularity, and Newman (2006) for a detailed description of the spectral algorithm.

Applying RCA to each years subset independently results in a partition of each subset into discrete groups of respondents. The partitioning algorithm used by RCA is based on an iterative procedure that continues until modularity cannot be maximized, whereby each group is recursively partitioned in two until such a partition no longer increases modularity (Newman 2006). However, not each maximization step produces a meaningful partition. When the increase in modularity is negligible, the additional partition creates two marginally different groups. Consequently, we ran the partitioning algorithm such that is stopped if the additional contribution to modularity was smaller than 1%. This resulted in a partition of seven of the eight yearly subsets into three groups. One subset, for year 1996, was partitioned into four groups. In order to maintain consistency across all years, we decided to enforce a three group partition in this subset, by reversing the final step of the algorithm. This step only contributed 6.53% to modularity, and therefore had an insignificant impact on the results.

We then examined the correlation structure between opinion variables in each group produced by RCA in order to decide which of the three groups in each year would be labeled Ideologue, Alternative and Agnostic. This turned to be a trivial task as each group was clearly characterized by an unambiguous pattern of relationships between variables that corresponds to one of these three types.

A.3 Correlation Analyses

Figures 3 and 5 report correlations between issue domains for each study year. Each cell reports the average weighted correlation between all pairs of issues in the two domains. Formally:

$$\overline{\rho}(A,B) = \frac{1}{|A||B|} \sum_{\forall a \in A, b \in B} \tilde{\rho}(a,b) \tag{5}$$

where A and B are sets of variables, each for a different issues domain, and $\tilde{\rho}$ is the weighted Pearson correlation coefficient for two variables. We use centrality as our weighting coefficient. Centrality corresponds to the eigenvectors produced by the network partitioning algorithm used by RCA. The centrality of each observation intuitively measures the extent to which this observation is central to group it was assigned to. We get very similar results if no weighting is used. We determine the significance of $\overline{\rho}$ using a simple t-test.

A.4 General Linear Models

Section 3.3 reports three different models which include a combination of public opinion and sociodemographic/sophistication variables. In this section we provide a detailed description of each of the models used. List-wise deletion was used to treat missing data in all models.

Figure 7 reports the results of a multinomial logit model, where the dependent variable is a nominal variable that corresponds to RCA group assignment. Data are pooled across all years. Figure 7 reports the odds ratio of being assigned to the Ideologue group, compared to being assigned to the Alternative group. The odds ratio is plotted as a function of an interaction between religious participation and income. Sociodemographic control variables include age, gender, race, southern and professional (see Table S3). Because we want to examine the extent to which sociodemographic variables predict group membership above and beyond political sophistication, we include political interest and political activism as control variables (political discussion was not asked in 1988 and was therefore omitted). Year dummy variables are included to account for year effects. Results are reported in Table S4.

Figure 8 reports results of an OLS model where the dependent variable is a 7-point party identification scale. Data are pooled over all years. To account for different effects in each RCA group, all the independent variables (excluding year dummies) were interacted with a group membership dummy for each of the three RCA groups. Independent variables include all sociodemographic variables. Also included is a ΔEM variable, which measures

the difference between the average position on economic and moral issues (see Figure 8 caption for a formal definition). Quadratic terms are used for ΔEM and education. Results are reported in Table S5.

Figure 9 reports results of an OLS model where the dependent variable is a 7-point party identification scale. Data are pooled over all years. Independent variables include a three-way interaction between income, religious participation and education. The interaction between income and religious participation is modeled with a quadratic term. Results are reported in Table S6.

	Label	Wording	Range	Scaling
Economics	health.ins	Support for government or private health insurance	7	1 - government, 7 - private
	jobs.guar7	Support for government guarantee jobs and income	7	1 - guarantee, 7 - not guar.
	gov.services	Should government reduce or increase spending	7	1 - increase, 7 - reduce
	FS.poor	Should federal spending on the poor	3	1 - increase, 3 - decrease
	FS.childcare	Should federal spending on childcare	3	1 - increase, 3 - decrease
	FS.crime	Should federal spending on crime	3	1 - increase, 3 - decrease
	FS.aids	Should federal spending on AIDS	3	1 - increase, 3 - decrease
	FS.publicschools	Should federal spending on public schools	3	1 - increase, 3 - decrease
	FS.aidcollege	Should federal spending on college aid	3	1 - increase, 3 - decrease
	FS.homeless	Should federal spending on homeless	3	1 - increase, 3 - decrease
	FS.welfare	Should federal spending on welfare	3	1 - increase, 3 - decrease
	FS.food.stamps	Should federal spending on food stamps	3	1 - increase, 3 - decrease
	FS.envir	Should federal spending on the environment	3	1 - increase, 3 - decrease
	FS.soc.sec	Should federal spending on social security	3	1 - increase, 3 - decrease
	FS.assist.blacks	Should federal spending on assistance to blacks	3	1 - increase, 3 - decrease
Civil Rights	urb.unrest	Best way of dealing with urban rioting	7	1 - solve poverty, 7 - force
	negro.chan	How much has the position of negors improved	3	1 - not much, 3 - a lot
	civil.rights.too.fas	Civil rights have pushed too fast	3	1 - too slow, 3 - too fast
	sch.busing	Support for school busing for integration	7	1 - support, 7 - oppose
	blacks.aid	Should the government help blacks	7	1 - help, 7 - not help
	aff.action	Opinion on affirmative action	4	1 - support, 4 - oppose
	eq.opp	Society should ensure equal opportunity	5	1 - agree, 5 - disagree
	too.much.eq.right	We have gone too far in pushing equal rights in country	5	1 - disagree, 5 - agree
	eq.chances	One of the big problems in this country is that we don't giveeveryone an equal chance.	5	1 - agree, 5 - disagree
	more.eq. chances	It is not really that big a problem if some people have more of a chance in life than others.	5	1 - disagree, 5 - agree
	less.eq	This country would be better off if we worried less about how equal people are	5	1 - disagree, 5 - agree
	eq.treat	If people were treated more equally in this country we would havemany fewer problems	5	1 - agree, 5 - disagree
	hard.blacks	Generations of slavery and discrimination have created conditionsthat make it difficult for blacks to work their way out of the lowerclass	5	1 - agree, 5 - disagree
	no.favor.blacks	Irish, Italians, Jewish and many other minorities overcame prejudice and worked their way up. Blacks should to the same without any special favors	5	1 - disagree, 5 - agree
	blacks.try.harder	It's really a matter of some people not trying hard enough; if blackswould only try harder they could be just as well off as whites	5	1 - disagree, 5 - agree
	blacks.deserve. more	Over the past few years blacks have gotten less than they deserve.	5	1 - agree, 5 - disagree
Morality	women.role	Should women have an equal role with men in running business, industry and government	7	1 - equal, 7 - women in the home
	new.lifestyles	The newer lifestyles are contributing to the breakdown of our society	5	1 - disagree, 5 - agree
	moral.behavior	The world is always changing and we should adjust our view of moral behavior to those changes	5	1 - agree, 5 - disagree
	trad.values	This country would have many fewer problems if there were more emphasis on traditional family ties	5	1 - disagree, 5 - agree
	different.values	We should be more tolerant of people who choose to live according to their own moral standards, even if they are very different from our own	5	1 - agree, 5 - disagree
	homosex	Do you favor or oppose laws to protect homosexuals against job discrimination	5	1 - favor, 5 - oppose
	gay.military	Should gays be allowed to serve in the military	5	1 - allowed, 5 - disallowed
	abort	When should abortion be permitted	4	1 - always, 4 - never
Foreign Policy	urss.coop	Should we try hard to get along with Russia	7	1 - try hard, 7 - get tougher
	defense.spend	Should we spend more or less on defense?	7	1 - less, 7 - more
	FS.foreignaid	Federal spending on foreign aid	3	?
	FS.space	Federal spending on space/science/technology	3	?

Table S1: List of Variables

	Label	Wording	Tot	1984	1986	1988	1992	1994	1996	2000	2004
Economics	health.ins	Health Insurance	**7**	1	0	1	1	1	1	1	1
	jobs.guar7	Government Guarantee Jobs	**8**	1	1	1	1	1	1	1	1
	gov.services	Government Spending	**8**	1	1	1	1	1	1	1	1
	FS.poor	Spending on Poor	**4**	0	0	0	1	0	1	1	1
	FS.childcare	Fed Spending on Childcare	**6**	0	0	1	1	1	1	1	1
	FS.crime	Fed Spending on Crime	**6**	1	0	0	1	1	1	1	1
	FS.aids	Fed Spending on AIDS	**5**	0	0	1	1	1	1	1	0
	FS.publicschools	Fed Spending on Public Schools	**7**	1	0	1	1	1	1	1	1
	FS.aidcollege	Fed Spending on College Aid	**4**	0	1	1	1	0	1	0	0
	FS.homeless	Fed Spending on Homeless	**3**	0	0	1	1	0	1	0	0
	FS.welfare	Fed Spending on Welfare	**5**	0	0	0	1	1	1	1	1
	FS.food.stamps	Fed Spending on Food Stamps	**7**	1	1	1	1	1	1	1	0
	FS.envir	Fed Spending on Environment	**7**	1	1	1	1	1	1	1	0
	FS.soc.sec	Fed Spending on Social Security	**8**	1	1	1	1	1	1	1	1
	FS.assist.blacks	Fed Spending on Assist. Blacks	**5**	1	1	1	1	0	0	1	0
Civil Rights	urb.unrest	Urban Unrest	**1**	0	0	0	1	0	0	0	0
	negro.chan	Negro Position Changed	**5**	1	1	1	1	1	0	0	0
	civil.rights.too.fast	Civil Rights Push Too Fast	**4**	1	1	1	1	0	0	0	0
	sch.busing	School Busing	**1**	1	0	0	0	0	0	0	0
	blacks.aid	Aid to Blacks	**8**	1	1	1	1	1	1	1	1
	aff.action	Affirmative Action	**6**	0	1	0	1	1	1	1	1
	eq.opp	Ensure Equal Opportunity	**8**	1	1	1	1	1	1	1	1
	too.much.eq.rights	Too Far Pushing Equal Rights	**8**	1	1	1	1	1	1	1	1
	eq.chances	Problem if Chances not Equal	**8**	1	1	1	1	1	1	1	1
	more.eq.chances	Some Have More Equal Chances	**8**	1	1	1	1	1	1	1	1
	less.eq	Should Worry Less about Equality	**8**	1	1	1	1	1	1	1	1
	eq.treat	More Equal Treatment	**8**	1	1	1	1	1	1	1	1
	hard.blacks	Conditions Difficult for Blacks	**6**	0	1	1	1	1	0	1	1
	no.favor.blacks	Blacks Shouldn't be favored	**6**	0	1	1	1	1	0	1	1
	blacks.try.harder	Blacks Must Try Harder	**6**	0	1	1	1	1	0	1	1
	blacks.deserve.more	Blacks Deserve More	**6**	0	1	1	1	1	0	1	1
Morality	women.role	Women Equal Roles	**7**	1	0	1	1	1	1	1	1
	new.lifestyles	New Lifestyles Break Down Society	**7**	0	1	1	1	1	1	1	1
	moral.behavior	Moral Behvaior	**7**	0	1	1	1	1	1	1	1
	trad.values	Emphasis Traditional Values	**7**	0	1	1	1	1	1	1	1
	different.values	Tolerant Different Values	**7**	0	1	1	1	1	1	1	1
	homosex	Law Protect Homosexuals	**5**	0	0	1	1	0	1	1	1
	gay.military	Gays in the Military	**4**	0	0	0	1	0	1	1	1
	abort	Abortion	**8**	1	1	1	1	1	1	1	1
Foreign Policy	urss.coop	Cooperate w USSR	**3**	1	1	1	0	0	0	0	0
	defense.spend	Defense Spending	**8**	1	1	1	1	1	1	1	1
	FS.foreignaid	Fed Spending on Foreign Aid	**3**	0	0	0	0	0	1	1	1
	FS.space	Fed Spending on Space	**5**	1	1	1	1	0	0	0	1

Year	**1984**	**1986**	**1988**	**1992**	**1994**	**1996**	**2000**	**2004**	**total**
Number of issues	24	29	35	40	31	32	35	32	258
Number of respondents	456	625	766	954	1136	871	443	609	5860

Table S2: Variables by Year

Variable	Measurment	Year	Mean	Standard Deviation	Variable	Measurment	Year	Mean	Standard Deviation
Age	Measured in years	1984	41.47	15.22	Church	How often attends religious services, scaled: (1) Never, (2) Few times a year (3) Once a month, (4) Almost every week, (5) every week	1984	3.01	1.41
		1986	41.22	15.62			1986	3.12	1.46
		1988	43.58	16.22			1988	3.19	1.42
		1992	43.76	16.18			1992	2.77	1.64
		1994	44.60	16.23			1994	2.83	1.63
		1996	47.14	16.28			1996	2.86	1.59
		2000	46.84	16.42			2000	2.81	1.56
		2004	47.02	16.46			2004	2.76	1.58
Gender	Binary, respondent is female	1984	1.48	0.50	Party ID	Party identification, ranging from (1) strong Democrat, through (4) Independent, to (7) strong Republican	1984	4.04	2.10
		1986	1.52	0.50			1986	3.61	2.08
		1988	1.50	0.50			1988	4.13	2.11
		1992	1.48	0.50			1992	3.77	2.06
		1994	1.49	0.50			1994	4.10	2.12
		1996	1.52	0.50			1996	3.84	2.18
		2000	1.47	0.50			2000	3.78	2.08
		2004	1.49	0.50			2004	4.04	2.12
Black	Binary, respondent's race is black	1984	0.09	0.29	Political Interest	Respondent's interest in elections, scaled (1) not much, (2) somewhat, (3) very much	1984	2.19	0.69
		1986	0.14	0.34			1986	1.98	0.72
		1988	0.10	0.30			1988	2.18	0.71
		1992	0.11	0.32			1992	2.36	0.67
		1994	0.10	0.30			1994	2.11	0.70
		1996	0.08	0.27			1996	2.14	0.68
		2000	0.10	0.30			2000	2.14	0.71
		2004	0.15	0.36			2004	2.35	0.67
Income	Family income, standardized by year over 5 categories that correspond to 0-17, 17-33, 33-67, 67-83 and 83-100 percetinles.	1984	3.21	1.02	Political Activism	Campaign Participation Count, scaled from 1 to 6	1984	1.71	1.06
		1986	3.04	1.05			1986	1.63	1.03
		1988	3.09	1.04			1988	1.70	0.99
		1992	3.10	1.10			1992	1.84	1.04
		1994	3.01	1.07			1994	1.55	0.93
		1996	3.07	1.08			1996	1.66	0.98
		2000	2.97	1.11			2000	1.64	0.93
		2004	3.07	1.18			2004	2.07	1.12
Professional	Binary, respondent's occupational group is professional or managerial	1984	0.32	0.47	Political Discussion	Binary, does respondent discuss politics with family and friends	1984	1.78	0.41
		1986	0.31	0.46			1986	1.79	0.41
		1988	0.35	0.48			1988	NA	NA
		1992	0.32	0.47			1992	1.90	0.30
		1994	0.34	0.47			1994	1.83	0.37
		1996	0.41	0.49			1996	1.85	0.36
		2000	0.41	0.49			2000	1.84	0.37
		2004	0.39	0.49			2004	1.84	0.37
Southern	Binary, respondent's state is one of the Census Bureau's southern states	1984	0.29	0.46					
		1986	0.33	0.47					
		1988	0.32	0.47					
		1992	0.29	0.45					
		1994	0.34	0.47					
		1996	0.34	0.48					
		2000	0.32	0.47					
		2004	0.31	0.46					

Table S3: Distribution of Sociodemographic Characteristics by Year

Log(P(Ideologue)/P(Alternative))	Coef.	Std. Err.	z	P
church x income	-0.055 *	0.022	-2.54	0.011
income	0.087	0.072	1.21	0.225
church	0.193 **	0.072	2.68	0.007
age	0.002	0.002	0.97	0.334
gender	-0.396 ***	0.073	-5.43	0.000
black	-0.575 ***	0.117	-4.93	0.000
south	0.124	0.080	1.55	0.120
education	-0.131 ***	0.028	-4.6	0.000
professional	-0.085	0.086	-0.99	0.323
political interest	-0.211 ***	0.057	-3.68	0.000
political activism	-0.069	0.036	-1.9	0.058
year 1984	-1.169 ***	0.194	-6.02	0.000
year 1986	-0.314 *	0.158	-1.99	0.046
year 1988	-0.141	0.151	-0.93	0.353
year 1992	-0.132	0.138	-0.96	0.338
year 1994	0.443 **	0.139	3.19	0.001
year 1996	-0.736 ***	0.143	-5.13	0.000
year 2000	0.484 **	0.173	2.79	0.005
intercept	1.762 ***	0.329	5.35	0.000
N = 4548				

Table S4: Results of the Multinomial Logit model presented in Figure 7.

Party ID		Coef.		Std. Err.	t	P	
Ideologues							
	\Delta EM	-0.102		0.315	-0.33	0.745	
	\Delta EM ^ 2	-0.619		0.804	-0.77	0.441	
	education	0.543	**	0.194	2.8	0.005	
	education ^2	-0.070	**	0.021	-3.29	0.001	
	income	0.250	***	0.054	4.66	0.000	
	church	0.239	***	0.035	6.85	0.000	
	age	-0.001		0.004	-0.28	0.780	
	gender	-0.462	***	0.103	-4.51	0.000	
	black	-1.942	***	0.161	-12.09	0.000	
	south	0.066		0.113	0.58	0.560	
	professional	-0.273	*	0.123	-2.22	0.026	
Alternatives							
	\Delta EM	0.514	*	0.214	2.4	0.016	
	\Delta EM ^ 2	1.135	*	0.536	2.12	0.034	
	education	0.377	*	0.163	2.32	0.020	
	education ^2	-0.029		0.019	-1.54	0.123	
	income	0.200	***	0.048	4.18	0.000	
	church	0.158	***	0.032	5	0.000	
	age	-0.001		0.003	-0.39	0.696	
	gender	-0.238	*	0.093	-2.56	0.011	
	black	-1.690	***	0.163	-10.39	0.000	
	south	-0.084		0.102	-0.82	0.412	
	professional	-0.148		0.114	-1.31	0.191	
Agnostics							
	\Delta EM	0.504		0.296	1.7	0.089	
	\Delta EM ^ 2	1.258		0.755	1.67	0.096	
	education	-0.134		0.215	-0.62	0.533	
	education ^2	0.019		0.025	0.77	0.443	
	income	0.250	***	0.061	4.11	0.000	
	church	0.111	**	0.041	2.71	0.007	
	age	-0.012	**	0.004	-3.13	0.002	
	gender	0.021		0.118	0.18	0.859	
	black	-1.477	***	0.254	-5.81	0.000	
	south	-0.007		0.126	-0.06	0.956	
	professional	0.152		0.150	1.01	0.312	
Control Dummies							
	year 1984	-0.177		0.150	-1.17	0.240	
	year 1986	-0.410	**	0.131	-3.13	0.002	
	year 1988	0.156		0.126	1.24	0.215	
	year 1992	-0.328	**	0.117	-2.81	0.005	
	year 1994	-0.024		0.114	-0.21	0.833	
	year 1996	-0.246	*	0.120	-2.05	0.040	
	year 2000	-0.496	**	0.143	-3.48	0.001	
	Alternative	0.257		0.681	0.38	0.706	
	Agnostic	1.150		0.762	1.51	0.132	
	intercept	2.620	***	0.540	4.85	0.000	
N = 4540							

Table S5: Results of the OLS Model presented in Figure 8.

Party ID	Coef.		Std. Err.	t	P	
\Delta EM	0.682	***	0.157	4.35	0.000	
\Delta EM ^ 2	1.418	***	0.385	3.68	0.000	
income	0.186	*	0.076	2.45	0.014	
education	-0.215	***	0.056	-3.82	0.000	
church	0.134		0.078	1.7	0.089	
church x income	-0.191	*	0.078	-2.44	0.015	
church x income x education	0.047	***	0.012	3.81	0.000	
(church x income)^2	0.007	*	0.003	2.35	0.019	
education x (church x income)^2	-0.002	**	0.001	-2.84	0.004	
age	-0.005	**	0.002	-2.81	0.005	
gender	-0.257	***	0.060	-4.31	0.000	
black	-1.844	***	0.103	-17.93	0.000	
south	-0.022		0.065	-0.34	0.734	
professional	-0.185	*	0.072	-2.55	0.011	
year 1984	-0.310	*	0.148	-2.1	0.036	
year 1986	-0.426	**	0.131	-3.25	0.001	
year 1988	0.154		0.127	1.22	0.223	
year 1992	-0.325	**	0.117	-2.78	0.005	
year 1994	0.046		0.114	0.4	0.687	
year 1996	-0.242	*	0.119	-2.03	0.042	
year 2000	-0.401	**	0.143	-2.8	0.005	
intercept	4.758	***	0.315	15.12	0.000	
N = 4540						

Table S6: Results of the OLS Model presented in Figure 9.