

Belief Systems in Theory and Practice: Evidence from Political Pundits*

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Abstract

Dominant approaches to measuring ideology in U.S. politics rely on summarizing preferences. However, corresponding theoretical accounts hold that preference organization – awareness and adoption of “what goes with what” – is a consequence of ideological processes, not their constitution. I link ideological reasoning, group organization, and preference summaries using a novel dataset of roughly 1,000 of the most prominent political pundits in the United States and the roughly 3.5 million tweets they sent from January through August of 2019. I identify interrelationships between how political pundits tend to discuss a wide range of salient political topics, and use quantitative representations of their articulated worldviews to recover network-based measures of both ideal points in left/right space and multi-class community membership. The results provide a more holistic account of ideology in the United States, and highlight political pundits’ role in articulating for their audiences what it means to be a member in good standing of particular ideological coalitions.

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Introduction

As they are theorized in the study of U.S. politics, ideologies represent widely-held belief systems: complex, networked relationships between political ideas that describe social reality, provide frameworks for interpreting new information, and prescribe corresponding attitudes and behaviors. Described in Gerring (1997, pg. 980) as, at the very least, “[sets] of ideaelements that belong to one another in a non-random fashion,” ideologies tend to invoke particular sets of beliefs that are both internally coherent and differentiable from those of competing ideologies (Knight 2006). Drawing on generalizable, abstract principles, ideological belief systems implicate political thoughts and actions across a wide range of topics, causing people to have preferences on issues beyond those in which they have direct material interest (Bawn 1999). Highlighting ideology’s role as an abstract framework for navigating a dynamic political environment, Noel (2014, pg. 42) defines a political ideology as “an application of a set of rules, principles, and perspectives to the issues of the day.”

As they are measured in the study of U.S. politics, ideologies tend to be represented by something far simpler: summaries of preferences. Indeed, as Noel continues the above sentence, this application of a set of rules, principles, and perspectives to the issues of the day – which is to say, ideology – is “*observed* when it influences summaries of political actors’ preferences” (emphasis added). Summarizing preferences is the dominant empirical framework for studying political ideology in U.S. politics among essentially all classes of political actors, such as members of Congress (Rosenthal, Poole, and McCarty 2006), political candidates (Bonica 2013), interest groups (Crosson, Furnas, and Lorenz 2020), Supreme Court justices (Martin and Quinn 2002), opinion journalists (Noel 2013), social media users (Barberá 2015), and the mass public (Ansolabehere, Rodden, and Snyder Jr. 2008). While these approaches are undoubtedly useful for identifying similarities and differences between actors so as to explain or predict their subsequent behavior, they provide a limited empirical account of the theoretical construct we call ideology.

Here, I provide an empirical account of ideological belief systems that more closely

matches their theoretical properties. I do so by quantifying relationships between how political pundits discuss a variety of political topics, and then using these representations of pundits’ articulated worldviews to recover summaries of their preferences. This takes seriously the notion, advanced in Converse (1964) and reiterated in Noel (2013), that a vanishingly small share of the mass public is responsible for organizing and transmitting specific packages of idea-elements that come to be recognized as ideological. Pundits represent the citizens likeliest to be in this ideological class, as they are unencumbered by electoral pressures faced by politicians and extremely politically sophisticated relative to ordinary citizens.

Helpfully, the vast majority of political pundits regularly publicize their attitudes and beliefs about politics on Twitter, making the platform a hub of public deliberation where ideological belief systems are regularly articulated, challenged, and refined. I examine this area of the deliberative system using a novel dataset of over 1000 of the most prominent political pundits on Twitter and the roughly 3.5 million tweets they wrote from January through August of 2019.

For each of a variety of political topics spanning public policy issues, symbolic ideological concepts, and salient political topics that do have immediate bearing on public policy, I extract latent dimensions in the text of tweets that mention the topic using recently-developed methods for scaling short text documents (Hobbs 2019). I then adapt recently-developed approaches in belief network analysis typically applied to public opinion surveys (Boutyline and Vaisey 2017; Brandt, Sibley, and Osborne 2019) to infer relationships between different dimensions of political discussion. The results of these procedures show evidence of “creative synthesis” in practice. They identify significant interdependencies between different areas of articulation – including between symbolic, abstract ideological concepts and concrete policy issues – as well as evidence of pundits integrating emerging issues into existing ideological frameworks.

I then use these quantitative representations of how pundits articulate their political worldviews to account for variation in network-based measures of pundits’ ideal points in latent

space and multi-class community membership. Which is to say, I show strong relationships between how pundits talk about politics and summaries of their preferences. The results highlight the multifaceted nature of ideological belief systems, demonstrating the importance of linking how scholars consider them in theory with how they are measured in practice. More specifically, they call for renewed empirical interest in political pundits as mass opinion leaders, engaged in iterated deliberation regarding what it means to be a member in good standing of their various ideological coalitions.

Bridging Ideological Theory and Measurement with Political Pundits

Ideologies are broadly conceived as comprehensive worldviews regarding how society is and ought to be ordered. Ideologies provide sets of implicit assumptions about how the world works; normative principles by which statements, proposals, and actions can be judged; indications as to which goals we should strive to achieve; and, finally, public policies that would achieve them. Over decades of research on the topic, scholars have proposed a variety of specific definitions for the concept. These definitions vary in their points of emphasis, but tend to identify a set of common themes (Gerring 1997). The first theme is that of the *belief system*, or sets of idea-elements that follow from core principles and, as a result, exhibit a meaningful structure (Converse 1964; Kritzer 1978). To be ideological, a belief system must be internally coherent, in that particular sets of beliefs are entailed by one another (Campbell et al. 1960). A minimal requirement for the demonstration of ideology, in this context, is constraint: awareness and adoption of a specific conception of “what goes with what.” The second theme is that of *group organization*, that the sets of structured beliefs that are associated with a particular belief system are shared and advanced by groups of individuals (Freedman 2003; Jost 2006), and are contrasted against the sets of beliefs advanced by other groups of individuals (Knight 2006). Much like languages, belief systems are only

recognizable as ideological when they are shared by a sufficiently large number of people. An individual whose beliefs are heavily constrained by principles not recognized or shared by anyone else would not be seen as having beliefs exhibiting meaningful structure.

Empirical studies of ideology that operationalize the construct using summaries of preferences face two key challenges in light of this theoretical framework. The first challenge is that the preferences we typically observe – be they roll call votes, campaign contributions, or the items researchers choose to ask on public opinion surveys – are heavily influenced and often themselves conditioned by the party system. Which is to say, there are very few opportunities to observe preferences in U.S. politics – or democratic politics more broadly – that are not registered in the context of partisan conflict (Acree 2015), and this can confound attempts to identify ideological processes. The second, more fundamental challenge is that, per the theories of ideology outlined above, preference constraint does not by itself constitute an ideological belief system. Constrained preferences are undoubtedly a feature of an ideological belief system, and can be taken as evidence that ideological processes have taken place. However, the interaction of additional idea-elements – normative commitments, group identities, factual beliefs, and substantive reasons – are what prescribe and justify particular sets of preferences.

This fundamental challenge is well understood in light of Converse’s (1964) foundational account of belief systems in the U.S. mass public. While Converse is perhaps most well-known for finding a relative absence of preference constraint among all but the most highly engaged citizens, he also argues that such constraint – when it does exist – does not simply manifest from nowhere. It emerges from at least one of three potential sources – logical sources, psychological sources, and social sources – each of which involve ideological processes that can produce constrained preferences.

The first of these sources, logical constraint, is the result of deductive reasoning. If someone holds a preference for lower taxes, and also holds a preference for a smaller budget deficit, it follows that they are committed to at least one additional proposition that resolves

this apparent tension. They can prefer for government services to be lowered commensurate with the reduction in revenues collected from taxes, or they can provide a rationale for why these two preferences are not actually in tension. They could, for instance, argue that tax cuts pay for themselves by increasing economic growth (Mellon 1924; Laffer 2004). Importantly, this means that only knowing one's reported preferences cannot always establish whether that set of preferences is internally coherent. Logical constraint in this example can be achieved by updating the set of preferences (such as adding a preference for fewer government services), *or* by providing a substantive rationale that resolves the tension (such as disputing the relationship between tax rates and government revenues).

Converse's second source of constraint, psychological constraint, has little to do with dispassionately deducing which preferences ought to be bound together. Instead, it involves one's moral intuitions, subjective judgments, and independent stances that follow from a smaller set of core normative principles – what Converse described as “crowning postures.” There is no formal, logical dependence between preferences based on such postures. However, a small set of more basic values or psychological dispositions can still produce regular patterns in reported preferences (Malka and Lelkes 2010; Malka and Soto 2014; Federico and Malka 2018). As different people take different “crowning postures,” preferences that are obviously tied together for some may be seen as completely independent by others. A committed Catholic, for example, may be constrained by their religious beliefs to oppose both capital punishment and abortion. We may not expect this dependence between these preferences for those who do not see themselves as committed to the same religious beliefs.

The final type of constraint Converse identified is social constraint, which itself has two sources. The first of these is one's socioeconomic status, reflecting one's material interests and position in society. Some preferences tend to co-occur because they independently advance the interests of people in similar social strata, even if there is no deductive or value-laden basis for the two to be linked, and the fact of their co-occurrence lends itself to rationalizations as to why this ought to be the case. The second, related source of social constraint is

creative synthesis. Creative synthesis, for Converse, refers to the intellectual labor involved in actively packaging disparate ideal elements into a coherent whole. An extremely small number of intensely engaged and sophisticated citizens are involved in producing these packages of idea-elements, which come to be seen as naturally tied together by nature of their being presented as a full set. These sets of preferences then diffuse through the population, producing greater rates of co-occurrence between them than would otherwise emerge if every citizen independently thought through the issues themselves.

The importance of creative synthesis and the active transmission of ideological belief systems highlights the extent to which they are socially constructed and subsequently learned. A citizen may begin with a small set of core commitments and then continuously update their belief system as apparent contradictions are made salient – or when they are made aware of which preferences tend to be taken by those who share their core commitments, and for which reasons. For example, political awareness mediates the relationship between personality traits and support for redistributive economic policies, with a closed personality type being associated with preferences for redistribution among the politically disengaged and against redistribution among the politically engaged (Johnston, Lavine, and Federico 2017). Those in the latter group have been more heavily socialized into patterns of elite-level partisan conflict – they are more aware of “what goes with what” – and have updated their sets of preferences accordingly. This does not necessarily mean that the sets of preferences held by those in the former group lack meaningful structure, but it does mean that they are not socially constrained.¹

To understand the diffusion of ideological belief systems described by social constraint, it is important to consider political pundits. As political pundits do not hold or contest political

¹Tesler (2016) advances an argument regarding recent trends in polarization around racial attitudes that can be similarly understood. They find that the election of Barack Obama made race “chronically salient” for racially conservative white Democrats who had not previously recognized that the Democratic Party was more liberal than the Republican Party on civil rights issues. This chronic salience led to an increased understanding of how their racial attitudes implicated their position in the broader political system, prompting them to move away from the Democratic Party when they identified it as representing the interests of racial minorities.

power as formal elites, but regularly advance political arguments in the public sphere, they are the citizens most involved with identifying, shaping, contesting, and reinforcing the sets of idea-elements that come to be recognized as ideological (Federico and Goren 2009; Noel 2013). While electoral pressures may limit elected officials' willingness to take positions based on clear ideological principles, and members of the mass public typically follow cues sent by those elites with which they identify (Zaller 1992; Lenz 2012; Agadjanian 2020), political pundits are freer in their capacities as (sometimes semi-) professional opinion-mongers to engage in public deliberation regarding how society is and ought to be ordered. To the extent to which what they say in public differs from what they think in private, it is to maintain their reputations among those who they consider ideologically similar to themselves. As such, prior work has identified political pundits as actors who perform intellectual labor to bind various policy demands together into coherent ideologies (Noel 2012, 2013), synthesizing disparate political considerations to continuously define and refine what it means to adhere to a particular ideology at a particular point in time. Which is to say, of all of the actors in the political system, political pundits are among the most likely to demonstrate ideological belief systems.

Moreover, political pundits are particularly likely to engage with and articulate ideological belief systems in ways that are distinct from partisanship. Which is to say, political pundits overlap with but are not encompassed by previous accounts of "partisan media." Many political pundits are explicitly not partisans, and go out of their way to distance themselves from major party coalitions. Still more have heterodox preferences that do not neatly place them on the political left or right. Those pundits who do not consistently side with a major political party still have political worldviews, and do not avoid embedding ideological premises and priorities into their political analyses. Moreover, even pundits who are clearly aligned with a major party coalition often behave in ways that are more ideological than partisan – such as criticizing partisan politicians who violate ideological orthodoxies, or evaluating and recommending for or against candidates in primary elections on ideological grounds

(Jamieson and Cappella 2008).

Political pundits are important to study not only because they are likely to demonstrate ideological reasoning, but also because of their place in the deliberative system. Situated between elites who formally contest power and democratic citizens who bestow it, pundits regularly present arguments and analyses regarding what elected officials should do and what informed citizens should think regarding current affairs (Jacobs and Townsley 2011). This differentiates them from traditional media in that they are not simply disseminating information by reporting the news, but are instead interpreting that information to present analysis and arguments regarding what people should think about the news. And while pundits exhibit characteristics analogous to traditional opinion leaders (Lazarsfeld, Berelson, and Gaudet 1948; Berelson, Lazarsfeld, and McPhee 1954; Katz and Lazarsfeld 1955), their large audiences and removal from interpersonal discussion networks of ordinary citizens requires distinct consideration. Indeed, as Jamieson and Cappella (2008) point out, political pundits frustrate traditional analytical frameworks, writing that “*Except for the fact that he is part of the media, [Rush] Limbaugh meets the definition of opinion leader. Information passes to him from a wide array of media sources from which he selectively draws. . . His mode of influence is an extended conversation in which he talks to listeners, engages in exchanges with callers, and responds to emails*” (pg. 144, emphasis added). Which is to say, pundits engage in opinion leadership, but the citizens whose opinions they are leading are often members of the mass public who would be classified as opinion leaders themselves based on their level of political interest and discussion.

Political pundits cannot affect anyone’s psychological predispositions or material conditions. However, they can articulate how otherwise disparate political considerations relate to one another (Noel 2013), and they can advance specific representations of political concepts that structure broader worldviews (Acree 2015) – forming “interpretive communities” (Jamieson and Cappella 2008) that articulate shared commitments, common out-groups, and specific understandings of contested facts that help ideologues protect their worldviews from discordant

facts and alternate understandings of political events. In this sense, political pundits play descriptive and prescriptive roles, identifying which policy demands should go together and which policy demands are incoherent with the principles, commitments, and priorities of their respective ideological coalitions (Dìaz Sierra 2017). As Noel (2012, 2013) finds, polarization in issue position-taking among opinion journalists precedes similar polarization in Congress, as coalitions of policy demanders (Bawn et al. 2012) come to reflect the packages of policy demands that emerge as coherent through sustained interest group competition and corresponding deliberation.² From these perspectives, “creative synthesis” can describe the role political pundits play in rationalizing and maintaining ideologies in the immediate term as much as it describes the forward-looking claims pundits make regarding how different political considerations should fit together in the longer term. In their roles as mass opinion leaders, political pundits do not only task themselves with advancing new packages of political considerations, they can also task themselves with reinforcing for their audiences the packages of political considerations that hang together in the present moment, helping their respective ideological coalitions manage internal cleavages.

In sum, empirical analyses of ideology in U.S. politics tend to be limited by their reliance on summaries of preferences, which are an outcome of ideology rather than ideology itself, and by partisan conflict structuring the ways in which ideology can manifest. Work in political psychology has identified the “discursive superstructure” of ideology as the social construction

²Baylor (2017) contests the causal nature of this relationship, arguing that coalition formation among interest groups exerts greater causal influence on subsequent constraint in congressional voting behavior. However, while Baylor’s account provides a parsimonious account of partisan coalition change, it does not negate Noel’s account of ideological development. At the very least, pundits are reflecting debates happening at levels below that of the national party (among activists and/or within state parties) over which policy demands the coalition should advance – even if they might not be directly causing those debates to occur or determining their outcomes. Moreover, to construct ideology is to imbue political conflict with substantive meaning. If a new group is to be incorporated into an ideological coalition, members of the coalition who don’t have a direct stake in the group’s policy demands need reasons why they should care about them. As long as political pundits provided reasons why liberal (or, alternatively, conservative) racial and economic demands fit together for other actors in the political system, and those reasons came to dominate understandings of what it meant to be on the political left or right, their role in constructing ideology does not require them to have actually convinced, for example, the NAACP and CIO to join forces in an effort to affect the Democratic Party’s agenda. That Baylor finds black newspapers beginning to endorse Democratic candidates at higher rates after the NAACP and CIO began to support each others’ policy agendas is suggestive of the role opinion journalism can have in rationalizing new combinations of policy demands.

by which citizens with disparate material interests and psychological dispositions can become recognizably ideological in the context of elite political conflict, but this superstructure has received little empirical attention of its own beyond being asserted in studies of mass attitudes. Political pundits represent the class of citizens most appropriate to study this discursive superstructure of ideology, given their regular discussion of politics that is unbounded by electoral pressures. I discuss my approach for doing so in the next section.

Belief Systems in Practice

Prior research on political pundits has avoided sampling from the full set of individual political pundits, instead sampling at the outlet level (Noel 2013; Elasser and Dunlap 2013) or the argument level (Coppock, Ekins, and Kirby 2018).³ Work that focuses on individual political pundits tends to focus on a small sample for more in-depth analysis. For instance, Entman (2003) introduces his cascading model of activation with a case study of Seymour Hersh and Thomas Friedman contesting the White House’s framing of the 9/11 attacks. Jamieson and Cappella (2008) focused on a handful of especially prominent conservative pundits, such as Rush Limbaugh and Sean Hannity, who had audiences large enough to be detectable in nationally representative surveys.

There have been very few attempts to quantify ideological articulation among political pundits. The most prominent of these examples is Noel’s work, which codes position-taking (both whether a position was taken on a given issue and, if so, what that position was) in the pundit class at decade intervals such that they can be quantified in a manner analogous to scaling legislative roll call votes. This is an important contribution, highlighting how preference organization in the pundit class preceded corresponding organization in legislative roll-call voting. However, this contribution relies on the same preference-summarizing approach that, theoretically, brackets much of what we consider to be constitutive of ideology.

³See Acree (2015) for an exception that uses a corpus of books written by political pundits to train a deep learning algorithm classifying different typologies of political ideology, which is then applied to presidential speeches.

As ideological belief systems involve more than summaries of preferences, to adhere to a belief system implies prioritizing certain problems and adopting particular premises in addition to endorsing a given set of policy prescriptions. It is therefore important to establish systematic methods both for identifying political pundits as individual political actors independent from the outlets that may employ them, and for measuring the discussions that background the issue positions they endorse. I proceed to do so below.

Defining Pundits

There is no established definition one can use to separate who counts as a relevant member of the pundit class from who does not. Here, I articulate a handful of criteria that can be used to include and exclude particular people in a systematic manner, and use these criteria to develop a definition.

1) Audience. Political pundits have an audience that has been cultivated through their production of political content. Anyone can have opinions about politics, but if someone posts an opinion online and no one sees it, it does not leave an impression. In this respect, pundits separate themselves from other citizens in that a meaningful number of people are interested in what they have to say – and are actually exposed to the political content they generate. The “political” in political content is important for this criterion, as many people who cultivated their audience through means other than politics – movie stars or professional athletes, for example – also have political opinions. However, such actors (no pun intended) are not primarily engaged in the production of political content, and the political content they do produce is not the primary reason why their audiences have chosen to receive information from them. In order to be a political pundit, one’s audience must have been developed and must be maintained through one’s regular contributions to political discourse.

2) Analysis. Pundits do not just inform their audience about political events; they also tell them what to think and feel about those events. This differentiates pundits who traffic in arguments and analysis from reporters who traffic in news. To be clear, this criterion allows

for reporters to double as pundits if, for example, they regularly appear on cable news shows as “analysts” to help viewers interpret the events of the day. In short, reporters report the news; pundits tell their audiences what they should think about the news.

2) Informality. Pundits are not directly involved in the political or policymaking process, which separates them from formal political elites. Which is to say, politicians (and their staff), major political figures, and others who directly work in government are not pundits – even if they engage in otherwise pundit-like behavior by broadcasting political opinions in writing or on television. However, prominent representatives of think tanks, interest groups, and other elements of the extended party network (Koger, Masket, and Noel 2009) can be included as pundits per this criterion. Additionally, one can move between the ranks of formal elites and pundits. Former White House Press Secretary Anthony Scaramucci, for example, would not be considered a pundit during his time in the Trump administration, but would be after he left the public sector and became a contributor at CNN. Conversely, at the beginning of his second campaign for president, Bernie Sanders hired David Sirota and Brianna Joy Gray to serve as speechwriter and national press secretary, respectively (Fang 2019). While these two writers both have large audiences cultivated through the production of political content and analysis, they would not be considered pundits while formally contesting political power.

In sum, political pundits are *informal political elites who disseminate political analyses and opinions to audiences they have cultivated for that purpose*. This one-sentence definition captures all three of the above criteria, and can be applied to a variety of contexts for the purposes of systematic empirical study.

Identifying Pundits

Political pundits operate at a variety of sites in the media ecosystem. Perhaps most classically, they fill the pages of political magazines and the opinion sections of newspapers (Noel 2013). They also write books (Acree 2015), appear on television (Arceneaux and Johnson 2013; Mutz 2015), host talk radio programs (Jamieson and Cappella 2008), and

maintain YouTube channels (Lewis 2018; Munger and Phillips 2020). However, Twitter most obviously lends itself to applying my criteria for identifying political pundits, as I do here.

Twitter is particularly useful for studying political pundits as individual political actors because the vast majority of them maintain a Twitter account and most use the platform regularly. This avoids concerns regarding the use of Twitter for studying mass opinion (Barberá and Rivero 2015), where its small and abnormal user base relative to the U.S. population as a whole would be a bigger issue.⁴

However, studying political pundits on Twitter differs from prior research on pundits in a handful of important respects, beginning with defining who should be included in analyses in the first place. In print media, the audience is defined at the outlet level: an editor decides to hire a writer, thereby granting that writer the outlet’s audience. On Twitter, audience is defined at the user level: individuals decide on an account-by-account basis who to follow or include on relevant lists. This makes identifying pundits on Twitter more difficult, as one cannot simply look at the mastheads of relevant opinion magazines and editorial pages to determine who has a large audience that is attentive to their political analysis and arguments.

In order to identify a specific list of political pundits on Twitter, I use a snowball sampling method adapted from the one proposed by Wu et al. (2011). Specifically, I first identify “seed” accounts, or representative cases of the sorts of pundits who definitely do fit the criteria outlined above, and use relevant Twitter Lists to build out from the seed accounts using the wisdom of crowds. Twitter Lists are public, user-curated lists of accounts that are relevant to a topic named by the list’s curator – independent from who they follow. This sampling strategy allows me to make as few subjective decisions as possible to arrive at a list of political pundits that satisfies the above criteria. Step-by-step details for the sampling routine, including the seed accounts and keywords to identify relevant Twitter lists, are included in the Appendix. The procedure culminates in a list of 1026 pundits to retain for analysis.

⁴Though see Barberá et al. (2019) on Twitter users’ potential roles in setting the political agenda and Beauchamp (2017) for using Twitter textual data to predict movement in state-level horse-race polling.

While Twitter Lists are useful in this case for practical reasons, they are also useful theoretically. As stated above, most members of the mass public are not on Twitter. However, citizens who use Twitter for politics tend to be more politically engaged than other members of the mass public, and the sort of Twitter user who makes lists of political accounts is likely to be extremely politically interested relative to their peers. Which is to say, they are particularly likely to be “opinion leaders” in the traditional sense of the term discussed above. By identifying users who tend to appear on politically-oriented Twitter Lists, I am identifying who some of the most politically engaged members of the mass public identify as worthwhile sources of political information.⁵

Quantitative Representations of Political Discussion

After identifying the pundits relevant for this analysis, their timelines were collected once per day over the eight-month period spanning January through August 2019 – resulting in a dataset of roughly 3.5 million user-authored tweets (excluding retweets) in total. These are inclusive of everything the accounts posted on any topic, except for any tweets that were deleted the day they were sent. To exclude discussion of less important issues or non-political topics, I develop basic dictionaries of terms relevant to a variety of salient political topics and concepts. These span both symbolic ideological labels and operational issue areas (Ellis and Stimson 2012), as well as salient political topics that lack discrete policy demands – such as Robert Mueller’s investigation into Donald Trump’s presidential campaign. The topics, number of user-authored tweets flagged by their respective dictionary, and number of unique pundits who authored those tweets are as follows:

- Abortion (12,913 documents from 738 unique users)
- Climate Policy (10,297 documents from 795 unique users)
- Conservative (24,862 documents from 848 unique users)

⁵This practical reflection also makes this sampling method preferable for my purposes compared to sampling methods based on measures of centrality in follower networks among users who tweeted particular hashtags, such as Dubois and Gaffney (2014).

- Equality (7,170 documents from 798 unique users)
- Freedom (10,123 documents from 863 unique users)
- Guns (8,975 documents from 741 unique users)
- Health Policy (8,046 documents from 635 unique users)
- Immigration (28,465 documents from 920 unique users)
- Iran (10,731 documents from 708 unique users)
- LGBT (12,637 documents from 705 unique users)
- Mueller (47,854 documents from 884 unique users)
- Progressive (10,559 documents from 730 unique users)
- Racism (36,124 documents from 893 unique users)
- Sexism (6,770 documents from 648 unique users)
- Socialism (12,457 documents from 752 unique users)
- Taxation (23,492 documents from 859 unique users)

These dictionaries are short and specific so as to err on the side of limiting false positives. For example, the dictionaries regarding symbolic ideological labels – liberal, conservative, progressive, and socialist – are limited to explicit mentions of those concepts (a tweet would be flagged as mentioning the liberal topic if it contained the words “liberal”, “liberals”, or “liberalism”, e.g.). Dictionaries regarding operational issue areas – such as health or climate policy – are limited to words that are directly relevant to those policy areas (a tweet would be flagged as being about health policy if it contained the terms “medicare”, “medicaid”, “obamacare”, or “affordable care act”, e.g.). The full list of dictionary terms is available in the Appendix.

For each topic, I tokenize the full set of pundits’ tweets and subset to those that include at least one token in the associated dictionary. I then apply standard pre-processing steps (such as removing numbers and punctuation, and stemming) and implement pivot scaling, a recently-developed method for recovering latent dimensions in short text documents such as open-ended survey responses and social media posts (Hobbs 2019). Pivot scaling aims

to provide the interpretability of topic modeling in short text settings where traditional approaches such as latent Dirichlet allocation (LDA) are less tractable, while also generating orthogonal dimensions that explain decreasing shares of the variation in the data that are analogous to word vectors. Importantly, it also allows individual documents to be scored with respect to each dimension. For the purposes of this analysis, pivot scaling results can be understood as identifying variation in what pundits are talking about when they are talking about each of the above topics.

For example, consider the top “pivot” tokens identified in tweets that mention the Conservative topic, shown in Table 1 (corresponding tables for all topics are shown in the Appendix). The negative⁶ pole of the first dimension includes discussion of political institutions such as the Supreme Court and the Electoral College, while the positive pole concerns discussion of bias against conservatives on social media platforms such as Facebook, Twitter, and YouTube. The second dimension of this topic contrasts these concepts with socio-cultural concepts such as moral values, Evangelical Christianity, and identity. In short, the “pivot” words identified by this method identify variation in what pundits are talking about when they are talking about conservatives or conservatism.

Table 1: Conservative Keywords, First Two Dimensions

D1 Pivots (-)	D1 Pivots (+)	D2 Pivots (-)	D2 Pivots (+)
elector	video	senat	tradi
suprem	youtub	million	evangel
court	twitter	court	religi
primari	site	googl	ident
vote	facebook	facebook	human
econom	cancel	scotus	cultur
brexit	fake	suprem	belief

⁶The sign of the pole – i.e. whether pivot words are on the positive or negative end of a given dimension – does not have its own interpretation.

D1 Pivots (-)	D1 Pivots (+)	D2 Pivots (-)	D2 Pivots (+)
coalit	ban	feder	racism
voter	websit	elect	christian
moder	violenc	tech	moral

Conservatism represents a “symbolic” concept – an identity with socially constructed meaning, carrying relationships to policy outcomes that are contested and refined over time within a particular political culture. An example of an operational concept, climate policy, is shown in Table 2. As the first two columns show, the primary dimension of discussion regarding the climate topic among political pundits is organized around whether the discussion concerns climate change generally or the Green New Deal – a wide-ranging policy resolution introduced by Representative Alexandria Ocasio-Cortez (D-NY) and Senator Ed Markey (D-MA) in February of 2019 – in particular. Other clusters of climate policy discussion concern both its political implications and its *connections to other policies*. This is shown in the positive pole of the second dimension, which is marked by a variety of other salient policy issues including immigration, gun violence, inequality, and health care. On the other pole of this dimension of the Climate topic is *negative* discussion of the Green New Deal – particularly conservative objections that the proposal, if enacted, would ban cars, air travel, and methane emissions from cows.⁷

Table 2: Climate Policy Keywords, First Two Dimensions

D1 Pivots (-)	D1 Pivots (+)	D2 Pivots (-)	D2 Pivots (+)
weather	medicar	cow	immigr
caus	endors	ocasio	gun

⁷The first two dimensions of the climate topic also illustrate how the pivot scaling method helps account for contextual differences in how the same target can be discussed. Representative Alexandria Ocasio-Cortez (D-NY), who introduced the Green New Deal, appears as pivot words on a pole of both the first and second dimension of climate-related discussion. However, the other pivot words on those poles of those dimensions indicate the varied contexts in which her name is invoked – to either highlight or disparage the policy proposal with which she was associated.

D1 Pivots (-)	D1 Pivots (+)	D2 Pivots (-)	D2 Pivots (+)
scientif	resolut	cortez	inequ
scientist	alexandria	faq	violenc
warm	cortez	aoc	health
global	green	alexandria	healthcar
human	deal	car	nation
hoax	ocasio	claim	border
earth	senat	lie	care
man	vote	travel	emerg

The pivot scaling of separate political topics can help us quantify what pundits emphasize when discussing various political topics, but it cannot, by itself, tell us how those political issues are (or are not) related to one another. If different areas of political discussion are independent from one another, there would be little evidence that such discussion reflected ideological processes. To address this question, I average document scores on the first ten dimensions of each topic by pundit, assigning them the value of zero if they did not send any tweets flagged by the dictionary for that topic. This produces a 1026 x 170 matrix, with rows representing pundits and columns representing their average score on each dimension of each issue. I then infer network ties between issue-dimension nodes using a graphical LASSO, selecting the best-fitting sparse covariance matrix using the extended Bayesian information criterion (EBIC) as outlined in Foygel and Drton (2010). Similar methods for inferring network ties between idea-elements are commonly used in belief network analyses of public opinion surveys (Boutyline and Vaisey 2017; Brandt, Sibley, and Osborne 2019; Fishman and Davis 2021).

Quantitatively, the result is a network where each node represents a pivot-scaled dimension of a given topic, with weighted edges representing the non-zero penalized covariances between issue-dimension pairs selected by the graphical LASSO. Substantively, the result is a network

mapping relationships between how political pundits tend to emphasize different aspects of different political topics. Ties between nodes representing different dimensions of discussion on the same political issue indicate that variation in how pundits discuss one aspect of that issue is significantly associated with variation in how they discuss other aspects of that issue. For example, a tie between the first two dimensions of the climate policy topic would indicate that pundits whose tweets about the topic tend to fall on one side of the first dimension (scientific consensus regarding climate change vs. the Green New Deal resolution) also tend to fall on a similar side of the second dimension (criticism of the Green New Deal resolution vs. linking climate to other progressive issues). A tie between the first dimension of the conservative topic and the first dimension of the climate policy topic would indicate that whether pundits' discussion of conservatives and conservatism tends to load on a particular side of the first conservative topic-dimension is significantly associated with the extent to which their discussion of climate policy tends to load on a particular side of the first climate policy topic-dimension.

The resulting network graph of issue-dimension ties is shown in Figure 1. Colors represent topics and node numbers represent the dimension of that topic. Edges between ties indicate that the covariance between two issue-dimensions in the best-fitting graphical LASSO was not shrunk to zero (with darker lines indicating stronger tie strength), and line type indicates whether that tie is within or between issues. So for example, a dark, solid line between two nodes numbered 1 indicates that variation in the first dimension of one issue is significantly associated with variation in the first dimension of the other. A lighter, dashed line between nodes of the same color numbered 1 and 2 indicates a weaker, but still significant, relationship between variation in the first and second dimension of how pundits discuss a single issue. Nodes are positioned in the graph using the force-directed Fruchterman-Reingold layout, such that nodes with more and stronger ties are positioned closer to the center while nodes with fewer and weaker ties are positioned closer to the periphery. Analogous figures generated by subsetting to operational issue areas, symbolic identities, and all non-policy topics before

inferring network ties are shown in the Appendix.

Aggregate Issue Networks: All Topics

Numbers represent nth dimension for given issue

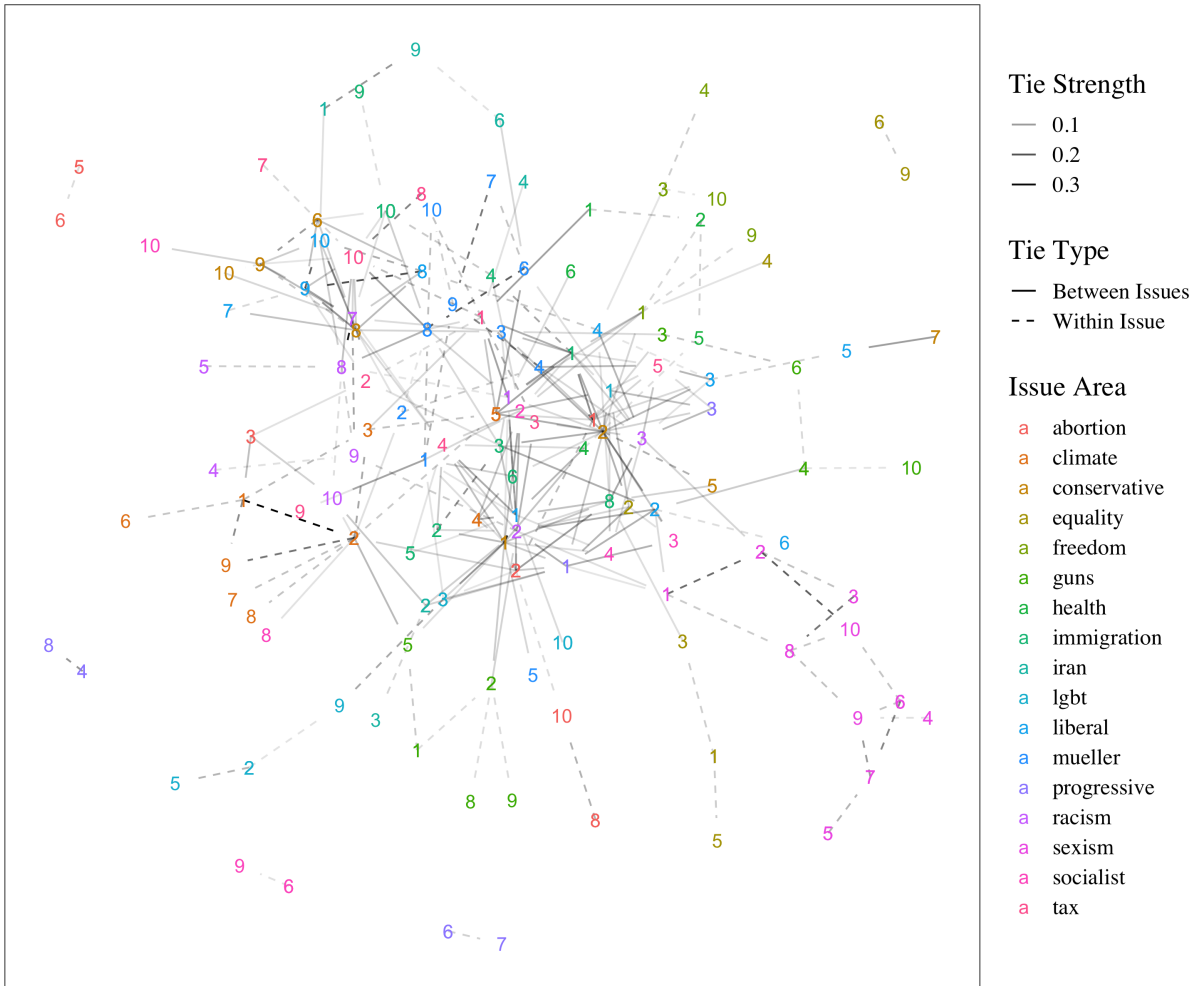


Figure 1: Aggregate Articulated Belief Network

While the relationships shown in Figure 1 are too numerous to discuss in full, the tight clustering of between-issue ties between high topic-dimensions in the center of the plot indicates that there is systematic co-variation in how pundits tend to articulate their worldviews across a wide variety of political topics. Whereas the positions citizens take on one issue may not always be informative of the positions they will take on other issues, the sub-topics and concepts pundits emphasize on one issue does tend to be informative of how they discuss others.

This trend is further shown in Table 3, which ranks the top 20 nodes in the above network by the number of ties they have to nodes representing a topic other than their own. The table also includes the number of ties each of the ranked nodes have to other nodes within their issue area, as well as their strength centrality – the sum of the absolute values of their edge weights. For example, the first dimension of articulation regarding the conservative topic has the most ties to nodes representing *other* topics, as well as the third-highest strength centrality of all issue-dimension nodes in the network. The second dimension of the Conservative topic has the same number of total ties and a slightly higher strength centrality, but one of the ties is to another dimension of the conservative topic.

Topic	Dimension	Strength Centrality	Within-Issue Ties	Between-Issue Ties
Conservative	1	0.7568068	0	14
Conservative	2	0.7749283	1	13
Abortion	1	0.5588484	1	13
Immigration	1	0.5734199	1	6
Conservative	8	0.4620524	1	6
Immigration	8	0.3024334	0	6
Climate	5	0.3770223	0	5
Immigration	3	0.3296351	0	5
Climate	2	0.7540791	5	4
Liberal	1	0.7367045	0	4
Liberal	2	0.3520127	1	4
Conservative	9	0.2588339	0	4
Climate	4	0.2326231	0	4
Abortion	2	0.1968081	0	4
Equality	2	0.1727586	0	4
Progressive	1	0.4025736	0	3

Topic	Dimension	Strength Centrality	Within-Issue Ties	Between-Issue Ties
Conservative	6	0.2012246	1	3
Freedom	1	0.1239237	2	3
Immigration	6	0.1100887	0	3
Iran	2	0.0736699	1	3

As Table 3 shows, the majority of highly-ranked nodes tend to be among the first few dimensions of articulation for their respective topic. Of these top 20 nodes, six represent the first dimension of articulation for their associated issue and an additional six represent the second dimension. Which is to say, the dimensions that explain the most variation in what pundits are talking about when they are talking about specific topics tend to exhibit the strongest relationships to other dimensions of political articulation. Of the seventeen topics included in the analysis, all but three (sexism, socialism, and taxation) have at least one node tied to a node of a different topic, suggesting a considerable degree of interconnectedness in the conceptual network.

It is also worth highlighting that a relatively small number of operational issue areas are represented among the nodes with a large number of between-issue ties. This is further shown in Table 4, which ranks the topics by the number of between-issue ties across all nodes within the topic. As the table shows, broader symbolic concepts such as conservative and liberal tend to be linked to more different topics. Of the operational topics, abortion, immigration, and climate emerge as those carrying the most ties to additional concepts.

Topic	Between-Issue Ties
Conservative	43
Abortion	24
Immigration	22
Liberal	14

Topic	Between-Issue Ties
Climate	13
Mueller	7
Equality	5
Iran	5
LGBT	5
Racism	5
Freedom	4
Progressive	4
Guns	3
Health	2
Sexism	0
Socialism	0
Taxation	0

This result is consistent with prior accounts of the intellectual labor political pundits perform over the course of regularly broadcasting political analyses and opinions to their audiences. In the course of advocating for or against disparate policy proposals, political pundits are also contesting – or, alternatively, reinforcing – boundaries regarding what it means to be a member in good standing of particular ideological coalitions. This corresponds to a variety of issues being tied back to a small number of core concepts. Perhaps most importantly, position-taking on issues that could correspond to legislative policymaking is insufficient to imbue these abstract concepts with particular political meaning. Notions of group identity, which current events are worth caring about, and which considerations are relevant to policy issues all contribute to our understandings of what it means to be on the political left or right at a particular point in time.

Recovering Preferences and Group Organization with Articulated Worldviews

The results shown above establish that political pundits’ articulated worldviews demonstrate many of the properties we consider theoretically important for ideological belief systems. Specifically, they provide evidence that pundits’ articulated worldviews exhibit a significant degree of structure across a variety of topics, providing the intellectual underpinnings for packages of preferences recognizable as political ideologies. However, this is not to fully discount preferences as irrelevant for ideology. Far from it. In order for articulated worldviews to matter for politics, they must bear some correspondence to preferences. While pundits who hold similar preferences may emphasize different issues, or think about the same issue in different ways, it would be difficult to call systematic differences in articulated worldviews evidence of ideological processes if they didn’t provide a significant amount of information regarding what, at the end of the day, they prefer. As such, it is important to validate the above analysis by testing for the extent to which how pundits talk about politics on Twitter conveys information about their preferences relative to other pundits.

To do so, I leverage the information provided by pundits’ follow behavior. As argued elsewhere in the literature (Barberá 2015; Barberá and Rivero 2015), follows are, in expectation, a revealed preference in that they amount to decisions regarding how to allocate one’s attention. For the purposes of this analysis, I use the within-sample follow graph – that is, the network of which pundits in my sample follow which other pundits in my sample – assuming that pundits are generally more likely to follow pundits who are ideologically similar to them than they are to follow pundits who are ideologically distant from them.⁸ Pundits may make a conscious effort to follow ideologically dissimilar pundits to escape their “bubbles,” but in the aggregate these decisions should be overwhelmed by homophilous behavior (Conover et al. 2012).

⁸See Appendix for alternate versions that consider pundits’ full follow profiles, including estimates produced by Pablo Barberá’s **tweetscores** package, which produce substantively similar results.

I begin by constructing a square adjacency matrix with cells taking the value of 1 if the pundit in row i follows the pundit in column j . This network is used to estimate a latent space model (Hoff, Raftery, and Handcock 2002), specifying two dimensions while adjusting for sociality (that is, a node’s tendency to form ties). In addition, I identify communities of pundits in this network using the Spinglass algorithm (Reichardt and Bornholdt 2006). This is shown in Figure 2, which plots pundits in this latent space, with point shapes and colors identifying their communities⁹. The first of these dimensions clearly identifies the political left/right dimension; the second is less clearly interpretable and is excluded from further analysis.

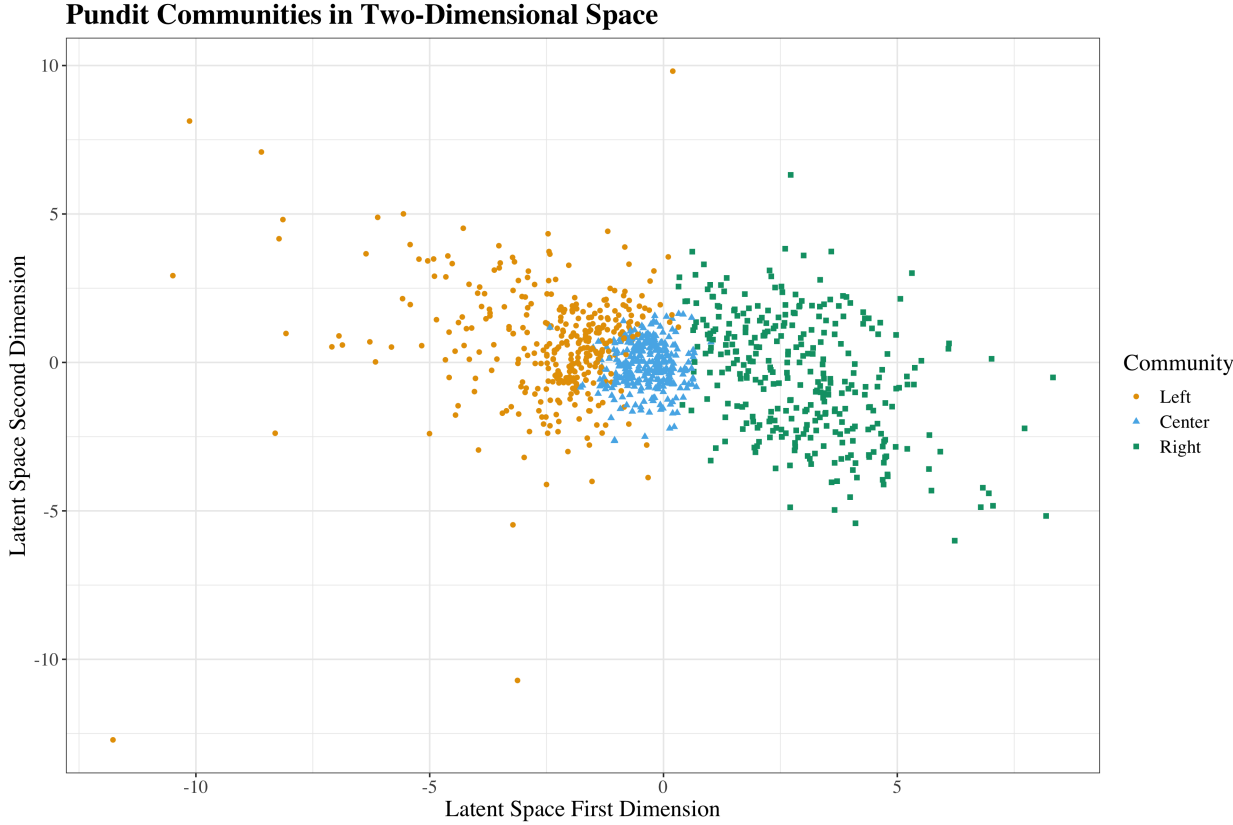


Figure 2: Pundits in Latent Space

That three communities emerge from this follow network, as opposed to two, is also notable and worth brief discussion. Recall from earlier that theories of ideological belief

⁹Three pundits are not located in any of these communities, and are omitted from the plot.

systems frequently involve some form of group organization. As in, not only do ideologies invoke particular understandings of how society is and ought to be ordered, they also imply in- and out-groups based on who does and does not share these understandings. Moreover, as discussed above, many political pundits either explicitly identify as politically centrist or actively reject partisan labels. Which is to say, in ideological terms, “moderate” or “centrist” can mean more than the absence of left or right extremity, and can carry its own sets of values, priorities, interpretations of current affairs. We should not necessarily expect at the outset to observe two distinct communities of pundits corresponding to the political left and right. Furthermore, if this third community is meaningfully distinct, it will be similarly identifiable based on how its members discuss politics. If it is merely an artifact, or an absence of extremity, then the way this community’s members discuss politics will be less distinct and they will be more difficult to accurately identify.

With these measures of revealed preferences in hand – their locations in a single dimension of latent space, and their discrete community memberships – I then estimate the extent to which they can be recovered using the pivot scale dimensions that were used above to map the discursive superstructure of ideology. Which is to say, I estimate the extent to which I can accurately predict these outcomes derived from pundits’ follow behavior using scaled representations of how they articulated their worldviews across a variety of issues. To do this, I implement a series of cross-validated LASSO regressions – linear regressions that penalize the absolute value of coefficients – selecting the penalty parameter that minimizes out-of-sample prediction error. All independent variables are rescaled to represent standard deviations from the mean, and each model is run twice: first with each topic-dimension included independently, and again when considering all two-way interactions.

The results of this procedure for predicting the first dimension of follow-based preferences is shown in Figure 3. As the figure shows, how political pundits talk about the selected political topics on Twitter provides a significant, if imperfect, signal of their revealed preferences as measured by who they follow. The squared correlation between prediction and outcome

for the first latent space dimension in the baseline specification is 0.55. When considering all two-way interactions, this measure of fit increases to 0.71. The ability to explain this much variation in latent follow-based preferences based only on a reduced form of articulated worldviews is encouraging. It can be taken as evidence that the representations of pundits' belief systems derived from how they discuss salient political topics on Twitter bears the relationships with revealed preferences that we should expect the various components of political ideologies to have with one another.

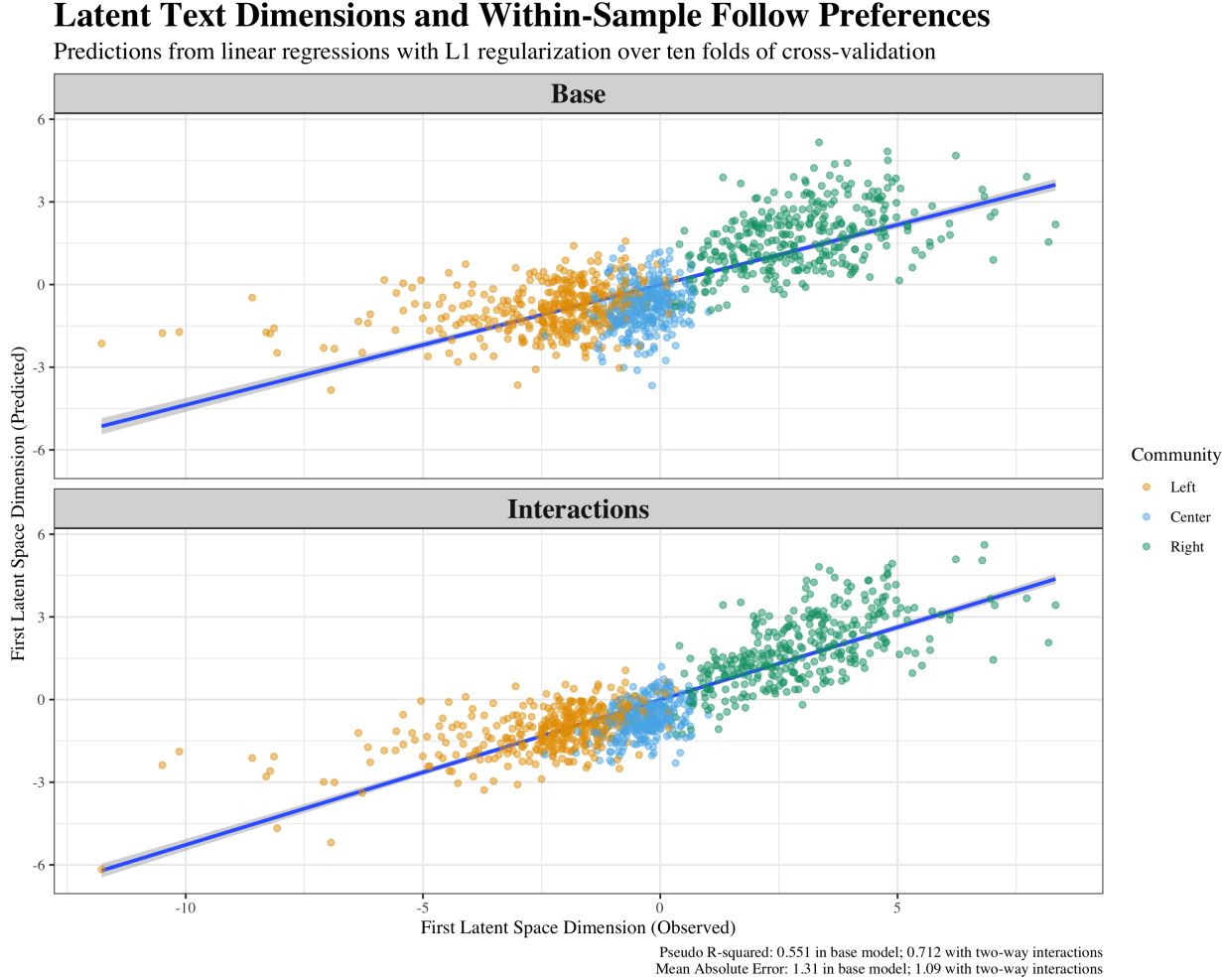


Figure 3: Follow-Based Preference Prediction Accuracy

Next, I estimate the extent to which I can recover pundits' community membership. I do this using the same text-based features and penalized regressions, replacing the continuous

ideal point outcome with multi-class community membership.

The results from this procedure are shown in Figure 3. Observed community membership is represented in facets from left to right, which contain densities of predicted membership in each community. Whether the model in question was the baseline specification or the specification that considered two-way interactions is represented in facets from top to bottom. So for instance, the top-left panel shows densities of predicted probabilities of membership in each community from the baseline specification for pundits whose observed membership is in the left-most community; the bottom-left panel shows the same predictions from the model that considers two-way interactions between topic-dimensions. As the figure shows, a majority of pundits in the left community have low predicted probabilities of membership in the right community (green line) and center center community (blue line), with higher predicted probabilities of membership in the left community (yellow line). Conversely, pundits in the right community tend to have a very high predicted probability of being accurately classified and extremely low probabilities of membership in either of the other two communities.

As was the case when predicting the continuous outcome, the first latent space dimension, fit in these models improves when considering two-way interactions – though the differences are less stark. In the baseline model, more than three quarters of pundits have accurate predicted community memberships, defined as the community with the highest predicted probability of membership matching the observed community. This rises to slightly more than 81% in the model that includes two-way interactions between topic-dimensions. Cross-entropy loss, a measure of classification accuracy with a logarithmic penalty for the size of prediction errors, is also similarly low for both models, with both significantly outperforming a null model where all pundits are predicted to be members of each community at rates corresponding to their overall averages.

Finally, I find that each of the three communities of pundits are similarly detectable. Specifically, the “center” community is roughly as distinct in how they discuss politics as the “left” community, while the right is the most (but not overwhelmingly more) distinct. At the

Text-Based Predicted Community Membership by Observed Community Membership

Predictions from multinomial logistic regressions with L1 regularization over ten folds of cross-validation

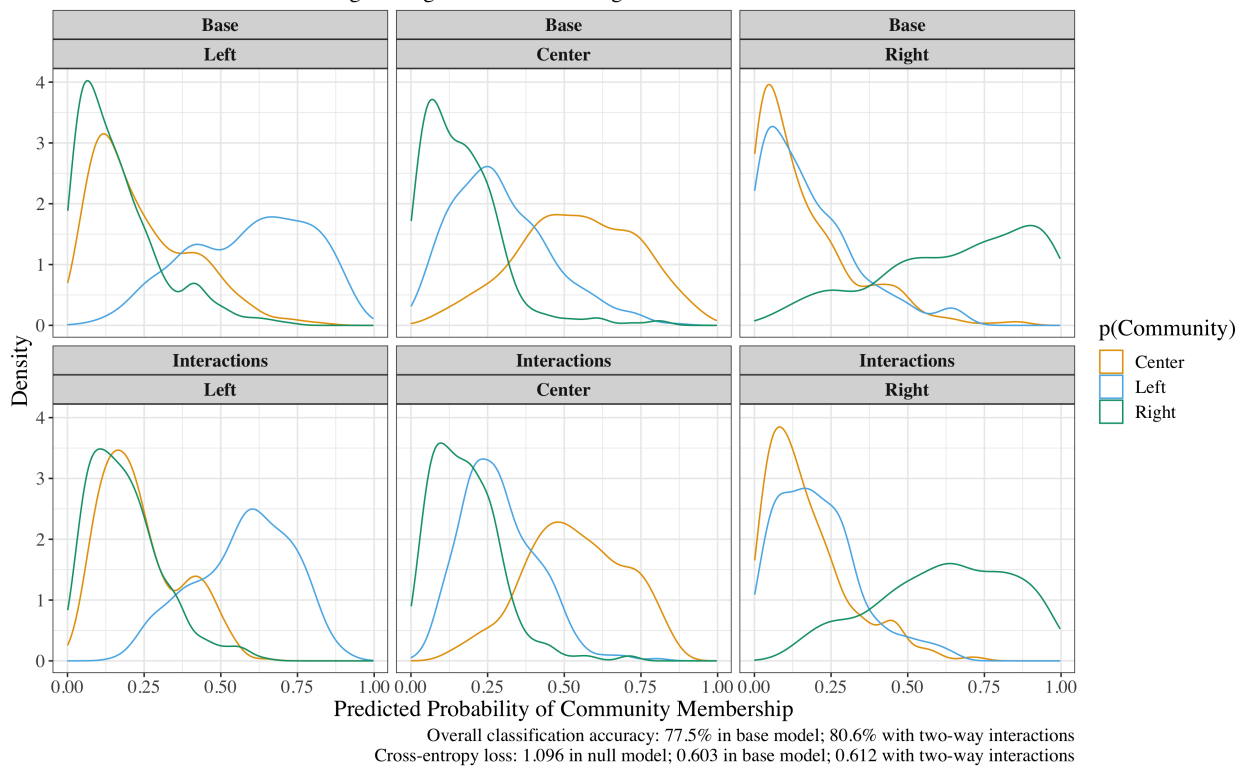


Figure 4: Community Membership Predictions

most basic level, this is apparent in the relatively equal levels of classification accuracy across each of the three communities – 80% for the left and center communities, and 83% for the right community. This is further outlined when examining the coefficients returned by the penalized regression. While there are too many coefficients to display or interpret in full here (they are reported in more detail in the SI), I provide a brief, illustrative summary of them here, showing the number of main and interaction effects – and the sum of their absolute values – for each outcome considered in the best-fitting model.

Of the 510 potential main effects (170 topic-dimensions by three outcomes), 62 were not shrunk to zero. 25 are associated with membership in the right community, 22 are associated with the left, and 15 are associated with the center. Of the 245 non-zero interaction effects in this model, 104 are associated with membership in the center community, 99 for the left community, and 42 for the right. Taken together, this suggests that the more moderate, or “centrist” community of political pundits is no less distinct than their more extreme counterparts, but that the relationship between their ways in which they discuss a variety of political issues and their community membership is more complex. While members of the right-most community are more clearly identifiable based on their average scores on independent topic-dimensions, dependencies between topic-dimensions are more important for identifying moderates.

Community	Effect Type	Non-Zero Coefficients	Sum of Absolute Values
Right	Main	25	3.293
Left	Main	22	1.889
Center	Main	15	1.502
Center	Interaction	104	2.806
Left	Interaction	99	2.632
Right	Interaction	42	1.196

These results suggest that how pundits articulate their belief systems across a variety of

issue areas is highly informative of their ideal points and community membership in preference-based space derived from their following behavior. In some sense, this is to be expected. Follow decisions are decisions as to how to allocate one's attention, and signals as to who you consider yourself similar to. It should therefore come as no surprise that political pundits identified as similar based on their following behavior would exhibit similarities in how they discuss politics. However, the extent to which dimensions of discussion concerning disparate political topics are related to one another, that a wide variety of topics are associated with such follow-based measures, and the strength of these associations provides strong justification for a more holistic operationalization of ideology than preference summaries alone.

Discussion

Debates over the prevalence and relevance of ideology in the American public are frustrated by a disconnect between theory and measurement. In theory, ideologies are complex belief systems that describe social reality, synthesize new information, and prescribe corresponding preferences. However, scholars typically only observe the latter in a systematic fashion. These results provide evidence linking descriptions of social reality and rationalizations of political worldviews to revealed preferences among the most ideological class of democratic citizens, political pundits, who act as opinion leaders for already-informed and relatively sophisticated audiences.

In so doing, these findings underscore Converse's arguments regarding the social sources of preference constraint, providing evidence regarding the packaging of idea-elements together to be presented as whole sets to adherents of competing ideologies. By analyzing the articulated worldviews of the most prominent political pundits in U.S. politics over an extended period of time, this analysis sheds new light into the structure of political discourse. Moreover, it demonstrates the importance of treating summaries of actors' preferences as evidence of ideological processes, rather than their full constitution. Preferences are obviously important

for ideological belief systems, but the evidence shown here cautions against privileging them over the underlying theories of social reality, priorities, and inferential relationships between ideas that are involved in the process of creative synthesis that organizes them.

By extension, this analysis also highlights the need for renewed interest in the study of political pundits as a distinct class of democratic citizen. Situated in the deliberative system between formal elites, who are constrained by pivotal voters, and voters themselves, political pundits are where scholars of democratic politics should go looking if they want to find ideology. Not only do pundits articulate worldviews with meaningful structure, this structure is not directly confounded by electoral or other institutional considerations that would make it difficult to distinguish from partisanship.

To be clear, the findings presented here are limited in two important respects. First, these findings do not leverage time within the data collection period, and instead consider pundits' full set of tweets for each topic over the entire data collection period. Future work can examine changes in the centrality of different topics over time, or how the ability to recover revealed follow-based preferences varies over time, to further highlight the dynamic and ongoing construction and contestation of political ideologies in U.S. politics. Second, the issues selected for analysis, and keywords used to flag tweets as mentioning those issues, are researcher-imposed. While they identify a diverse set of topics and aim to capture as much discussion of those topics as possible without generating false positives, there is surely relevant political discussion that these results do not reflect.

Understood as mass opinion leaders, researchers should be attuned to the health of the discursive space occupied by political pundits. Early scholars of political communication held that opinion leaders were crucial for a well-functioning democracy in which politics is not all-consuming. It is unreasonable to expect all citizens to remain informed about all political issues all the time, but it is more reasonable to expect some citizens to remain informed about some political issues all of the time such that everyone has trusted sources they can turn to in order to understand the issues of the day. As Berelson, Lazarsfeld, and McPhee (1954) write

(pg. 114), “the political wisdom of an apolitical people may consist of an ability to judge among the especially competent and trusted people around them, as well as the theoretically desirable but practically difficult capacity to judge the distant national debate.” Most people do not pay close attention to politics, and yet democracy relies on mass participation. This arrangement is more likely to successfully produce democratic legitimacy and accountability if there is a class of citizens who do pay close attention and can help their peers navigate politics when the need arises. While the results shown here do not speak to the normative quality of political discourse in the pundit space, future analyses could and should.

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