

The Parties in our Heads: Misperceptions About Party Composition and Their Consequences*

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Abstract

We document a large and consequential bias in how Americans perceive the major political parties: people tend to considerably overestimate the extent to which party supporters belong to party-stereotypical groups. For instance, people think that 32% of Democrats are LGBT (vs. 6% in reality) and 38% of Republicans earn over \$250,000 per year (vs. 2% in reality). Experimental data suggest that these misperceptions are genuine and party-specific, not artifacts of expressive responding, innumeracy, or ignorance of base rates. These misperceptions are widely shared, though bias in out-party perceptions is larger. Using observational and experimental data, we document the consequences of this perceptual bias. Misperceptions about out-party composition are associated with partisan affect, beliefs about out-party extremity, and allegiance to one's own party. When provided information about the out-party's actual composition, partisans come to see its supporters as less extreme and feel less socially distant from them.

Keywords: groups, parties, partisanship, perception, polarization

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Partisanship is arguably the most fundamental identity in American political life. Not only does it strongly influence vote choice (e.g., [Ansolabehere, Rodden and Snyder 2008](#); [Bartels 2000](#)), it also colors how partisans process politically relevant information ([Bartels 2002](#); [Druckman, Peterson and Slothuus 2013](#); [Huddy, Mason and Horwitz 2016](#); [Lodge and Taber 2013](#); [Theodoridis Forthcoming](#)). Partisanship also fuels animus and distrust across party lines, with roughly a third of partisans describing the other side as “a threat to the nation’s well-being” ([Pew 2014](#)) and nearly as many aghast at the idea of an out-party supporter marrying into their family ([Iyengar, Sood and Lelkes 2012](#)).

What explains the power of partisanship?¹ A long line of research suggests that people tend to think about parties in terms of other, longer-standing groups ([Berelson, Lazarsfeld and McPhee 1954](#); [Campbell et al. 1960](#); [Converse 1964](#); [Green, Palmquist and Schickler 2002](#); [Hetherington and Weiler 2009](#)). According to this account, people’s feelings toward the groups that constitute the parties or parties’ sociopolitical brands drive their feelings toward the parties, and ultimately their partisan attachments ([Hetherington and Weiler 2009](#), ch. 9; [Mason and Davis 2015](#); [Green, Palmquist and Schickler 2002](#); [Zaller 2012](#); [Kuo, Malhotra and Mo 2017](#); cf. [Abramowitz and Saunders 2006](#)).

However, most supporting evidence for the theory is circumstantial—for example, aggregate stability in party affiliation in the face of changing economic conditions or economically consequential policy shifts by parties (e.g., [Achen and Bartels 2016](#); [Gamm 1989](#); [Green, Palmquist and Schickler 2002](#)). We still largely lack direct evidence that the parties’ social composition drives partisanship (though see [Kuo, Malhotra and Mo 2017](#); [Mason 2016](#)). The group account of partisanship is also at odds with the fact that the parties don’t look very different. Majorities of both parties’ supporters are white, middle-class, and heterosexual, and both parties’ modal supporters are middle-aged, non-evangelical Christians.² Given these similarities, how can differences in party composition explain the heft of partisanship?

The answer, as we discover, lies not in the actual composition of the parties, but in how people perceive the parties to be composed. People make large, systematic errors when judging the parties’ composition, considerably overestimating the extent to which partisans belong to party-stereotypical groups.

¹For a discussion of different theories of partisanship, see [Johnston \(2006\)](#).

²According to data from the 2012 ANES. See the Online Appendix (OA), Sections [OA 1.3](#) and [OA 2.8](#) for further details.

For instance, Americans believe that 32% of Democrats are gay, lesbian, or bisexual (only 6.3% are in reality), and that 38% of Republicans earn over \$250,000 per year (just 2.2% do in reality). These misperceptions are also consequential: they affect partisans' beliefs about and feelings toward the parties. Across multiple experiments, partisans who received information about the actual share of party-stereotypical groups in their out-party rated its supporters as less extreme and reported warmer feelings toward them.

Parties as Sociopolitical Brands

People tend to think about parties in terms of other, longer-standing groups (Berelson, Lazarsfeld and McPhee 1954; Campbell et al. 1960; Converse 1964; Goggin and Theodoridis Forthcoming; Green, Palmquist and Schickler 2002; Hetherington and Weiler 2009). When evaluating political parties, Americans are thought to ask: "What kinds of social groups come to mind as I think about Democrats, Republicans, and Independents?" (Green, Palmquist and Schickler 2002, p. 8).

The groups that come to mind when people think about the parties tend to be common, with Democrats, Independents, and Republicans often associating the same groups with the parties (Busby et al. 2016; Green, Palmquist and Schickler 2002). Group-party associations also tend to endure. For example, associations between the working class and Democrats and the wealthy and Republicans have endured for nearly a century (Green, Palmquist and Schickler 2002).

We posit that these widely-shared and enduring associations reflect a tendency to think about parties in terms of *prototypes*—abstract composites of characteristics associated with the party, akin to Lippman's "pictures in our heads." For instance, when thinking about the parties, one may call to mind a Southern, evangelical Republican or a young, non-white Democrat. Prototypes are a kind of schema—a mental representation of a category. As such, they "provide the organizing structure for interpreting (new) information" (Norman 1979), and therefore help people remember more about groups, recall information about groups faster, and make inferences about new people and situations (Lodge and Hamill 1986). They also help people more quickly assess where they sit in relation to groups in society (Lippman 1922; Mutz 1998; Turner et al. 1987).

To help people quickly categorize others, prototypes tend to reflect characteristics that distinguish groups from each other (Rosch and Mervis 1975; Tajfel 1959). Relying on a prototype-based approach

to stereotyping, [Bordalo et al. \(Forthcoming\)](#) formalize this as follows: a characteristic (c) is likely to be stereotypical to a group (g) “when it scores high on the likelihood ratio” $\frac{Pr(c|g)}{Pr(c|\neg g)}$. These discriminating characteristics, however, need not be common within groups. For example, even though Americans tend to associate blacks with the Democratic Party ([Green, Palmquist and Schickler 2002](#)), just a quarter of Democrats are black.

Further, when “picturing” groups, people tend to fixate on prototypical characteristics and ignore other relevant information such as the prevalence of prototypical characteristics in the population, a tendency [Kahneman and Tversky \(1972\)](#) describe as *representativeness* bias. Reliance on representativeness, in turn, leads to “distorted distributions” of beliefs about group composition, in which people “overweight representative types” ([Bordalo et al. Forthcoming](#), p. 3). Thus, if people think about the parties primarily in terms of other social groups, they are liable to overestimate the percentage of partisans belonging to groups they perceive as core to the party brand.

But how do people learn about these discriminating traits and form beliefs about group-party associations? Political parties cannot be experienced first-hand—we cannot literally meet the party. Learning about the parties is necessarily mediated. As [Mutz \(1998, p. 12\)](#) notes, “while (personal-level knowledge) comes to us primarily through personal experience, (societal-level knowledge) usually reaches us by means of abstracted discussions conveyed through impersonal channels.” The most common of these interpersonal channels for politics continues to be the mass media ([Olmstead et al. 2013](#)). Mass media’s role in popularizing certain images of parties (e.g., [Levendusky and Malhotra 2016](#)) potentially explains why partisan prototypes are widely shared. It also suggests that interest in political news will be positively correlated with beliefs about the share of partisans belonging to party-stereotypical groups.

Not only are the most voracious news consumers most likely to encounter party stereotypes in the information environment, but they are also most likely to process information about the parties in a schema-consistent manner ([Lodge and Hamill 1986](#)). The politically sophisticated are liable to encode new information that comports with their pre-existing party prototypes while overlooking information that does not. Thus, those who pay the most attention to political media may not just be more likely to recall political facts but also the likeliest to possess the most misinformation about party composition (also see [Achen and Bartels 2016; Luskin, Sood and Blank 2013; Pasek, Sood and Krosnick 2015; Roush 2016](#)).

Lastly, because of partisan homophily, partisans are less likely to have personal information about the out-party (Halberstam and Knight 2014; Mutz 2006), rendering impersonal information like media portrayals of the parties more important. Thus, we hypothesize that people will overestimate the share of party-stereotypical groups in the out-party more.

(Mis)perceptions About Party Composition

In March 2015, we surveyed 1000 Americans through YouGov. (For additional details on sampling and comparisons to established benchmarks, see OA 1.1 and OA 1.2.) For both parties, respondents estimated the percentage of supporters belonging to four party-stereotypical groups.

We turned to existing research to identify stereotypically Democratic and Republican groups. The most enduring images of the parties are from the New Deal: the association of the rich with Republicans and the working class with Democrats (Green, Palmquist and Schickler 2002). And, for a long time, Republicans have been seen as the party of older Americans (Lewis-Beck et al. 2008, p. 148). Over time, however, additional social cleavages have become aligned with partisanship. Most notably, as a consequence of partisan racial sorting in the mid-20th century, African Americans have come to be seen as prototypically Democratic. Events half a century ago also precipitated the end of the long-standing association between the South and the Democrats, replacing it with a new linkage between the region and the GOP (Green, Palmquist and Schickler 2002). Separately, the rise of the evangelical movement in the 1980s led evangelical Christians to become more closely linked to Republicans, and the secular to Democrats (Claassen 2011). Given the recent politicization of gay rights, and the longer-standing linkage between civil rights groups and Democrats, we added gays, lesbians, and bisexuals to the list of groups associated with Democrats.³ Reassuringly, after we conducted this study, Busby et al. (2016) administered open-ended items about the types of people who belong to the parties, and the groups selected here were frequently

³The list is neither comprehensive nor systematic but it covers prominent groups associated with the parties. Such a list is adequate for the purposes of our study—to describe the degree to which certain prominent prototypes bias assessments of partisan composition, and what, if anything, we may gain by clearing up such misperceptions.

cited. To make measurement tractable, we exchanged vaguely-defined groups for similar precisely-defined groups. For example, we substituted “earning more than \$250,000 per year”—a contemporary signpost for great wealth in the United States—for “rich.”

In all, we asked respondents to estimate the percentage of Democrats who are black, atheist or agnostic, union members, and gay, lesbian, or bisexual, and the percentage of Republicans who are evangelical, 65 or older, Southern, and earn over \$250,000 per year. Respondents typed their estimate, required to be between 0 and 100, in a box next to each group.⁴ The order of Democratic and Republican batteries was randomized, as was the order of items within the batteries. We compared respondents’ reported perceptions to the actual shares of these groups in the parties, estimated from Pew’s 2012 Religion & Public Life Project (for the two religious party-group dyads) and the 2012 American National Election Study. (See [OA 1.3](#) for details.)

People Overestimate the Share of Party-Stereotypical Groups in Parties

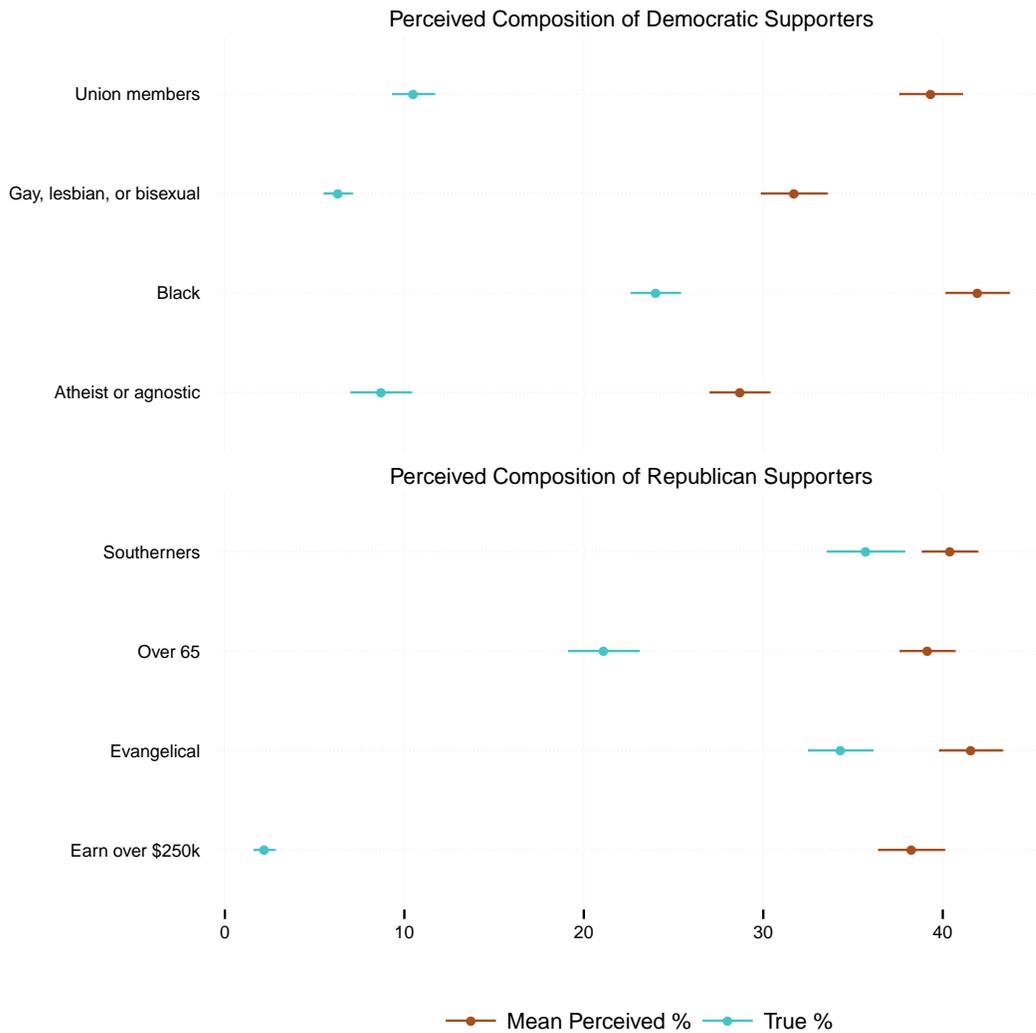
People’s perceptions of party composition contain large, systematic errors. In particular, people overestimate the share of party-stereotypical groups in the parties (see [Figure 1](#) and [Table 1](#)). On average, respondents overestimated these groups’ prevalence by 342% (95% Confidence Interval (CI): [327%, 358%]). Not only are misperceptions large, they are also widespread. For all party-group dyads, a majority of respondents overestimated the group’s share, and for six of the eight, over 70% did so (see [OA 1.7](#)).^{5,6}

⁴Data from a follow-up study suggest that the number of items presented on a single screen does not have a large effect on reported perceptions (see [OA 1.5](#)).

⁵To assess whether outliers drive results, we compared median estimates to the truth (see [OA 1.6](#)). Medians are generally lower than means, but only by a few percentage points. More pertinently, differences between median estimates and true proportions remain vast. Boxplots, split by party, are presented in [OA 1.8](#).

⁶Are people thinking about party elites (instead of rank-and-file supporters) when answering these questions? Evidence presented in [OA 1.4](#) suggests not. Furthermore, even if people were thinking about party elites (variously defined), their perceptions would still be inaccurate—sometimes more so (see [OA 1.4](#)).

Figure 1: People Overestimate the Share of Party-Stereotypical Groups in the Parties



NOTE: 95% confidence intervals depicted.

Looking separately at individual groups, little distinguishes misperceptions about old and new social cleavages. Respondents thought that 39.3% of Democrats belonged to a labor union—only 10.5% do. Even more egregiously, they estimated that 38.2% of Republicans earned over \$250,000 per year when just 2.2% of GOP supporters do. But misperceptions were equally common on more recent cleavages. For instance, respondents thought that the share of Democrats who are gay, lesbian, or bisexual was roughly five times greater than it actually is (31.7% vs. 6.3%). Similarly, though by a considerably less dramatic margin—a bit more than 20%—respondents overestimated the share of evangelicals among Republicans.

Table 1: Perceptions of the Share of Partisan Identifiers Belonging to Party-Stereotypical Groups Across Different Studies

	True	YouGov			Amazon Mechanical Turk		
		Main Survey March 2015	Alt. Interps. November 2014	Extremity Exp. April 2014	Affect Exp. November 2014		
		Full Sample (<i>n</i> = 1000)	Democrats (<i>n</i> = 438)	Republicans (<i>n</i> = 336)			
Democratic Party Groups							
Black	23.9 [22.5, 25.5]	41.9 [40.2, 43.7]	39.4 [36.8, 41.9]	46.4 [43.4, 49.4]	37.7 [35.3, 40.1]	41.5 [38.9, 44.2]	41.4 [38.4, 44.4]
Union members	10.5 [9.4, 11.6]	39.3 [37.6, 41.1]	36.8 [34.3, 39.4]	43.5 [40.5, 46.6]	36.4 [34.0, 38.8]	39.7 [37.1, 42.2]	39.3 [36.4, 42.3]
Gay, lesbian, & bisexual	6.3 [5.4, 7.2]	31.7 [29.9, 33.6]	29.0 [26.5, 31.6]	38.2 [34.8, 41.7]	29.4 [26.6, 32.3]	29.7 [26.8, 32.6]	30.5 [27.1, 33.9]
Atheist/Agnostic	8.7 [8.1, 9.2]	28.7 [27.0, 30.4]	24.5 [23.3, 26.6]	35.7 [32.5, 38.8]	30.5 [28.1, 32.9]	33.2 [30.4, 36.0]	29.1 [26.4, 31.8]
Republican Party Groups							
Earn over \$250,000	2.2 [1.5, 2.8]	38.2 [36.4, 40.1]	44.1 [41.0, 47.1]	33.3 [30.5, 36.1]	34.3 [31.4, 37.2]	37.3 [35.2, 39.4]	37.3 [35.0, 39.6]
Evangelicals	34.3 [32.5, 36.1]	41.6 [39.8, 43.3]	43.7 [40.9, 46.5]	43.2 [40.6, 45.9]	48.7 [45.9, 51.5]	51.8 [49.9, 53.7]	49.9 [47.8, 52.0]
Southerners	35.7 [33.5, 37.8]	40.4 [38.8, 41.9]	44.4 [41.9, 46.8]	39.7 [37.5, 41.9]	47.7 [45.4, 50.0]	50.8 [49.3, 52.3]	48.8 [47.1, 50.5]
Age 65+	21.3 [19.5, 23.1]	39.1 [37.7, 40.6]	44.2 [41.8, 46.5]	38.3 [36.1, 40.5]	47.3 [45.1, 49.6]	See Footnote 15	50.6 [49.0, 52.3]

NOTE: 95% confidence intervals in brackets. The three Amazon Mechanical Turk (MTurk) samples were recruited to conduct experimental studies discussed in [Alternative Explanations](#) and [Consequences of Misperceptions](#). From [Alternative Explanations](#), we only utilize data from the control group. From the other two experiments discussed in [Consequences of Misperceptions](#), we use data from all conditions as perceptions were measured pre-treatment. (In these experiments, we only asked about perceptions of out-party group-party dyads; independents were randomly assigned to one of two parties.)

While most people overestimate the share of party-stereotypical groups in the parties, the extent to which they overestimate varies by partisanship. As columns 4–5 of Table 1 show, Republicans’ perceptions of Democratic composition exhibit significantly more bias than Democrats’. (Independents’ perceptions about party composition are roughly as accurate as in-party estimates; see Figure OA 1.2 in OA 1.9.) For example, while Democrats overestimate the percentage of co-partisans belonging to a union by 25.2 percentage points, Republicans overestimate by an additional 8.3 points. Similarly, Democrats’ perceptions of Republicans tend to be more error-prone. (Excluding leaning independents doesn’t change results systematically or appreciably, as OA 1.6 shows.)

To formally test for differences between in- and out-party perceptions, we compare mean bias in perceptions by partisanship. Letting g_o and g_i index n_o out-party and n_i in-party groups, mean bias is given by:

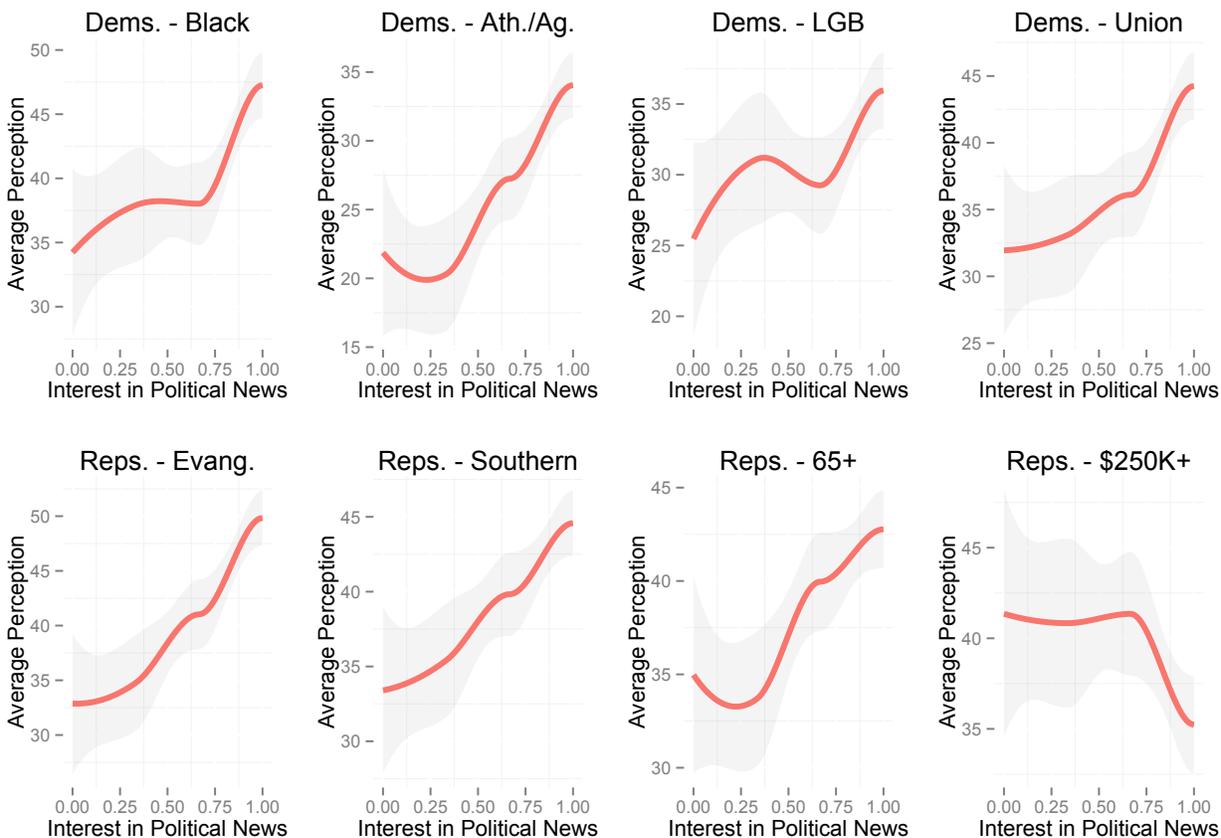
$$\frac{1}{n_o} \sum_{g_o=1}^{n_o} \frac{\text{Estimated } \%_{g_o} - \text{True } \%_{g_o}}{\text{True } \%_{g_o}} - \frac{1}{n_i} \sum_{g_i=1}^{n_i} \frac{\text{Estimated } \%_{g_i} - \text{True } \%_{g_i}}{\text{True } \%_{g_i}}$$

Democrats overstate the share of party-stereotypical groups in the Democratic Party by 214%, while Republicans do so by 306%, a 92-point difference (95% CI: [58, 126]). Similarly, Democrats err about the degree to which the Republican Party is composed of prototypical supporters by 515%–134 percentage points worse than Republicans (95% CI: [82, 184]). In line with our hypothesis, the data suggest that out-party perceptions are more biased. But consistent with the notion that people rely on commonly-shared, impersonal information to arrive at these judgments, people aren’t especially accurate when thinking about their own party; they are just more biased when thinking about the main opposing party.

Finally, the data suggest a *potential* source of these misperceptions. We asked respondents how interested they were in politics.⁷ Political knowledge generally increases with interest in politics (e.g., Ellis and Stimson 2012; Zaller 1992), but in this case, perceptual bias about party composition *increases*

⁷The exact question wording was: “Some people seem to follow what’s going on in government and public affairs most of the time, whether there’s an election going on or not. Others aren’t that interested. Would you say you follow what’s going on in government and public affairs...Most of the time (42.0%), Some of the time (31.5%), Only now and then (18.1%), or Hardly at all (8.5%)?”

Figure 2: Those Most Interested in Political News Hold the Most Skewed Perceptions



NOTE: LOESS with 95% confidence intervals. All linear relationships, estimated via OLS, are significant at $p < 0.01$.

with political interest (see Figure 2). For seven of the eight party-group dyads, those who report following the news most closely also hold the most prototype-biased beliefs about party composition.⁸ The one dyad for which this is not true involves a social group whose share in the population was frequently mentioned by the media—“the 1%.” To restate the obvious, correlation is not causation. But along with existing theory and evidence on mass media’s role in shaping perceptions of collectives (e.g., Mutz 1998), these results provide further reason to investigate the effect of media depictions of the parties on people’s beliefs about party composition.

⁸These associations remain healthy even when we control for education and partisanship (see OA 1.12). Furthermore, the bivariate correlations between education and these perceptions is relatively weak (see OA 1.11).

Are These Reported Perceptions Real?

The results thus far comport with the notion that people’s beliefs about party composition are notably and systematically distorted by party prototypes. However, they are also consistent with three alternate explanations: expressive responding, innumeracy, and ignorance of group base rates. First, instead of offering their true beliefs about the composition of the parties, respondents may offer answers that convey how they feel about a party. For instance, Democrats who dislike both evangelicals and Republicans may deliberately overstate the percentage of Republicans who are evangelical Christian. Second, even if responses are genuine, they may reflect innumeracy rather than misperception. In particular, sums of people’s estimates of how exhaustive, mutually exclusive categories compose groups often exceed 100 (e.g., Wong 2007). So, for instance, when people report that 30% of Democrats are black, a more appropriate interpretation may be that they think that 30 of every 120 or 150 Democrats are black. Third, inaccurate responses may not be party-specific but rather may reflect misperceptions about how common various groups are in the population at large. If so, the misperceptions we document above would not reflect prototypical thinking and representativeness-based judgments, but instead simple ignorance of U.S. demographics.

We conducted an experiment on Amazon’s Mechanical Turk to assess these alternate explanations.⁹ We randomly assigned respondents to one of four conditions (see OA 2.2 for screenshots). The `standard estimation` condition asked the partisan composition questions in the same way as in the YouGov survey. Estimates from this condition serve as a baseline. We designed each of the other three conditions to assess the merit of one specific explanation. Thus, a significant reduction in mean perceptual bias in any of these conditions would imply support for the corresponding alternative.

Table 2 presents the results. (See OA 2.3 for a plot akin to Figure 1.) Like Table 1, we present respondents’ estimates of the percentage of the party belonging to the party-stereotypical group against

⁹Three pieces of data suggest that inferences are likely generalizable to the population. First, MTurk respondents’ perceptions of party composition are quite similar to those of YouGov respondents (see Table 1). Second, the two most salient concerns pertain to partisanship and education, which deviate significantly from the US population, and plausibly strongly condition treatment effects. Treatment effects, however, do not vary significantly by educational attainment or partisanship (see OA 2.5 for partisanship and OA 2.6 for education).

the truth, except here we do so separately by experimental condition.¹⁰

Expressive Responding

People may intentionally misreport the share of party-stereotypical groups to express partisan affect. For instance, they may intentionally overstate the share of groups they like in the party they like or understate the share of groups they like in the party they dislike. To estimate the degree to which our measures capture expressive responding vis-à-vis beliefs about party composition, we provided `accuracy incentives` to a random subset of respondents for close-to-correct responses (see Bullock et al. 2013; Prior, Sood and Khanna 2013). Participants received an *additional* five cents, 20% of the compensation for finishing the survey (25 cents), for each response that fell within five percentage points of the truth. We expect this opportunity to nearly triple the earnings to motivate respondents to report their true beliefs.¹¹

The data suggest that expressive responding contributes little to the bias we observe. Perceptions in the incentives condition are just as biased as those in the standard estimation condition (see Table 2). Not only are there no statistically significant differences in average perceptions for any of the eight party-group dyads, the overall distributions of responses in the two conditions do not differ statistically significantly either (see OA 2.4 for Kolmogorov-Smirnov tests). Furthermore, data suggest that party affect does not drive reported perceptions of party composition; the bivariate associations between feelings towards groups and perceptions of their shares in parties are extremely weak (see OA 2.7).

¹⁰In Table 2, we pool across partisans. However, it may be that the treatments affect out-party perceptions more strongly than in-party perceptions (or vice-versa). To test that, we interacted treatment conditions with partisanship (see OA 2.5). We find no systematic patterns.

¹¹According to Horton and Chilton (2010), the typical MTurker will work for \$1.40 per hour. The average completion time for this study was just under seven minutes. And 25 cents for completing the survey implies an average hourly wage of \$2.14. However, the potential hourly wage in the `incentives` condition was \$5.57, nearly four times the hourly wage for which MTurk workers are willing to work.

Table 2: Bias Due to Expressive Responding, Innumeracy, and Poor Knowledge of Base Rates is Likely Small

	True	Standard (<i>n</i> = 98)	Incentives (<i>n</i> = 91)	Sum-to-100 (<i>n</i> = 98)	Base Rates (<i>n</i> = 95)
Democratic Party Groups					
Black	23.9 [22.5, 25.5]	36.2 [31.6, 40.7]	38.5 [33.8, 43.3]	28.4 [24.7, 32.1]	43.2 [38.3, 48.0]
Union members	10.5 [9.4, 11.6]	36.5 [32.1, 41.0]	35.6 [30.9, 40.3]	36.8 [31.5, 42.1]	36.9 [32.0, 41.7]
Gay, lesbian, & bisexual	6.3 [5.4, 7.2]	27.0 [21.9, 32.1]	27.7 [22.7, 32.7]	24.6 [19.1, 30.1]	35.9 [29.5, 42.3]
Atheist/Agnostic	8.7 [8.1, 9.2]	29.6 [25.2, 33.9]	29.5 [24.7, 34.3]	25.9 [21.2, 30.5]	34.7 [29.8, 39.6]
Republican Party Groups					
Earn over \$250,000	2.2 [1.5, 2.8]	31.5 [26.5, 36.6]	34.9 [29.4, 40.4]	29.3 [22.4, 36.2]	39.2 [33.2, 45.3]
Evangelicals	34.3 [32.5, 36.1]	46.6 [41.1, 52.1]	48.9 [43.7, 54.1]	38.9 [32.7, 45.1]	56.0 [50.8, 61.3]
Southerners	35.7 [33.5, 37.8]	42.3 [38.2, 46.4]	40.9 [36.5, 45.2]	60.9 [56.4, 65.4]	52.7 [48.3, 57.2]
Age 65+	21.3 [19.5, 23.1]	44.7 [40.3, 49.0]	45.5 [41.3, 49.7]	44.9 [39.1, 50.6]	53.1 [49.1, 57.2]

NOTE: 95% confidence intervals in brackets. In the Sum-to-100 condition, participants responded only to the Democratic or the Republican battery to prevent fatigue. Battery assignment was random, with 47 participants responding to the Democratic battery and 51 to the Republican battery.

Innumeracy: Using a Denominator Larger than 100

Even if responses are genuine, they may reflect *innumeracy* rather than misperception. For example, when asked to report perceived shares of mutually exclusive, complementary groups in the population, responses often sum to more than 100 (e.g., Wong 2007). To assess the concern about respondents using the wrong denominator, we asked a random set of respondents to not only report their beliefs about the share of partisans belonging to each of the four party-stereotypical groups, but also the shares of mutually exclusive complementary group(s). Respondents were asked about groups for either the in-party or the out-party (e.g., “What percentage of Democrats do you think are: Black? White? Latino? Other?”) and we required that responses sum to 100. (An on-screen counter presented a running tally of all the responses.)

If innumeracy inflates reported shares of party-stereotypical groups in the Standard condition, estimates in the Sum to 100 condition ought to be considerably smaller. For the most part, they are

not. For six of the eight groups, the difference between reports in the `Standard` condition and the `Sum to 100` condition were indistinguishable from zero or in the wrong direction. Only for the Democratic-black and Republican-evangelical dyads were estimates in the `Sum to 100` condition noticeably smaller, albeit still greater than those groups' actual shares. In the case of the Democratic-black dyad, the difference between reported and actual share in the `Sum to 100` condition is statistically distinguishable from zero; for the Republican-evangelical dyad it is not. Pooling across groups, reports of perceptions in the `Sum to 100` condition were 1.94 points less biased than reports in the `standard` condition. Given that the typical perception is off by 23.1 points in the `standard` condition, this reduction is neither substantively nor statistically significant. (See [OA 2.12](#) for a regression with group-party dyad fixed effects.)

The `Sum to 100` task provides an additional insight. We asked about multiple complementary groups for five of the party-group dyads. In each of these cases, one group was most obviously counter-stereotypical to the party. Respondents underestimated the share of these counter-stereotypical groups. They thought 19% of Republicans earned under \$50,000 per year (compared to 41% in reality), 16% were between 18 and 39 years old (33%), and 12% were non-Christian or did not identify with a religion (19%). Similarly, they thought just 42% of Democrats were white (60%), and 26% Protestant (45%). (Differences between each of these misperceptions and the actual share reaches conventional levels of statistical significance; see [OA 2.8](#)). In toto, people systematically overestimate the shares of particular groups and underestimate the share of others, in a manner consistent with the parties' sociopolitical brands.

Ignorance of Base Rates

A well-documented finding, and one we replicated in the `Standard` condition, is that people are largely ignorant of the shares of various groups in the population. Thus, the misperceptions we have documented may be genuine, but may reflect misperceptions about the composition of the population rather than anything specific to the parties.¹² We put this question to a dispositive test by removing ignorance about

¹²In the `Standard` condition, we asked participants about the share of party-stereotypical groups in the population after quizzing them about their share in the parties. Respondents overestimated the share of all the groups in the population except for Southerners. Party-specific perceptions, however, were significantly larger and more biased than perceived shares in the population, implying that people's images

base rates as a plausible alternative explanation. In the `base rates` condition, we anchored sliding scales at each party-stereotypical group’s share in the adult American population. We alerted respondents to this design feature and then asked them to use the sliders to report their perceptions of the groups’ shares in “their” parties.

Surprisingly, providing base rates appears to make participants *less* accurate (see Table 2). This may, however, reflect a mode effect—the `Standard` condition employs text entry boxes instead of the sliders in the `Base Rates` condition. To tease apart the effect of provision of base rates from the change in mode, we administered the party composition battery with both sliders and text entry (but no base rates) in a follow-up study. Participants assigned to the sliders reported perceptions roughly three points larger across party-group dyads, a non-significant difference smaller than that between the `Standard` and `Base Rates` conditions here. (See OA 2.9 for full results.) Thus, even if sliders inflate respondents’ reported beliefs about party composition, they are unlikely to obscure a corrective effect of the `Base Rates` condition. These misperceptions appear to reflect more than mere ignorance of population demographics.

Consequences of Misperceptions about Party Composition

The evidence thus far suggests that people believe that party-stereotypical groups are far more common in the parties than they actually are, that partisans hold especially distorted perceptions of the composition of the out-party, and that these misperceptions are particular to the parties. We now assess the consequences of these misperceptions. Variation in perceptions of parties’ composition, and widespread bias in those perceptions, provide leverage for doing so.

First, we examine how much beliefs about party composition drive peoples’ inferences about partisans’ policy views. Beliefs about composition may affect beliefs about policy preferences because people associate social groups with particular policy preferences (Brady and Sniderman 1985; Chambers, Schlenker and Collisson 2013; Wilder 1978). If they think about the parties primarily in terms of salient groups, perceptions about groups’ shares in the parties ought to influence their beliefs about partisans’ policy views. For instance, people (accurately) see African-Americans and union members as being relatively liberal on

of the parties color their perceptions of $Pr(\text{party}|\text{group})$. See OA 2.11 for complete results.

economic and social welfare issues (Brady and Sniderman 1985; Chambers, Schlenker and Collisson 2013). Thus, overestimating the proportion of Democratic supporters who are black or who belong to unions is liable to cause people to infer that the party's supporters are more liberal than they actually are.¹³

Second, we examine the extent to which beliefs about composition affect how people feel about out-party supporters. There are two reasons to expect this relationship. First, partisans may be prejudiced against out-party-stereotypical groups, and that may spill over into their evaluations of the party. For instance, racism may combine with positive bias in perceptions of the share of blacks in the Democratic party to reduce how much Republicans like Democrats. Alternatively, these misperceptions may heighten partisan animus through the logic we lay out above—overestimating the share of party-stereotypical groups may cause partisans to think that out-partisans support extreme positions, which may in turn cause people to dislike that party's supporters more. (We do not have the data to shed light on the mechanism. We simply test whether misperceptions about out-party composition predict partisan antipathy, as they ought to under a group identity conception of partisanship.)

Believing that opposing partisans hold more extreme policy preferences, and feeling more socially distant from them, are both liable to cause citizens to become less receptive to out-party communications and less likely to consider voting for that party. This may happen because people come to see opposing partisans as working on behalf of the interests of a few groups (at the expense of other groups or even the national interest) (e.g., Bawn et al. 2012), or because they think that the opposing party supports more extreme policies that it does, or potentially even because they distrust elites representing disliked groups.

Observational Evidence

We begin by presenting some data on the *association* between perceptions of party composition and partisan evaluations. We estimated the strength of these associations using data from the 2015 IGS-California Poll, conducted by the Institute of Governmental Studies at UC Berkeley, and which surveyed 4,257 Cal-

¹³Another possibility is that when groups (in this case, parties) are more homogeneous with respect to other identities, members are more likely to be intolerant of out-groups (Brewer and Pierce 2005). If people perceive a party as more homogeneous than it actually is, they may infer intolerance and attribute like-mindedness or dogmatism to that party's supporters.

ifornia residents through Survey Sampling International (SSI). The marginals on important demographic variables matched population marginals quite well (see OA 3.1 for demographics); survey weights improve this correspondence but do not affect results much. Of the 4,257 respondents, 1,815 partisans were randomly chosen to answer party composition questions like those in the previous studies.

For analysis, we constructed a measure of average perceptual bias in respondents' beliefs about party composition. Letting p index the two main parties, and i index n party-stereotypical groups:

$$\text{Average perceptual bias}_p = \frac{1}{n_i} \sum_{g_i=1}^{n_i} \frac{\text{Estimated } \%_{g_i} - \text{True } \%_{g_i}}{\text{True } \%_{g_i}}$$

We also measured beliefs about partisans' policy preferences, feelings toward out-party supporters, and the extent to which partisans support their own party. To gauge *Beliefs about Democrats' (Republicans') policy preferences*, we asked respondents what percentage of Democrats (Republicans) supported each of six policy statements; the six statements were drawn randomly from a list of 25. Respondents answered the same six items for Democrats and Republicans (with party order randomized). (See OA 3.2 for the full list of statements and additional details on all dependent measures.) Since roughly half of these statements were liberal, and half conservative, we recoded responses to reflect the percentage of party p supporters believed to be conservative on the issue. Note that this is a measure of perceived *constraint*. (In our experimental analog, we rely on perceived *extremity*. We expect both constraint and extremity to be correlated with the extent of bias in perceptions of shares of stereotypical groups.)

Second, to gauge feelings toward supporters of the main opposing party, we administered a *Partisan social distance* battery (Bogardus 1947). Following Almond and Verba (1963) and Iyengar, Sood and Lelkes (2012), we asked respondents how happy or unhappy each of the following situations would make them: a family member marrying a Republican (Democrat), being assigned to work closely with a colleague who supports the Tea Party (Occupy Movement) and enjoys discussing politics at work, a neighbor putting a "Palin for President" ("Hillary Clinton 2016") sign in their yard, and George W. Bush (Bill Clinton) receiving an honorary degree from a nearby college. Consistent with past work, we averaged responses to the four items to create a *Partisan social distance* index ($\alpha = .71$).

Finally, we administered three items to measure *In-party allegiance*: likelihood of supporting an out-

party candidate for US House in 2016 (reverse-coded), anger at the possibility of an out-party candidate winning the presidency in 2016, and likelihood of switching party registration in the future (reverse-coded). We again created an index from these items ($\alpha = 0.68$).

To determine whether beliefs about party composition are associated with beliefs about partisans' policy preferences, we analyze the data at the policy-perception level, regressing *Beliefs about Democrats' opinions* on *Average perceptual bias_D* (and repeating for Republican perceptions). We include fixed effects for policy statements and cluster standard errors by respondent. Analysis is simpler for *Partisan social distance* and *In-party allegiance*: we regress the dependent measures on bias in out-party perceptions. For all analyses, we rescale all variables to lie between 0 and 1.

As Table 3 shows, overestimating shares of party-stereotypical groups in the parties goes hand-in-hand with seeing the parties as ideologically sorted. Compared to those with the least biased beliefs, respondents with the most biased beliefs about Democratic composition tended to think an additional 13% of Democrats took the liberal position (95% CI: [.04, .22]). Similarly, respondents who most overestimated the share of the rich, evangelical, etc. in the Republican party believed GOP supporters to be 13% more likely to take conservative positions than did those with the least biased perceptions (95% CI: [.08, .19]). And as Table 4 shows, partisans with the most biased perceptions of out-party composition tend to feel most socially distant from the main opposing out-party and report the greatest in-party allegiance.

The explanatory power of perceptual bias declines somewhat when we control for likely confounders (see Columns 2 and 4 in Tables 3 and 4). But even after controlling for partisanship, whether or not the respondent is a "strong partisan" (1 or 7 on the 7-point scale), and affect toward party-stereotypical groups (mean feeling thermometer rating), beliefs about party composition are still the strongest predictor of beliefs about partisans' political views. Further, these beliefs continue to strongly and significantly predict partisan affect and in-party allegiance.

These data establish that the expected associations exist in high-quality survey data. To assess causality, we rely on a series of experiments.

Table 3: People With the Most Prototype-Biased Party Perceptions See Partisans as More Likely to Take Party-Consistent Policy Positions

	DV: Perceived % of Democrats Taking Conservative Position		DV: Perceived % of Republicans Taking Conservative Position	
	(1)	(2)	(3)	(4)
Average perceptual bias, Dem. composition	-0.13*** (0.05)	-0.13*** (0.04)		
Average perceptual bias, Rep. composition			0.13*** (0.03)	0.11*** (0.02)
Mean FT for Dem. groups		0.09*** (0.03)		
Mean FT for Rep. groups				0.07** (0.04)
Strong partisan		0.00 (0.01)		0.02** (0.01)
PID: Republican		-0.02** (0.01)		-0.01 (0.01)
Constant	0.39 (0.01)	0.36 (0.01)	0.56 (0.01)	0.53 (0.01)
Issue fixed effects	X	X	X	X
R^2	0.18	0.18	0.11	0.12
SER	0.24	0.24	0.26	0.25
n perceptions	10,837	10,825	10,856	10,844
n respondents	1807	1805	1810	1808

NOTE: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Experimental Design

We conducted two experiments on MTurk, differing only in the dependent variables. (See [OA 4.1](#) for sample demographics.) The first experiment, conducted in April 2014 ($n = 1036$), assessed the impact of misperceptions about out-party composition on beliefs about out-party extremity and feelings towards the out-party.¹⁴ The second experiment, conducted in November 2014 ($n = 821$), further investigated the effect of these misperceptions on partisan animus.

To determine the causal effect of misperceptions about out-party composition, we provided infor-

¹⁴We focused exclusively on the out-party for two reasons. First, perceptions of out-party composition tend to be more erroneous, and thus provide greater opportunity for correction. Second, rising out-party hostility—not in-party affinity—is the primary driver of affective polarization (e.g., [Iyengar, Sood and Lelkes 2012](#)).

Table 4: People With the Most Prototype-Biased Out-Party Perceptions feel the Most Socially Distant to the Out-Party, and are the Biggest Supporters of Their Party

	DV: Partisan social distance		DV: Allegiance to in-party	
	(1)	(2)	(3)	(4)
Average perceptual bias, out-party composition	0.14*** (0.03)	0.08*** (0.03)	0.24*** (0.04)	0.18*** (0.03)
Mean FT for out-party groups		0.33*** (0.03)		0.37*** (0.03)
Strong partisan		0.05*** (0.01)		0.20*** (0.01)
PID: Republican		-0.00 (0.01)		0.02* (0.01)
Constant	0.56 (0.01)	0.40 (0.02)	0.57 (0.01)	0.36 (0.02)
R2	0.02	0.20	0.02	0.28
SER	0.15	0.13	0.23	0.20
n respondents	926	925	1818	1815

NOTE: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

mation about the actual share of four party-stereotypical groups in the out-party to a random set of respondents. First, we assigned respondents to one of three conditions: `ask`, `tell`, or `control`. In the `ask` condition, we administered the four out-party composition questions (like those from the YouGov study) prior to administering the dependent measures.¹⁵ Participants in the `tell` condition also answered these questions, but received correct information about the share of party-stereotypical groups in the out-party before responding to the dependent measures. Finally, participants assigned to the `control` condition responded to the dependent measures without first answering questions about out-party composition. However, they responded to these questions later in the survey, so we have perceptions of party composition for all participants. To deter demand effects, we couched the composition questions as part of a broader political knowledge survey.

¹⁵In the first experiment, one party-group dyad was different. Instead of asking Democrats about the percentage of Republicans 65 years or older, we asked about the *counter-stereotypical* group, the percentage of Republicans aged 35 or below. The average of the responses to this question was close to the actual number (26.6% versus 25.7% in reality). However, Democratic participants were as inaccurate about the other three groups as they were in the above studies. Thus, average correction from the `tell` treatment did not vary unduly across the two experiments.

To identify the impact of correcting misperceptions about out-party composition, we compare responses in the `tell` condition to responses from the other two conditions. The `control` condition provides a baseline for the dependent measures. The `ask` condition mimics the `tell` condition more closely: it asks for people’s beliefs about the share of party-stereotypical groups, but doesn’t provide correct information before the dependent variables are administered.

The `ask` condition, however, very likely changes people’s beliefs about the parties’ composition. As we contend above, people’s “mental pictures” of parties reflect party-stereotypical groups. These pictures implicitly map to inflated beliefs about shares of party-stereotypical groups. However, being forced to offer *explicit*, precise numerical estimates of the shares of different groups in the party disrupts people’s tendency to think about parties in terms of prototypes. It forces people to take stock of some of the large numbers that the pictures in their heads map to, and to revise their beliefs to lower, more plausible numbers. Experimental data support such a mechanism: more “considered” responses tend to be less inflated than “automatic” responses (Ahler and Sood 2017).

In the first experiment, we asked respondents to place the typical Democrat and Republican on four semantic policy scales: taxes, abortion, gay rights, and racial policy. We crafted the scale endpoints so that they fell outside the political mainstream, and instead reflected the extreme demands of party-stereotypical groups (e.g., Bawn et al. 2012). For example, the “taxes” endpoints reflected the stereotypical preferences of the very wealthy and the economically marginalized. Specifically, the scale ran from “Decrease federal income taxes on just the highest earners, keeping the tax rate the same on all others” to “To address inequality, establish a national maximum income by taxing all income over a certain amount at 100%.” (See OA 4.5 for exact question wording and response options.) Our primary dependent measure for the experiment was whether or not respondents placed the typical out-party supporter at the party’s ideologically stereotypical extreme endpoint, e.g., saying that the typical Democrat supports a national maximum income. While results are robust to other reasonable coding specifications (raw placement, winsorized placement, and absolute distance from the scale midpoint; see OA 4.7), our primary measure most clearly comports with our hypothesis that overestimating the share of party-stereotypical groups in the out-party leads people to see that party’s supporters as “intense policy demanders.”

We assessed the consequences of misperceptions on feelings towards the out-party two ways. In

the first experiment, we measured partisan animus with a reverse-coded, 101-point out-party feeling thermometer, rescaled 0–1. In the second experiment, we used the social distance battery that was also used in the observational study.

We hypothesize that participants assigned to the `tell` condition will see the out-party as less extreme and will dislike that party less. Consistent with the observational results, we further expect people with the most biased perceptions to see the out-party as most extreme, and to feel the most affectively polarized. However, if the treatment is effective, we also expect treated participants with the most biased perceptions to most strongly update their beliefs and attitudes, as they receive the largest corrections.

Manipulation Check, Complier Average Causal Effect Estimates, and Placebo Test

We measured the effectiveness of the manipulation by asking participants in the `tell` condition to again answer the party composition questions at the end of the second experiment. Beliefs became significantly more accurate post-treatment; across all perceptions, mean absolute error declined from 27.7 points to 6.1 points, a 21.6-point drop (95% CI: [-23.6, -19.5]). (It also decreased significantly for each of the eight party-group dyads. [OA 4.4](#) presents these results. [OA 4.4.3](#) presents additional data showing that respondents thought that the information was novel.)

Assuming that the effect of our informational treatment is limited to those who learn the information that is provided, the difference-in-means between conditions is a conservative *intention-to-treat* (*ITT*) estimate. To assess the effect of actually learning something about out-party composition—the *causal average complier effect* or *CACE*—we estimate the treatment effect among those who answered at least one of the four end-of-survey composition questions within five percentage points of the truth. (This is a liberal definition of compliance, which has the effect of yielding a conservative estimate of *CACE*.) By this definition, 74.2% of participants “complied.” Using assignment to `tell` as an instrument for learning the information about out-party composition, $CACE = \frac{ITT}{\%_{\text{complier}}}$ (Bloom 1984).

Finally, to more squarely pin down the causal mechanism, we conducted a placebo test in the first experiment. In addition to measuring out-party policy placements and feeling thermometer ratings, we asked respondents for their beliefs about and feelings toward their own party. Since we did not provide information about the composition of the in-party in any condition, treatment should not affect in-party

outcomes. The difference between the `ask` and `control` conditions on perceptions of *in-party* extremity is -0.00 (95% CI: [-0.04, 0.03]), and the difference between the `tell` and `control` conditions is 0.01 (95% CI: [-0.03, 0.04]). Similarly, comparing the `ask` and `control` conditions, the difference in reverse-coded in-party feeling thermometer ratings (rescaled 0–1) is -0.01 (95% CI: [-0.04, 0.03]). Between the `tell` and `control` conditions, the difference is equally small (95% CI: [-0.04, 0.03]). In all, it suggests that any change in dependent measures can be attributed to learning party specific information, rather than a more general mechanism (e.g., reduction in self-confidence).

Misperceptions About Composition Cause Perceptions of Out-Party Extremity

Partisans assigned to the `tell` condition were 6.6 points less likely to place the typical out-party supporter at the extreme than those in the `control` condition (95% CI: [-0.11, -0.02]; see the left pane of Figure 3).¹⁶ (For analysis, we stacked the data so that the unit of analysis is respondent-policy-question. To account for correlation of errors within respondents, we clustered the standard errors by respondent.)

The corresponding difference between the `ask` and `control` conditions is about half as large. This suggests that simply asking people to report beliefs explicitly on a numerical scale reduces the usual tendency to think about parties as prototypes (and the consequences of such thinking). However, the effect falls just short of the conventional cut-off for statistical significance (diff. = -0.03, 95% CI: [-0.08, 0.01]).

Next, we assess whether people’s prior beliefs about out-party composition moderate the treatment effect. In particular, we regress perceived extremity on *Average perceptual bias* (rescaled 0–1) within-conditions, including fixed effects for the distinct policy questions and random effects for respondents. Letting i index respondents and p policy domains, and letting δ denote fixed effects, ϵ random error, α random effects for each respondent, and X the respondent’s average perceptual bias, our model takes the

¹⁶This main effect only appears among partisans. One reason for this is that independents are generally less likely to see partisans as extreme (Ahler 2014). We see the same pattern in our data. Just 22% of the placements given by independents are at the endpoint, compared to 31% of those given by partisans. Further, independents tend to have less biased beliefs about party composition than partisans (see Figure OA 1.2), suggesting smaller treatment impact on average.

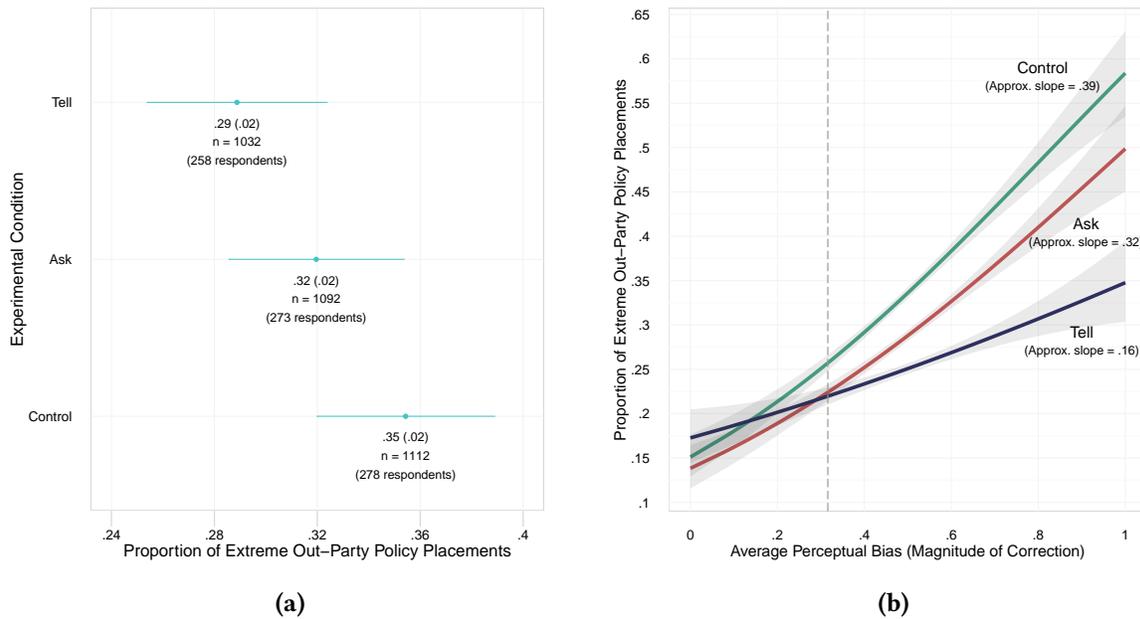
following form:

$$\begin{aligned} Pr(y_{ip} = 1) &\sim \text{logit}^{-1}(\beta * X_i + \delta_p + \alpha_i; \sigma_\epsilon^2) \\ \alpha_i &\sim N(0, \sigma_\alpha^2) \end{aligned}$$

As Figure 3b shows, people who most overestimate the share of party-stereotypical groups are also the likeliest to see the typical party supporter as having extreme preferences. However, this trend is significantly less pronounced among those who are given accurate information about party composition. In the `tell` condition, participants with the most biased out-party perceptions were just 12.8 points more likely to see the typical out-party supporter as an extreme policy demander than those who had the least biased beliefs about out-party composition. (The dashed vertical line in Figure 3b denotes the point on the X-axis at which $X = 0$, when not rescaled 0-1.) In the `Ask` and `Control` conditions, the corresponding differences are 27.4 and 32.7 points, respectively. More generally among partisan respondents assigned to the `tell` condition, at any level of correction, the odds of placing the out-party as extreme are 0.34 times smaller than in the other conditions (95% CI: [0.08, 1.56]). In the full sample, where we have more precision, the interaction effect is similar ($e^{\hat{\beta}} = 0.25$, 95% CI: [0.06, 0.99]), implying that independents with strongly prototype-biased perceptions of the parties are affected by the treatment. (OLS estimates with cluster-robust standard errors are virtually identical. They are reported in OA 4.7, along with models including controls for respondent education.)

Until now we have discussed estimates of *ITT* effects and how they vary by magnitude of perceptual bias. But *ITT* underestimates the effect of learning about the actual share of stereotypical groups in the out-party. Using assignment to `tell` as an instrument for learning the information provided, and using the definition of compliance we note above, the *CACE* is 8.7 points, two points larger than the *ITT* estimate. That is, partisans assigned to the `tell` condition who actually learned the information were nearly 9 points less likely to place the typical out-party supporter as an extreme policy demander (95% CI: [-0.12, -0.06]) than they would have been in the control condition.

Figure 3: Misperceptions Cause People to Attribute Extreme Policy Preferences to the Typical Out-Party Supporter



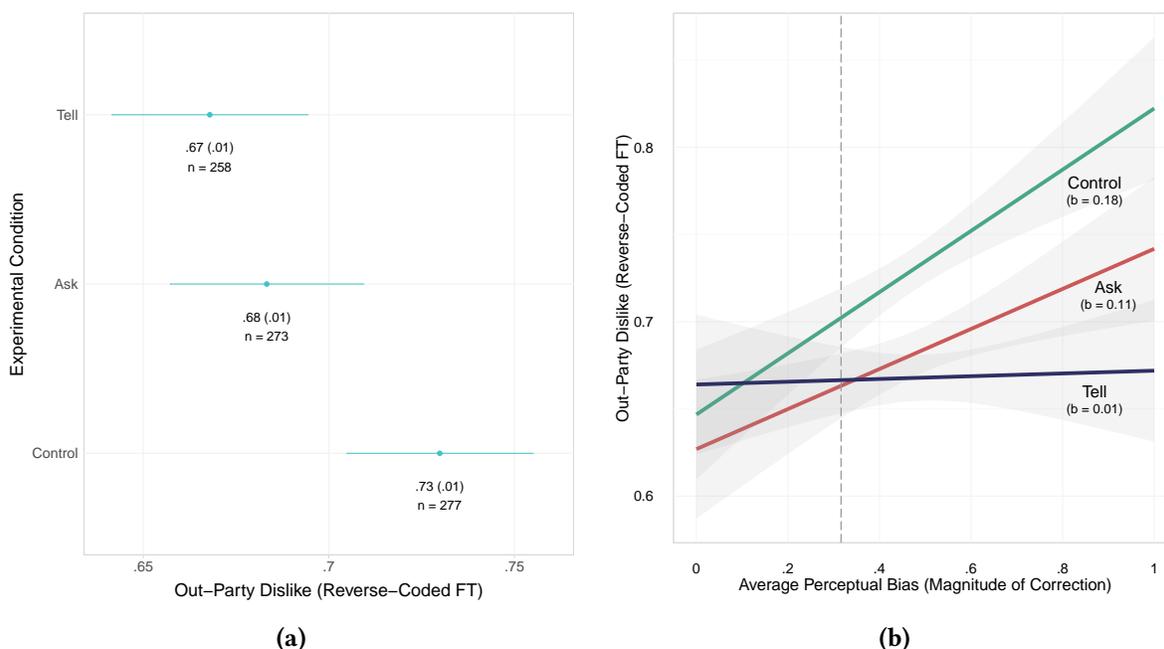
NOTE: All variables rescaled 0 to 1. The dashed vertical line denotes the point at which Average bias = 0 when not rescaled. Perceptions of out-party composition were measured after the policy perceptions battery in the control condition. Figure 3a shows the proportion of respondents in each condition placing the out-party at the extreme endpoint on the policy scales, with 95% confidence intervals. Figure 3b plots the predicted proportion of respondents in each condition placing the out-party as extreme, as a function of prior beliefs about party composition, with 95% confidence intervals. The slopes in Figure 3b refer to linear approximations estimated via ordinary least squares (OLS). See OA 4.6 for OLS estimates.

Misperceptions About Composition Cause Partisan Animus

In the first experiment, participants randomly assigned to the `tell` condition reported liking the out-party 6.4 percentage points more than those in the control group [95% CI: [-0.10, -0.03]]. Participants assigned to the `tell` condition also reported feeling a statistically insignificant 1.5 points warmer toward the out-party than those in `ask` condition (95% CI: [-0.05, 0.02]), who as Figure 4a shows, reported significantly warmer feelings toward the other side vis-à-vis the control group. Taken together, these comparisons suggest that inaccurate beliefs about out-party composition increase dislike toward the out-party, but that correcting those beliefs, or potentially merely asking partisans to report their beliefs numerically, can reduce such animus.

The second experiment investigated the effect of these misperceptions on partisan social distance. The `tell` treatment reduced animus by 2.5 points on average (95% CI: [-0.05, 0.00]), with an estimated

Figure 4: Misperceptions Cause People to Dislike the Out-Party



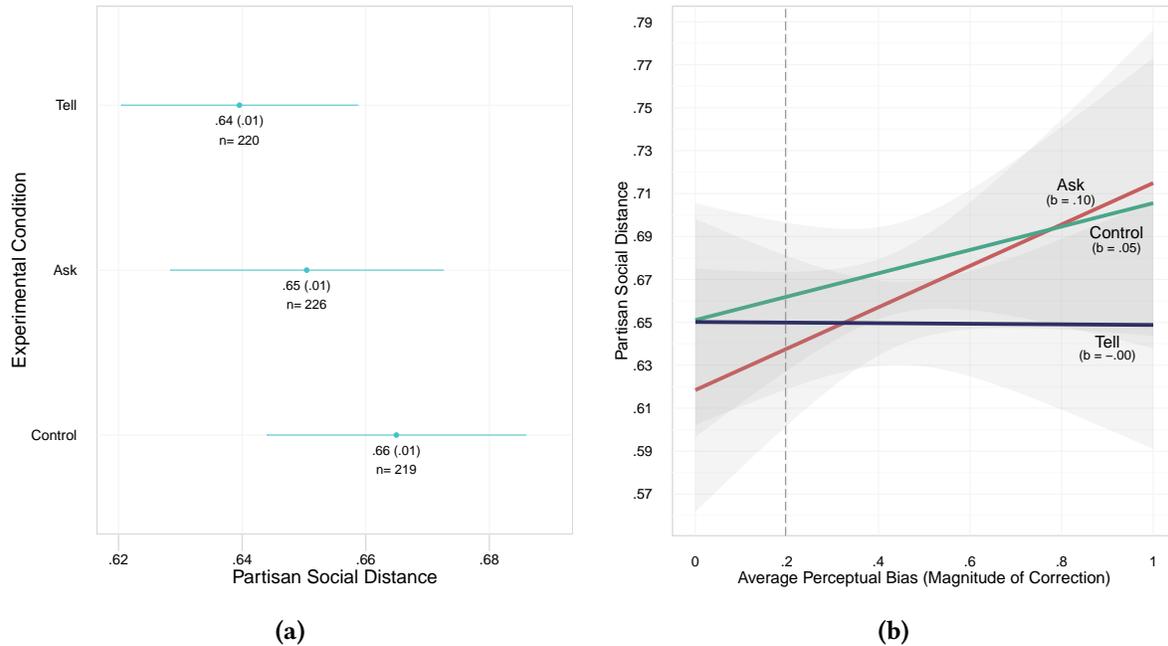
NOTE: All variables rescaled 0-1. The dashed vertical line denotes the point at which Average bias = 0 when not rescaled. Perceptions of out-party composition were measured after the feeling thermometer battery in the control condition. Figure 4a plots mean out-party feeling thermometer rating by condition with 95% confidence intervals. Figure 4b plots ratings by condition, as a function of prior beliefs about party composition, with 95% confidence intervals.

CACE of 3.3 percentage points (95% CI: [-0.07, 0.00]).¹⁷ But to interpret this effect size, it is useful to note that the range of scores on this measure is *de facto* truncated. Partisans rarely respond that they would be “somewhat happy” or “very happy” about inter-party social interactions; 93.1% of partisans’ scores on the social distance index fell between 0.5 and 1. Thus, one way to think about the substantive significance of this effect is to divide it by 0.5. In all, consistent with the observational results, partisans’ beliefs about out-party composition can fuel partisan affect.

Lastly, consistent with the extremity-perception results, Figures 4b and 5b suggest that the magnitude of bias matters. In the *ask* and *control* conditions in both affect experiments, there is a positive relationship between stereotype-bias in out-party perceptions and partisan animus, as expected from the observational results. However, in the *tell* condition, the slopes describing these relationships are al-

¹⁷As independents tend not to feel as socially distant from partisans as opposing partisans, the treatment effects among non-leaning independents are close to 0. See OA 4.8 for analyses.

Figure 5: Misperceptions Cause People to Feel Socially Distant from Out-Party Supporters



NOTE: All variables rescaled 0–1. The dashed vertical line denotes the point at which $X = 0$. Perceptions of out-party composition were measured after the policy perceptions battery in the control condition. Figure 5a plots mean partisan animus by condition with 95% confidence intervals. Figure 5b plots partisan animus by condition, as a function of prior beliefs about party composition, with 95% confidence intervals.

most exactly flat. That is, correcting these widespread misperceptions appears to most strongly affect the partisan sentiments of the most misinformed.

The experimental results presented in Figures 3, 4, and 5 cohere. In all three experiments, the difference-in-means between the `tell` and the `control` group is the largest, statistically significant, and in a direction consistent with the hypotheses. Likewise, in all three cases, the `ask` group’s average score on the dependent measure falls between the other two groups’. Finally, and consistent with our hypotheses, in all three experiments, the weakest relationship between perceptual bias and the dependent measure of interest is among `tell` participants. In all, these convergent findings suggest that the individual experiments’ results are yet more unlikely to be a consequence of random perturbation.

However, it is also true that the treatment effects are relatively small, especially in the case of the affect experiments. The differences between the `tell` and `control` groups, albeit statistically significant at conventional levels, are approximately 6 and 3 points on the feeling thermometer and social distance

scale, respectively. Furthermore, differences between the ask condition and the other two tend to be small and statistically insignificant. And, finally, we lack the power to estimate variation in treatment effects by prior beliefs about partisan composition with precision. Larger samples, and more engaging treatments that encourage people to absorb and reflect on the new information, are likely to prove more persuasive.

Discussion

Across five studies, we find that people overestimate the degree to which partisans belong to party-stereotypical groups, often vastly so. Even in cases where these groups comprise just a sliver of the population, people report that these groups constitute upwards of 40% of the party they “fit.” And when people are given information about these groups’ shares in the population, the bias in their estimates doesn’t decline, suggesting that people rely on representativeness when making judgments about party composition.

Republicans, Democrats, and Independents, all overestimate the share of party-stereotypical groups in both the major parties. Partisan differences, although statistically significant, are relatively small compared to the overall magnitude of these misperceptions. Even more strikingly, those most interested in politics hold the most skewed perceptions of party composition. One plausible explanation for both of these results is that mediated, impersonal information drives these misperceptions. However, all the evidence we have presented on this point is descriptive. Additional research is needed to assess the extent to which media shape these perceptions.

These misperceptions are also consequential. Experimental evidence suggests that beliefs about out-party composition affect perceptions of where opposing-party supporters stand on the issues. These findings provide a potential explanation for why people tend to overestimate the extremity of opposing partisans. In future extensions, we plan to further investigate whether beliefs about party composition explain the striking finding that people also overestimate the extremity of co-partisans (Ahler 2014; Levendusky and Malhotra 2015). Misperceptions about out-party composition also lead partisans to feel more socially distant from the opposing party. Building on work by Hetherington and Weiler (2009) and Mason and Davis (2015), who find that partisan animus is related to party composition, we experimentally show that people’s beliefs about party composition affect their feelings towards the opposing party.

Beyond beliefs about extremity, we suspect that perceptions about party composition affect people’s

beliefs about the parties' priorities. For instance, believing that a third of Democrats are atheist or agnostic, or that half of Republicans are evangelical, may lead one to believe that cultural issues like school prayer are far more important to the parties than they actually are. More generally, we suspect that people associate a narrow set of policy demands with each party-stereotypical group and think these groups have sway over the party's agenda. This is liable to fuel more resentment and cynicism about the motivations of party elites.

More broadly, the data shed faint light on the nature of partisanship. A longstanding debate pits cognitive conceptions of partisanship against claims that partisan attachments are largely affective and stem from other group identities (Johnston 2006). The experimental findings support the notion that orientations toward constituent social groups affect how people feel toward the parties, among other things. However, they also show that *beliefs* about shares of various groups in the parties matter. Thus, while the group identity account makes a compelling case that partisanship is a relatively stable, affective attachment, work in this tradition must grapple more thoroughly with the social cognitions (and cognitive biases) that are relevant to how people reason about politics.

This is especially the case because partisans overestimate the share of party-stereotypical groups in their own party. For instance, many lower- and middle-class Republicans think that their party contains far more rich people than it actually does. This suggests that many partisans like their own parties to the extent they do—a great deal, with average ratings exceeding 80 on the thermometer scale (Iyengar, Sood and Lelkes 2012)—despite believing that the party has a greater share of groups to which they tend not to belong than it actually does. Green, Palmquist and Schickler (2002, p. 8) suggest that partisans choose parties based on “which assemblage of groups” looks like them. While this may still be true, the data suggest that people identify with parties based on which groups they like.

Finally, and most broadly, this research furthers our understanding of people's perceptions of mass collectives and how these perceptions shape individuals' own political attitudes. Mutz (1998) describes impersonal influence as the effect of people's perceptions of what others are experiencing, or what others believe, on their own attitudes and behaviors. We take this one step further and assert that people's perceptions merely of who *belongs* to a collective can be a source of impersonal influence—and in this case, a catalyst for partisanship in American politics.

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“The Parties in Our Heads”

Online Appendix

OA 1 Perceptions of Party Composition

OA 1.1 Sample Information

YouGov interviewed 1294 respondents who were then matched down to a sample of 1000 to produce the final dataset. The respondents were matched to a sampling frame on gender, age, race, education, party identification, ideology, and political interest. The frame was constructed by stratified sampling from the full 2010 American Community Survey (ACS) sample with selection within strata by weighted sampling with replacements (using the person weights on the public use file). Data on voter registration status and turnout were matched to this frame using the November 2010 Current Population Survey. Data on interest in politics and party identification were then matched to this frame from the 2007 Pew Religious Life Survey. The matched cases were weighted to the sampling frame using propensity scores. The matched cases and the frame were combined and a logistic regression was estimated for inclusion in the frame. The propensity score function included age, gender, race/ethnicity, years of education, and ideology. The propensity scores were grouped into deciles of the estimated propensity score in the frame and post-stratified according to these deciles.

OA 1.2 Sample Demographics

Table OA 1.5: Comparison Between Sample Demographics and Benchmarks

	YouGov Sample	YouGov Sample, Weighted	2012 ANES	2010 Census
Age				
18-29	18.3%	21.6%		19.2%
30-49	31.2%	30.0%		31.7%
50+	50.5%	48.5%		49.2%
Gender				
Male	47.6%	48.0%		49.1%
Female	52.4%	52.0%		50.9%
Race/Ethnicity				
Non-Hispanic White/Caucasian	68.7%	66.5%		63.7%
Black/African-American	11.6%	11.5%		12.2%
Asian/PI	2.4%	3.7%		4.8%
Hispanic/Latino	13.1%	13.8%		16.4%
Native American	0.8%	0.7%		1.1%
Other/more than one	3.4%	3.8%		6.2%
Education				
Less than HS degree	5.4%	11.9%		8.9%
High school/GED	34.5%	30.8%		31.0%
Some college/2-year degree	32.9%	31.3%		28.0%
4-year college degree	19.0%	16.8%		18.0%
Graduate/professional degree	8.2%	9.2%		9.3%
Party Identification				
Democratic (inc. leaners)	45.9%	41.7%	49.0%	
Republican (inc. leaners)	35.0%	35.2%	39.0%	
No party preference/Other	19.1%	23.1%	11.9%	
Census Region				
Midwest	22.5%	20.3%		21.7%
Northeast	17.9%	17.8%		23.3%
South	35.9%	37.7%		37.1%
West	23.7%	24.2%		17.9%

OA 1.3 Sources of Data for Population-Based Estimates of Partisan Composition

Democratic-Stereotypical Groups

The estimated percentage of Democrats who are black (24.0%) comes from population-weighted 2012 ANES data, as do the estimated percentages of Democrats who are union members (10.5%) and gay, lesbian, or bisexual (6.3%). All estimates include Democratic-leaning independents. The percentage of Democrats who are atheist or agnostic (8.7%) is estimated based on Pew Research's 2012 Religion & Public Life Project.¹⁸ While the public report does not report this particular statistic, we estimated with Bayes's Rule using publicly available statistics from the report.

Republican-Stereotypical Groups

The estimated percentage of Republicans who earn over \$250,000 per year (2.2%) comes from population-weighted 2012 ANES data, as do the estimated percentages of Republicans who are from the South (35.7%, based on residence in a state identified by a majority of respondents as "Southern" in a recent 538 poll¹⁹) and over 65 years old (21.3%). The percentage of Republicans who are evangelical (34.0%) is provided in Pew Research's 2012 Religion & Public Life Project.

¹⁸<http://www.pewforum.org/2012/10/09/nones-on-the-rise>

¹⁹The poll was 50% nationally representative and 50% from a Southern-region representative sample. See more at <http://fivethirtyeight.com/datalab/which-states-are-in-the-south/>.

OA 1.4 Who Do Respondents Have in Mind?

One potential concern is that respondents may have misconstrued the question, “What percentage of Democratic (Republican) Party supporters do you think (have a party-prototypical characteristic)?” Instead of thinking of rank and file supporters of the party, they may have thought about strong identifiers, activists, or elites. However, two distinct pieces of evidence assuage the concern.

First, as part of the 2015 IGS-California Poll (see [OA 3.1](#)), we asked respondents two chained questions to assess this concern directly. We first asked, “What percentage of adults living in California do you think are...” Democrats and Republicans. Respondents, on average, estimated 59.2% of Californians to be Democrats (95% CI: [58.6, 59.8]) and 39.1% to be Republicans (95% CI: [38.5, 39.8]). These are overestimates—respondents appear, on average, to neglect the fact that many Californians do not identify with one of the parties—but the numbers suggest that people have large collectives in mind when asked about the parties.

After this question, we asked the party composition perception questions in nearly-identical language: “What percentage of Democrats (Republicans) living in California do you think (have a party-prototypical characteristic)?” These results are presented in [OA 1.6](#). The results are consistent with the results from the YouGov and MTurk studies. Thus, when respondents answer the party composition questions, they appear to have the correct population in mind and appear to reason about the parties in that population in a prototype-biased fashion.

But even if people have other partisan subsets in mind, it’s not clear that their perceptions are any more accurate. To assess the question, we tallied percentages of party-stereotypical groups among elites, campaign donors, convention delegates, and Congress (see [OA 1.7](#)). While some “activist subsets” are indeed more likely to have party-prototypical traits—e.g., blacks are disproportionately represented among strongly-identifying Democrats—many of these cases simply reflect the tendency of activists to have certain traits. For example, donors are more likely to be old regardless of their partisanship, and delegates and politicians are more likely to be wealthy, regardless of partisanship. Furthermore, in many cases, the party-stereotypical groups are *less* represented in the activist or elite classes of the parties. For example, few Democratic politicians are non-religious, non-heterosexual, or have union membership. Thus, even if some respondents do have partisan subsets in mind other than the general population of

Table OA 1.6: “What percentage of Democrats/Republicans living in California do you think are...?”

	True %	Mean Perception	<i>n</i>
Democratic Party Groups			
Atheist/agnostic	19.7	27.6 [26.6, 28.5]	2103
Black	10.8	33.5 [32.2, 34.8]	1071
Latino	25.4	43.3 [42.0, 44.6]	1034
LGBT	6.3	29.2 [28.2, 30.3]	2106
Union members	10.9	36.2 [35.2, 37.1]	2104
Republican Party Groups			
Age 65+	25.2	37.6 [36.7, 38.5]	2103
Earn over \$250k	2.2	35.8 [34.7, 36.9]	2104
Evangelical	42.1	35.5 [34.1, 36.9]	1059
Mormon	3.0	22.0 [20.6, 23.5]	1044

Democrats and Republicans, it’s not clear that their perceptions are any more accurate.

Table OA 1.7: Actual Mass and Elite Party Composition, Compared to Perceptions

	Mean perception (YouGov)	Actual, all partisans (2012 ANES and 2014 Pew R&FLP)	Just strong partisans (1s and 7s, 2012 ANES)	Just campaign donors (2012 ANES)	Convention delegates (2008 CBS Poll)	MCs (114th Congress)
Dem. groups						
Atheist/agnostic	28.7 [27.0, 30.4]	8.7 [8.1, 9.2]	10.5 [8.9, 12.0]	16.4 [12.8, 20.0]	< 22	0.4
Black	41.9 [40.2, 43.7]	23.9 [22.5, 25.5]	34.7 [32.3, 37.2]	28.0 [23.6, 32.3]	23	19.4
Gay, lesbian, or bisexual	31.7 [29.9, 33.6]	6.3 [5.4, 7.2]	6.9 [5.6, 8.2]	6.6 [4.2, 9.1]		3.1
Union members	39.3 [37.6, 41.1]	10.5 [9.4, 11.6]	11.9 [10.2, 13.5]	15.3 [11.9, 18.8]	24	< 5% (Carnes 2013)
Rep. groups						
Age 65+	39.1 [37.7, 40.6]	21.3 [19.5, 23.1]	26.6 [23.5, 29.7]	38.5 [32.2, 44.8]		19.3
Earn over \$250k/yr	38.2 [36.4, 40.1]	2.2 [1.5, 2.8]	1.9 [0.9, 2.9]	5.1 [2.2, 7.9]	> 34	> 50% (Carnes, 2013)
Evangelical	41.6 [39.8, 43.3]	34.3 [32.5, 36.1]	47.9 [41.0, 54.8]	26.6 [23.5, 29.7]	31	
Southern	40.4 [38.8, 41.9]	35.7 [33.5, 37.8]	37.6 [34.2, 41.1]	32.1 [26.0, 38.1]		42.3

OA 1.5 Number of Perceptual Items in a Battery/On the Screen?

In a follow-up study in August 2016 conducted on MTurk, we administered the perceptual items to random subsets of respondents in the block-of-four format (as in the YouGov study) or with one item per screen. As the table below shows, for only one group-party dyad did a significant difference emerge: respondents asked about $Pr(\text{Southern}|\text{Republican})$ were significantly *less* accurate when elicited on a screen by themselves. (And this difference is somewhat small, substantively.) Thus, respondents do not appear confused by the 4-item block.

Table OA 1.8: Minimal Differences in Response Based on Item Format

Party-Group Dyad	One Item Per Screen	4-Item battery	Difference	$Pr(T > t)$
Dem.-Ath./Ag.	31.1 ($SE = 1.8, n = 143$)	31.6 ($SE = 1.8, n = 133$)	-0.5	0.85
Dem.-Black	35.7 ($SE = 1.7, n = 143$)	36.5 ($SE = 1.7, n = 147$)	-0.8	0.74
Dem.-LGB	22.5 ($SE = 1.5, n = 143$)	21.4 ($SE = 1.4, n = 148$)	1.0	0.60
Dem.-Union	33.4 ($SE = 1.8, n = 143$)	35.1 ($SE = 1.7, n = 161$)	-1.7	0.50
Rep.-Age 65+	46.2 ($SE = 1.7, n = 143$)	45.0 ($SE = 1.7, n = 124$)	1.2	0.63
Rep.-Evang.	45.3 ($SE = 2.0, n = 143$)	46.9 ($SE = 1.9, n = 139$)	-1.7	0.55
Rep.-Southern	43.2 ($SE = 1.6, n = 143$)	47.7 ($SE = 1.5, n = 148$)	-4.5	0.04
Rep.-\$250K+	30.1 ($SE = 2.0, n = 143$)	30.3 ($SE = 2.1, n = 134$)	-0.2	0.94

OA 1.6 Robustness

Figure 1 in the main text plots the mean estimate of various groups by partisan affiliation. It is possible that the distribution is skewed, making the mean not a particularly good summary of the views of an average respondent. In Figure 1 in the main text, we also took the decision of including responses of partisan leaners and counting them as partisans. In Table OA 1.6 we put means plotted in Figure 1 side-by-side with medians, and mean estimates by only non-leaning partisans. The estimates are quite similar – differencing generally by only a few percentage points.

Table OA 1.9: Median, No Leaners

Groups	True	Out-Party			In-Party		
		Means	Medians	No Leaners	Means	Medians	No Leaners
Black	24.0%	47.40%	41.50%	45.50%	38.26%	30.00%	39.21%
Atheist or Agnostic	8.7%	35.54%	25.00%	34.13%	23.87%	20.00%	23.42%
LGBT	6.3%	36.83%	25.00%	35.45%	29.36%	20.00%	29.13%
Union Members	10.5%	44.02%	40.00%	42.81%	35.69%	30.00%	35.90%
Rich	2.2%	43.91%	40.00%	45.45%	30.74%	25.00%	32.18%
Evangelical	34.3%	43.94%	40.00%	41.41%	45.25%	45.00%	44.56%
Southern	35.7%	43.34%	40.00%	41.70%	39.99%	40.00%	38.86%
Over 65	21.1%	42.84%	40.00%	42.30%	38.57%	35.00%	37.28%

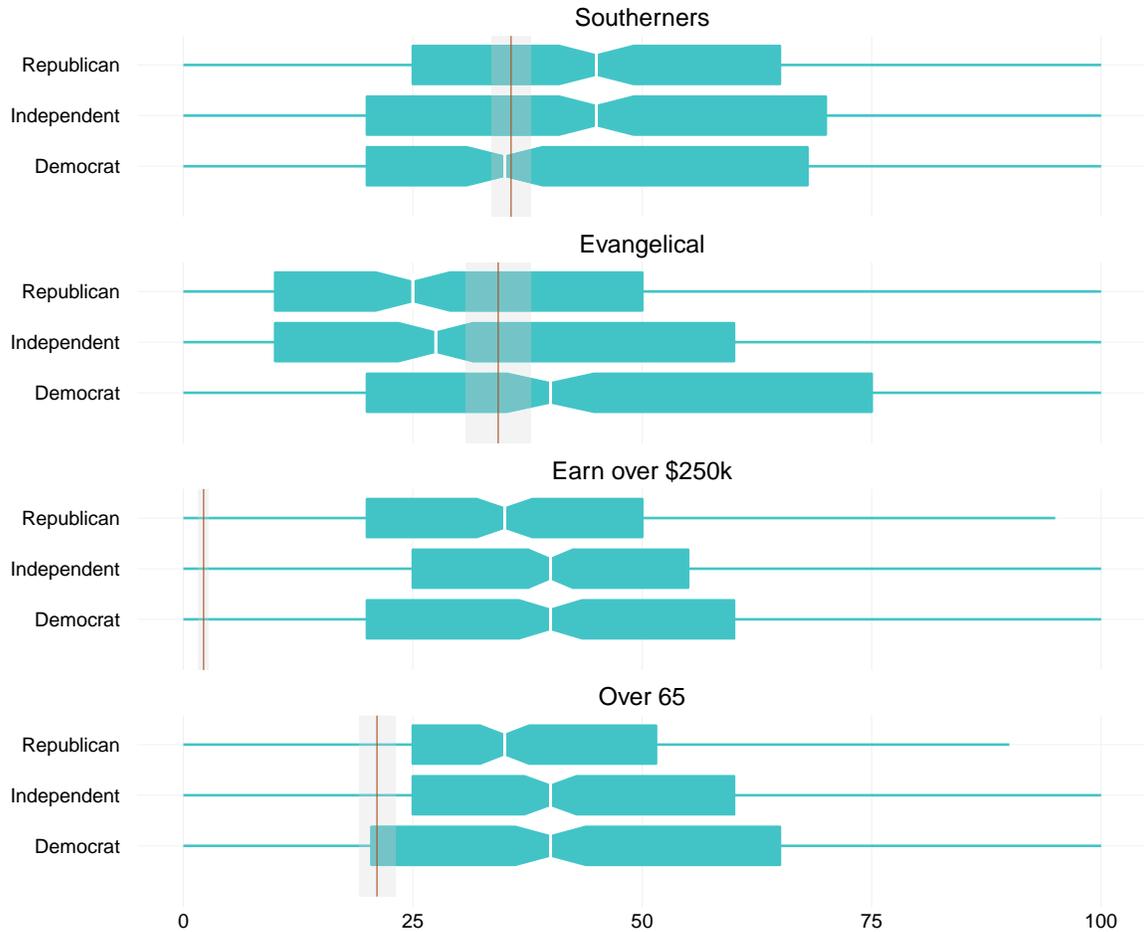
OA 1.7 Majorities of Respondents Overestimate $Pr(\text{group}|\text{party})$

Table OA 1.10: Majorities of People Overestimate Share of Party-Stereotypical Groups in the Party

Party-Group Dyad	% Overestimating	95% Confidence Interval
Dems. – Atheist/agnostic	76.4%	[73.7%, 79.0%]
Dems. – Black	70.8%	[68.0%, 73.3%]
Dems. – Gay, lesbian, or bisexual	80.1%	[77.6%, 82.6%]
Dems. – Union members	79.4%	[76.9%, 81.9%]
Reps. – Earn over \$250K	90.9%	[89.1%, 92.7%]
Reps. – Evangelical	52.4%	[49.3%, 55.5%]
Reps. – Over 65	72.4%	[69.6%, 75.2%]
Reps. – Southerners	50.9%	[47.8%, 54.0%]

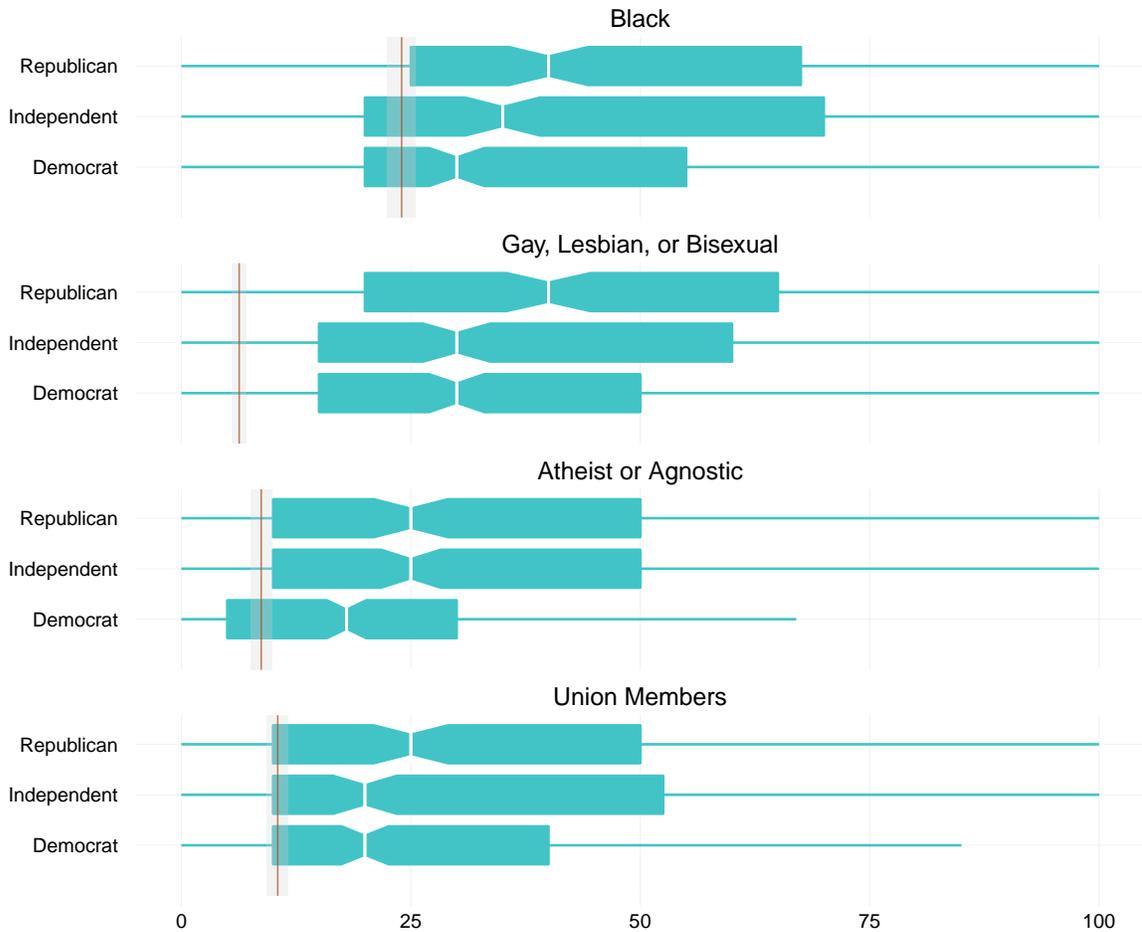
OA 1.8 Distribution of Estimates of $Pr(\text{group}|\text{party})$

(a) Perceived Composition of Democratic Identifiers, by Respondent Partisanship



NOTE: The plots display the full range of perceptions reported (the thin teal lines), the interquartile range of perceptions (the thick teal section), and the median with a 95% confidence interval (the white band and notch in the middle of the IQR). They also display the population estimate of $Pr(\text{group}|\text{party})$, depicted as vertical red lines with gray 95% confidence intervals based on sampling error.

(b) Perceived Composition of Republican Identifiers, by Respondent Partisanship



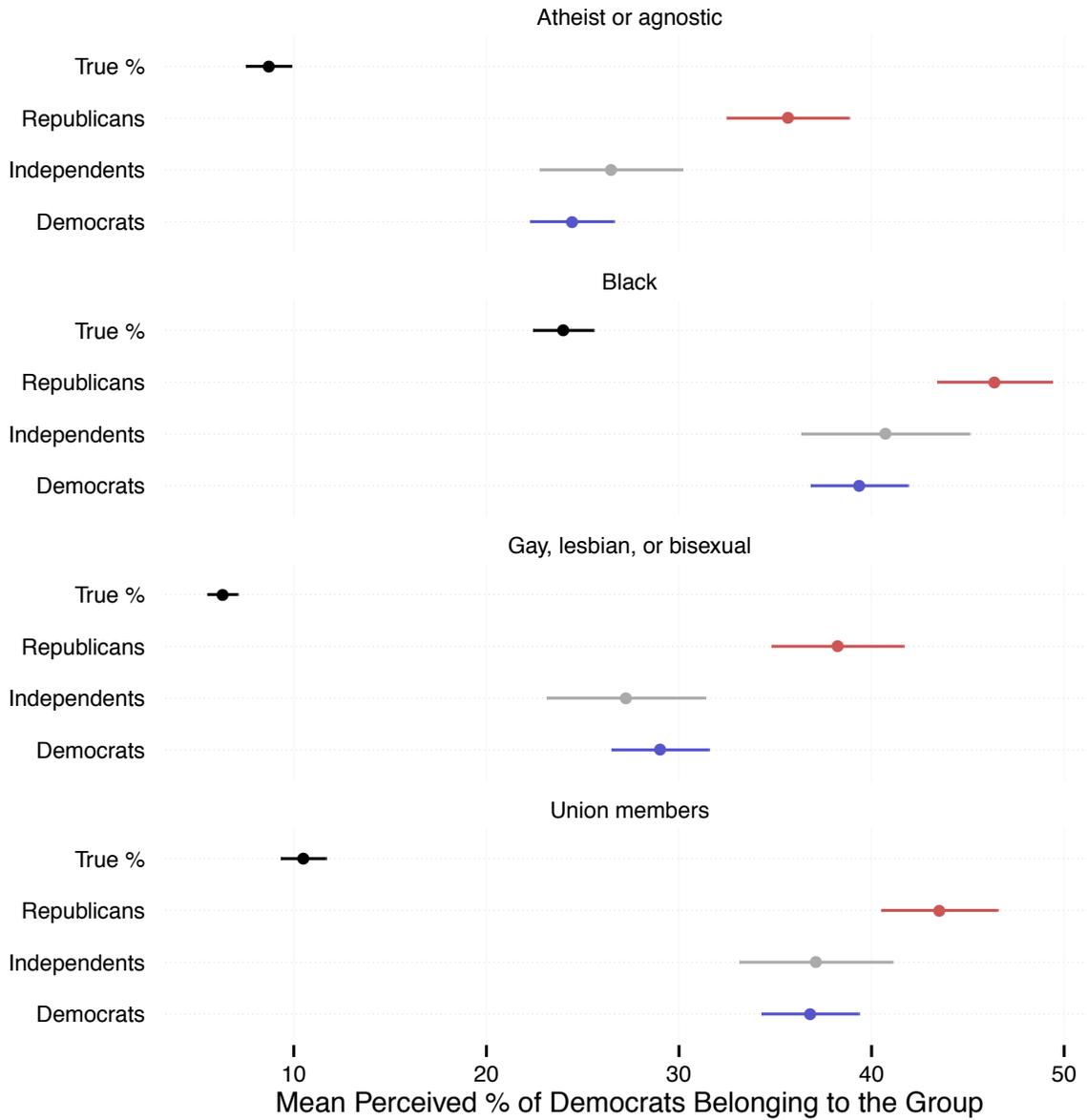
NOTE: The plots display the full range of perceptions reported (the thin teal lines), the interquartile range of perceptions (the thick teal section), and the median with a 95% confidence interval (the white band and notch in the middle of the IQR). They also display the population estimate of $PR(\text{group}|\text{party})$, depicted as vertical red lines with gray 95% confidence intervals based on sampling error.

OA 1.9 Perceptions of Party Composition, by Partisanship

Figure OA 1.2 plots perceptions about party composition by partisanship. This is presented in tabular form in the paper in Table 1, although these figures also show non-leaning Independents' perceptions. Independents' perceptions about Democratic (Republican) composition are roughly as accurate as Democrats' (Republicans'). This comports with findings that independents are more likely to have bipartisan networks (Hui 2013). It also potentially comports with the finding that those less interested in political news—as independents generally are—are less error-prone in their judgments about party composition (see Figure 2 in the paper). SI OA 1.10 plots perceptual error by partisanship *and* political interest. Within levels of self-reported political interest, independents' perceptions tend to be more accurate than out-party supporters' but less accurate than in-party supporters'. Thus, differences in political interest alone cannot explain the pattern in Figure OA 1.2.

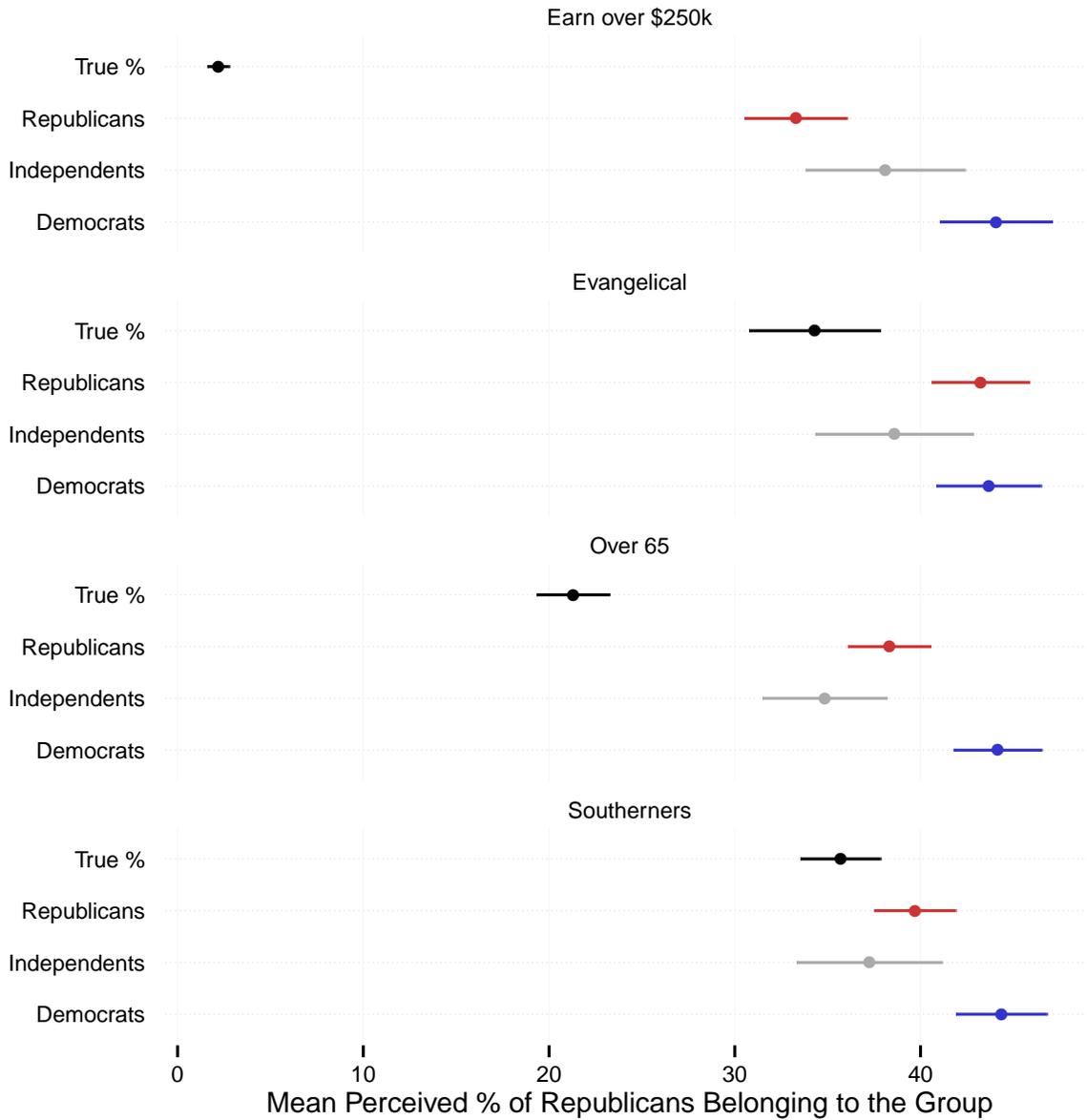
Figure OA 1.2: Perceptual Bias is Universal, but Pronounced Among Out-Party Supporters

(a) Perceived Composition of Democratic Identifiers, by Respondent Partisanship



NOTE: 95% confidence intervals included.

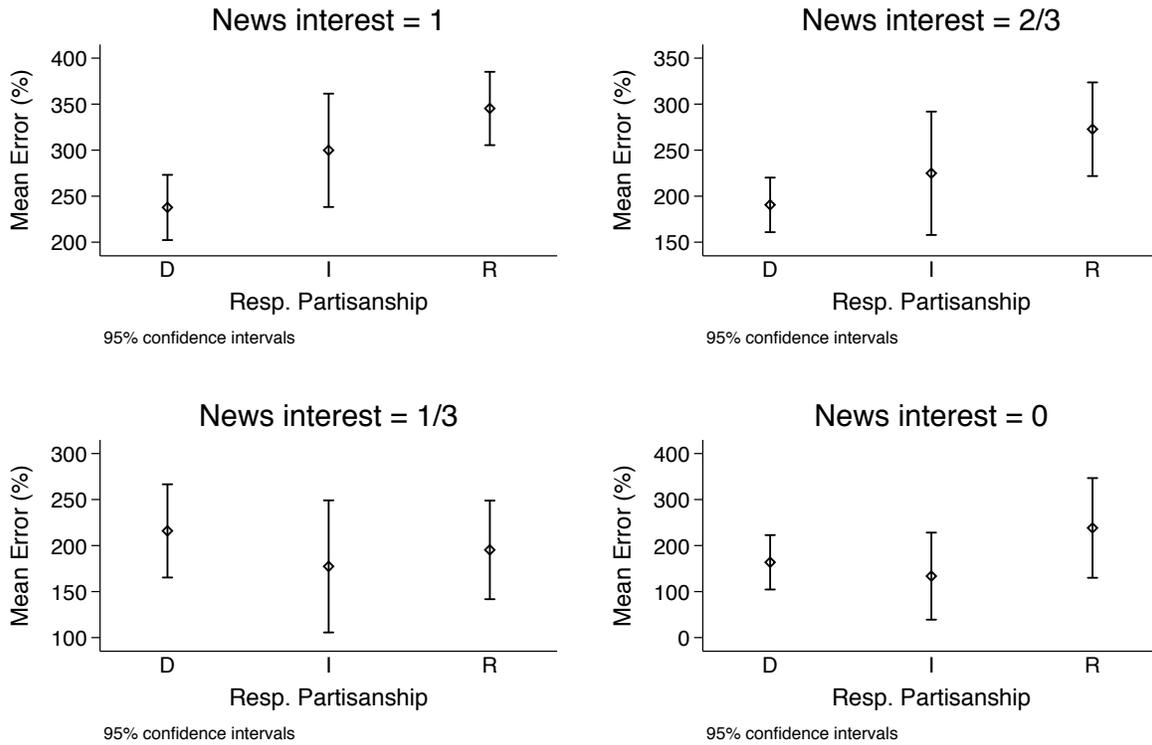
(b) Perceived Composition of Republican Identifiers, by Respondent Partisanship



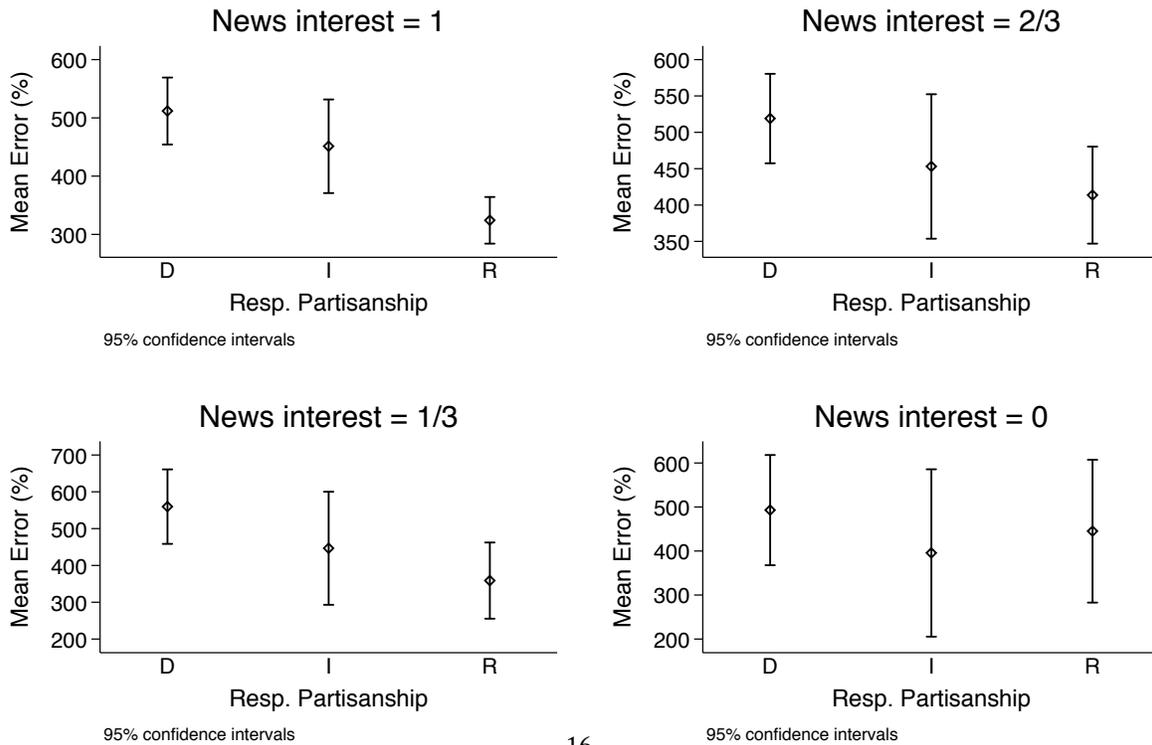
NOTE: 95% confidence intervals included.

OA 1.10 Error in Perceptions of Party Composition, by Partisanship and Political Interest

(a) Error in Perceptions of Democratic Composition



(b) Error in Perceptions of Republican Composition



OA 1.11 The Apparent Effect of Education on Perceptions of Party Composition

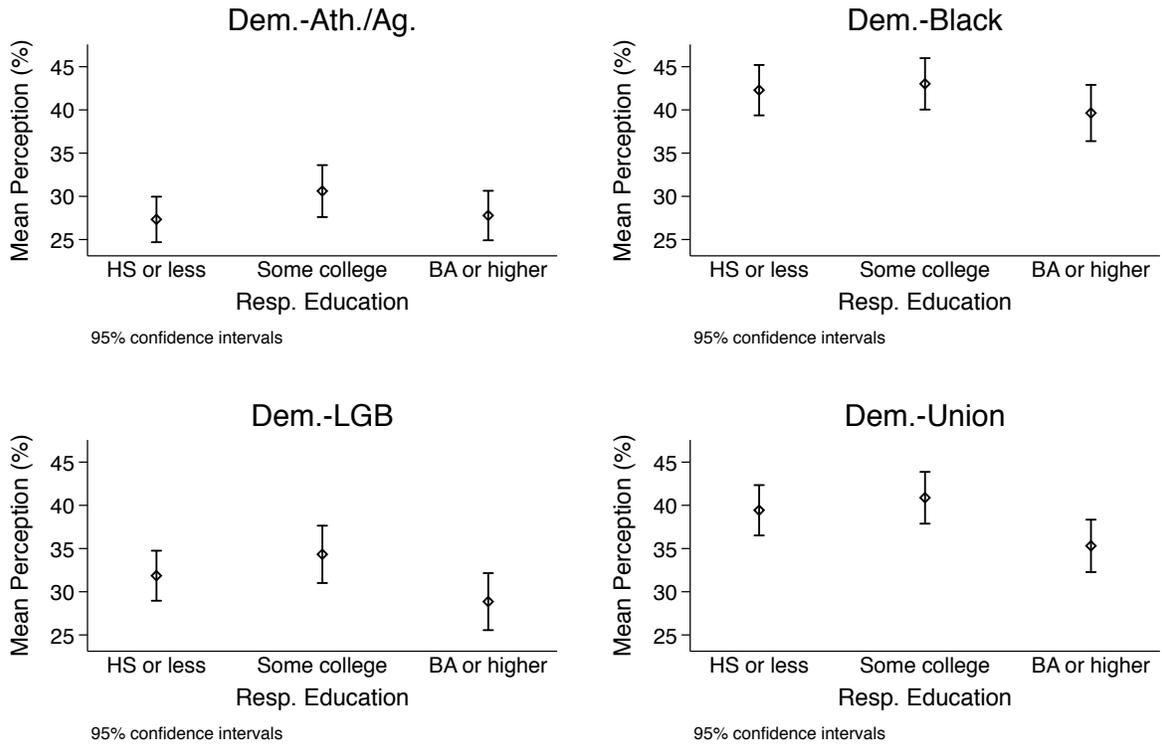
As we discuss in the “Alternative Explanations” section of the paper, one possible explanation for the large and systematic misperceptions of how groups compose the parties is innumeracy. Since education likely improves numeracy (or is at least positively correlated with it), we assess how much, if at all, controlling for education reduces the apparent misperceptions of $Pr(\text{group}|\text{party})$. We first present a series of confidence interval plots, which plot perceptions of $Pr(\text{group}|\text{party})$ by three broad educational categories. As the plots show, education is somewhat associated with improved perception of Democratic composition, although even respondents with college or above grossly misperceive the degree to which Democrats belong to party-stereotypical groups. However, aside from the question of the percentage of Republicans who earn \$250,000 per year, more educated respondents appear to perform somewhat worse on the Republican composition items. And overall, the differences across educational groups are quite small in comparison to the overall error in respondents’ average perceptions.

One possibility is that only the most educated (or most intelligent) respondents are numerate enough to answer these questions properly. Thus, we subset the sample to those who have achieved education beyond a four-year college degree. As the table below shows, even these respondents commit sizable and significant errors in assessing the degree to which partisans belong to party-stereotypical groups.

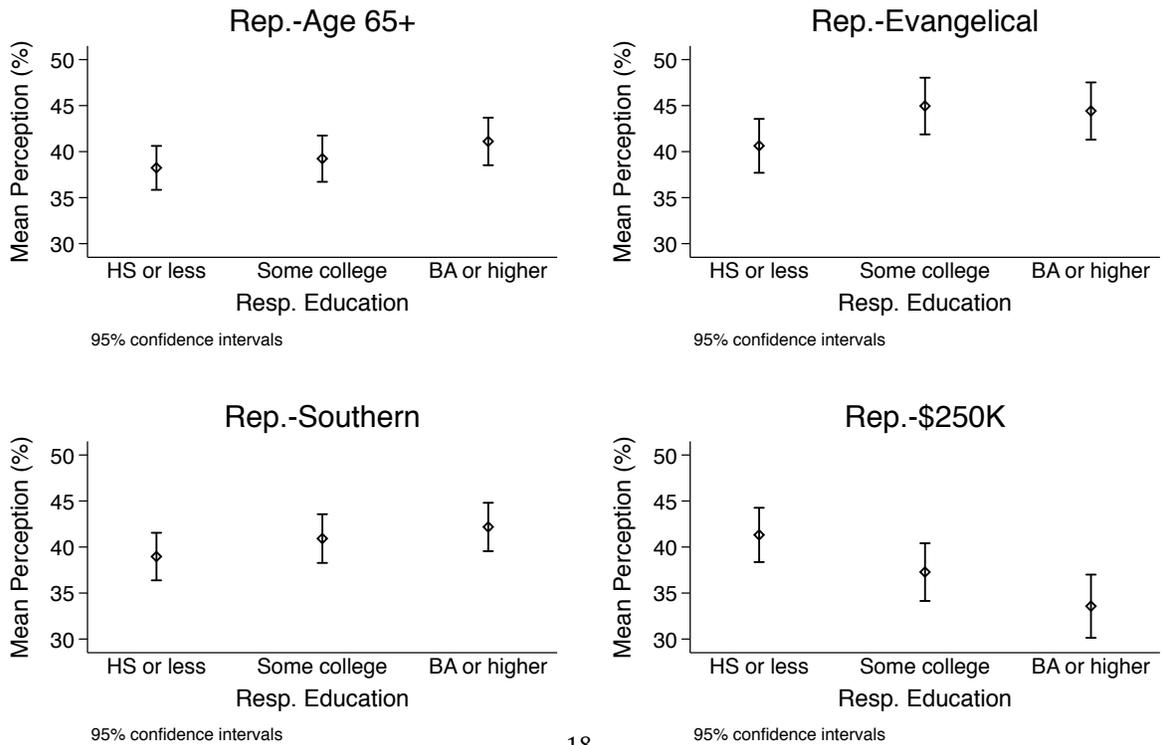
Table OA 1.11: Respondents with Advanced Degrees Commit Major Perceptual Errors

Party–Group Dyad	True %	Perceived % [95% CI]	
		Advanced Degree Holders	All Other Respondents
Dem.–Ath./Ag.	8.7	27.2 [22.0, 32.4]	28.6 [26.9, 30.4]
Dem.–Black	23.9	38.0 [31.9, 44.1]	42.1 [40.3, 44.0]
Dem.–LGB	6.3	27.6 [21.7, 33.5]	32.2 [30.3, 34.1]
Dem.–Union	10.5	37.9 [32.4, 43.4]	38.9 [37.0, 40.7]
Rep.–Age 65+	21.3	40.1 [35.4, 44.9]	39.3 [37.8, 40.8]
Rep.–Evangelical	34.3	43.0 [37.7, 48.3]	43.1 [41.2, 45.0]
Rep.–Southern	35.7	43.7 [39.1, 48.4]	40.2 [38.6, 41.8]
Rep.–\$250K/yr.	2.2	32.4 [26.1, 38.7]	38.4 [36.5, 40.3]

(a) Perceptions of Democratic Composition, by Education



(b) Perceptions of Republican Composition, by Education



OA 1.12 Association Between Perceptions of Party Composition and Interest in Politics/News, Controlling for Education and Partisanship

In Figure 2 in the paper, we show that significant, positive, bivariate associations exist between perceptions of $Pr(\text{group}|\text{party})$ and reported interest in political news. Here, we show that these associations hold up when controlling for party identification and, more importantly, education. (As in the bivariate analyses, this association does not exist between perceptions of $Pr(\$250,000|\text{Republican})$ and self-reported interest. Interestingly, this is also the dyad for which correlations between education and accurate perception are most apparent.)

Table OA 1.12: Association Between Self-Reported Interest and Perceptions, Controlling for Education and Partisanship
 DV: Perception of P_r (group|party)

	Dem.-AA	Dem.-Black	Dem.-LGB	Dem.-Union	Rep.-65+	Rep.-Evang.	Rep.-South.	Rep.-\$250K
Self-reported interest	15.1*** (2.7)	14.4*** (2.9)	9.8*** (3.1)	15.4*** (2.9)	10.1*** (2.4)	19.0*** (2.9)	12.1*** (2.5)	-3.9 (3.0)
Education: Some college	1.7 (2.0)	-0.6 (2.1)	1.5 (2.2)	-0.3 (2.1)	-0.4 (1.7)	2.5 (2.1)	0.7 (1.8)	-4.2* (2.2)
Education: BA+	-2.5 (2.1)	-5.8** (2.3)	-5.5** (2.4)	-7.4 (2.2)	0.4 (1.8)	0.0 (2.3)	0.4 (1.9)	-7.7*** (2.3)
PID: Democratic/lean	-4.7** (2.2)	-2.6 (2.4)	-1.4 (2.5)	-1.5 (2.3)	8.0*** (1.9)	4.7** (2.4)	7.5*** (2.0)	7.8*** (2.5)
PID: Republican/lean	5.8** (2.3)	5.7** (2.5)	5.4** (2.6)	5.7** (2.5)	2.6 (2.0)	4.2* (2.5)	2.8 (2.1)	-5.5** (2.6)
Constant	18.3 (2.5)	32.6 (2.7)	25.1 (2.9)	28.9 (2.7)	28.2 (2.2)	25.5 (2.7)	27.6 (2.4)	43.2 (2.8)
R^2	0.07	0.05	0.03	0.05	0.04	0.06	0.04	0.06
n	961	961	961	961	961	961	961	961

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

OA 2 Assessing Alternative Explanations

OA 2.1 Alternative Explanations Study: MTurk Sample Demographics

Table OA 2.13: Characteristics of the MTurk Sample

	Sample	Population
Partisanship		
Democratic (inc. leaners)	58.9%	49.0%
Republican (inc. leaners)	22.3%	39.0%
Non-leaning Independent	18.9%	11.9%
Gender		
Female	50.5%	50.9%
Male	49.5%	49.1%
Race/Ethnicity		
White/Caucasian	76.2%	63.7%
Black/African-American	8.1%	12.2%
Asian-American/Pacific Islander	10.1%	4.8%
Native American/Native Alaskan	1.6%	1.1%
Latino/Hispanic	9.7%	16.4%
Education		
Less than high school	0.5%	8.9%
High school diploma (or equiv.)	9.7%	31.0%
Some college	46.1%	28.0%
4-year degree	34.8%	18.0%
Advanced degree	8.9%	9.3%
Age		
18-39	79.1%	39.1%
40-64	19.1%	43.7%
65+	1.8%	17.2%

NOTE: Population estimates come from the 2010 US Census, except for partisanship, which comes from the 2012 ANES.

OA 2.2 Depiction of Treatments

Figure OA 2.1: Standard Estimation, Sum-to-100, Base-Rates, and Incentive Conditions

(a) Standard Estimation Condition

What percentage of Democrats do you think are ...?

Black	<input type="text"/>
%	
Atheist or agnostic	<input type="text"/>
%	
Union members	<input type="text"/>
%	
Gay, lesbian, or bisexual	<input type="text"/>
%	

(b) Sum-to-100 Condition

We are interested in how Americans perceive supporters of the two main political parties. To keep the survey short, some respondents will see questions about Republicans, and others about Democrats.

Just give us your best guesses to the questions below. At the end of the survey, we will give you the correct answers so you can check how well you did.

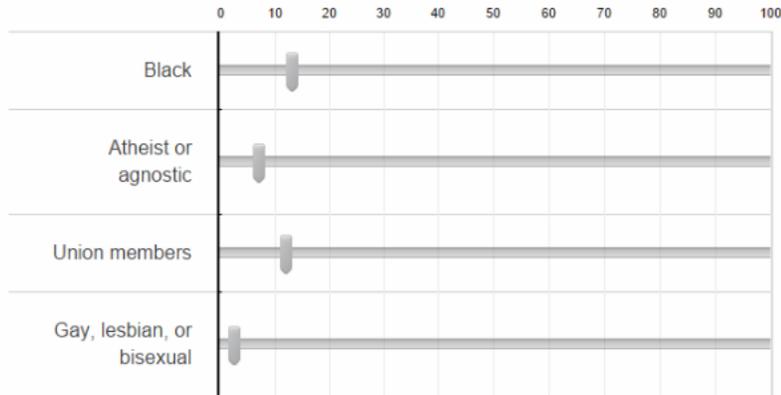
What percentage of Democrats do you think are...?

Gay, lesbian, or bisexual	<input type="text" value="0"/>
Heterosexual (or straight)	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

(c) Base Rates Condition

What percentage of Democrats do you think are...?

(Note: each slider starts at the corresponding social group's estimated prevalence in the adult American population as a whole.)



(d) Incentives Condition

We are interested in how Americans perceive supporters of the two main political parties.

Give your best guesses to the questions below. At the end of the survey, we will give you the correct answers so that you can check how well you did.

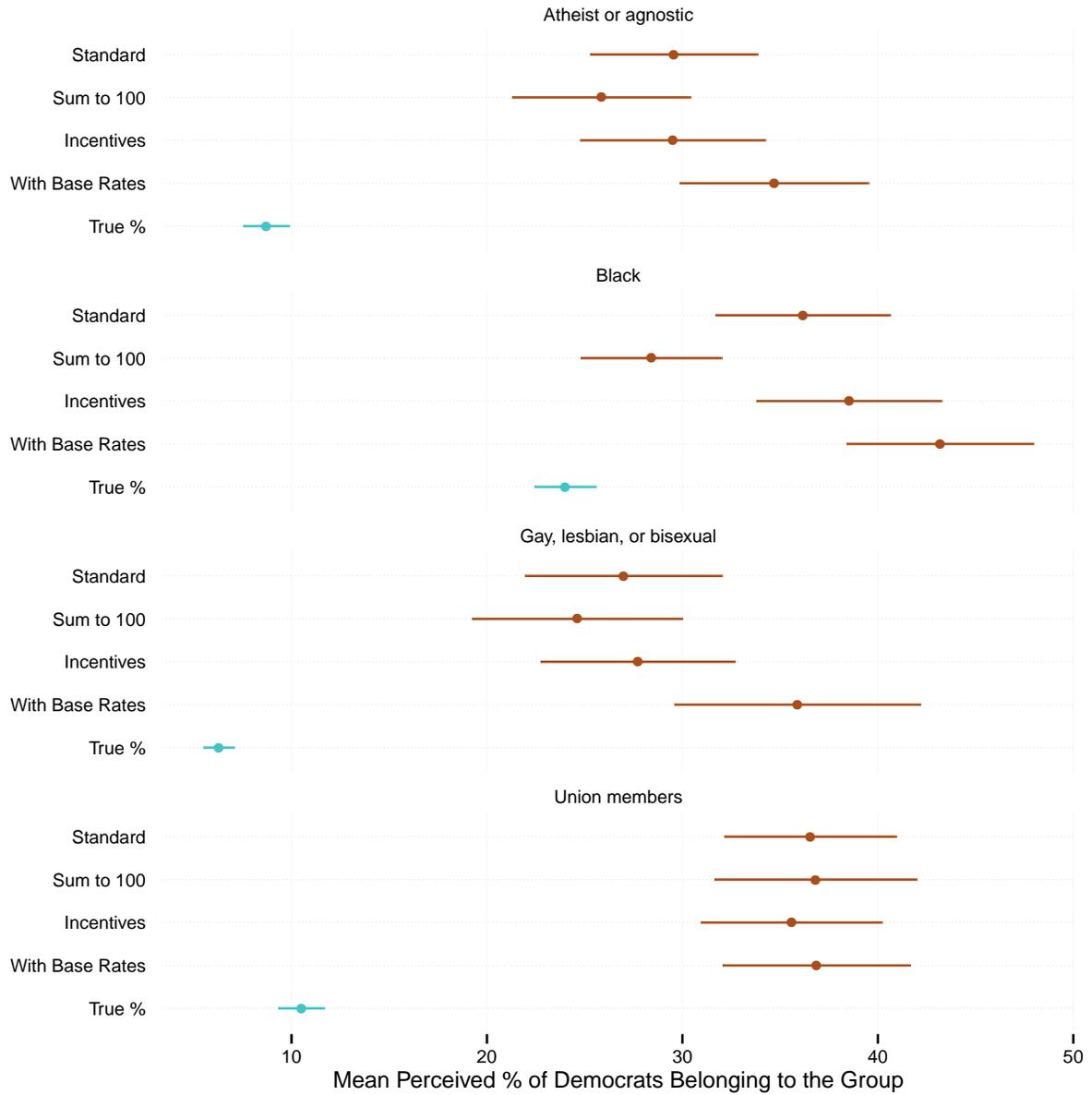
We will give respondents a bonus of 5 cents for each response that comes within 5 percentage points of the correct answer. (Please do not look answers up though; we are interested in *your* perceptions! Each page has a time limit before it auto-advances. You will receive the bonus within a week of completing the survey.)

Out of every 100 Democrats, how many do you think are ...?

Black	<input type="text"/>	%
Atheist or agnostic	<input type="text"/>	%
Union members	<input type="text"/>	%
Gay, lesbian, or bisexual	<input type="text"/>	%

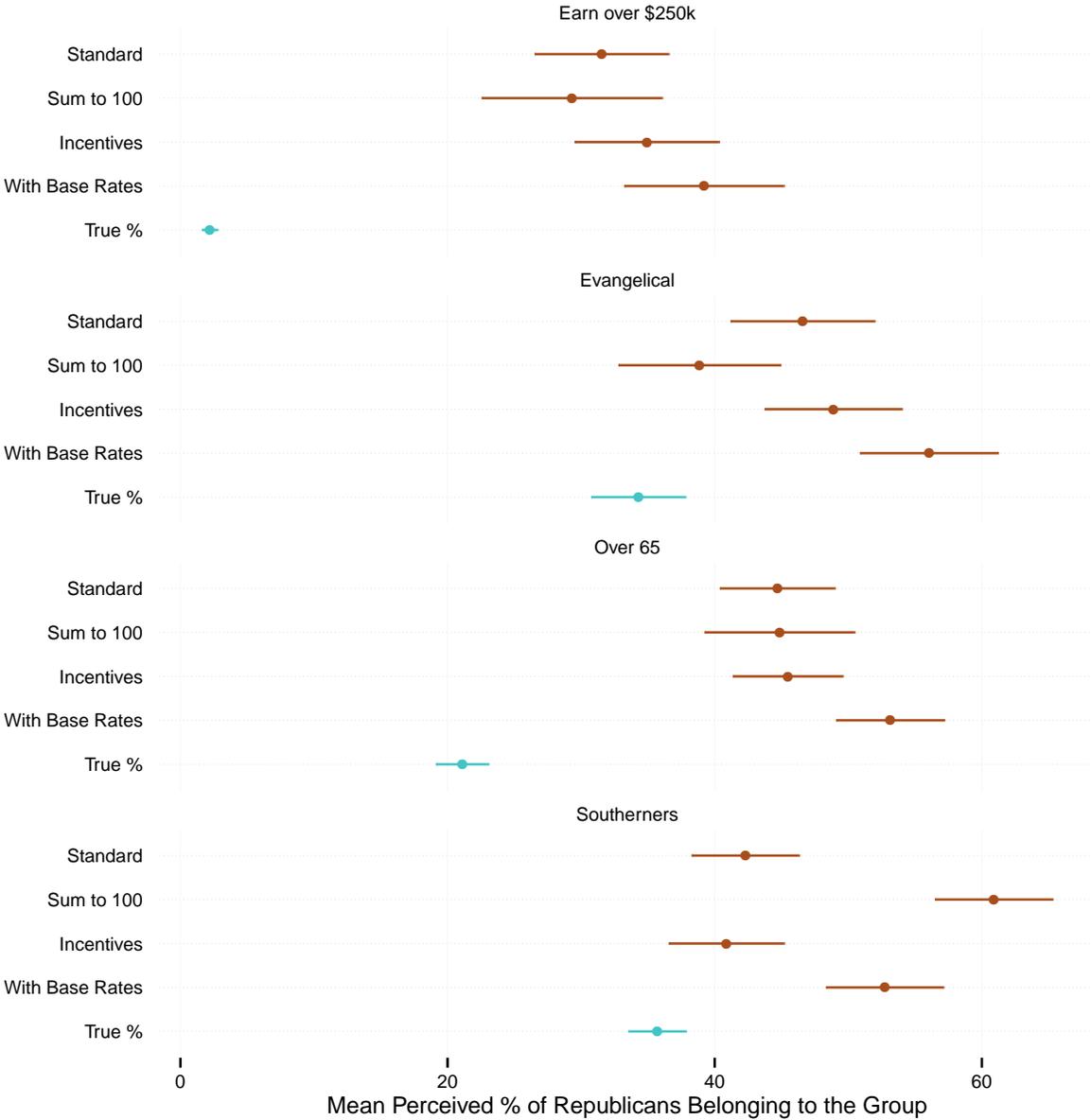
OA 2.3 Impact of Expressive Responding, Innumeracy, and Ignorance of Base Rates on Elicited Estimates

Figure OA 2.2: Estimates of Composition of Democratic Identifiers by Experimental Condition



NOTE: 95% confidence intervals depicted.

Figure OA 2.3: Estimates of Composition of Republican Identifiers by Experimental Condition



NOTE: 95% confidence intervals depicted.

OA 2.4 K-S Tests Comparing All Conditions to the Standard Estimation Condition

In the main text, we fail to find evidence that alternate ways of asking the question yield more accurate (or less biased) perceptions *on average*. However, one possibility is that the changes in how we ask questions leads some individual respondents to provide more plausible responses—i.e., to be less likely to provide overly high or overly low perceptions—without affecting the mean response. To examine this possibility, we compare the distributions of reported perceptions of the percentage of partisans belonging to each of the party-stereotypical groups studied, as provided by respondents assigned to the standard estimation condition and other condition. As the results in the table illustrate, the differences in distribution are minor, with only 2 of 24 comparisons statistically significant. A closer inspection suggests that the Base Rates condition produces distributions that are the most dissimilar to the standard condition. But as we note elsewhere, people in the Base Rates condition are more inaccurate than in the standard condition.

Party-Group	<u>Incentives</u>		<u>Sum-to-100</u>		<u>Base Rates</u>	
	D	Pr(Same dist.)	D	Pr(Same dist.)	D	Pr(Same dist.)
Dem.-Ath./ag.	0.14	0.25	0.11	0.78	0.17	0.12
Dem.-Black	0.08	0.85	0.20	0.12	0.23	0.01*
Dem.-LGB	0.10	0.64	0.19	0.64	0.19	0.06
Dem.-Union	0.09	0.80	0.11	0.8	0.09	0.74
Rep.-\$250k+	0.11	0.57	0.09	0.9	0.18	0.07
Rep.-Evangelical	0.12	0.48	0.21	0.08	0.20	0.03
Rep.-Age 65+	0.07	0.96	0.49	0.00***	0.19	0.06
Rep.-Southern	0.07	0.93	0.07	0.93	0.19	0.05

NOTE: Statistics are based on K-S tests comparing the distribution of responses under the condition named at the top of each column to the distribution under the “standard estimation” condition. Asterisks denote statistical significance under the Benjamini and Hochberg (1995) method for controlling the false discovery rate. (Family defined as each set of eight K-S tests comparing responses under two distinct conditions.) * = $p < \alpha^*$ when $\alpha = 0.1$, ** = $p < \alpha^*$ when $\alpha = 0.05$, *** = $p < \alpha^*$ when $\alpha = 0.01$.

OA 2.5 Does Partisanship Condition Treatment Effects?

To assess the validity of alternative explanations for the patterns we found in our main study, we compared perceptions across experimental conditions designed to limit these explanations' power in the follow-up study on MTurk. In doing so, we pooled responses by partisanship within condition to maximize power. However, a potential concern is that the experimental conditions may differentially affect respondents based on partisanship. That is, Democrats may respond to some treatments differently than Republicans, or some treatments may more heavily affect perceptions of the in-party or out-party. Essentially, the concern is that there may be an interaction between these experimental treatments and partisanship. If so, pooling across partisanship in the presentation of results masks important information.

We test for these potential interaction effects by regressing perceptions of the percentage of Democrats (Republicans) belonging to each of their parties' four party-stereotypical groups on experimental condition, respondent partisanship, and the interaction of condition and partisanship. (The standard estimation task serves as the baseline condition, while non-leaning independents serve as the baseline for partisanship.) We find few statistically significant average apparent interaction effects. 6% of these interaction coefficients are statistically significant at the $p < .05$ level—nearly exactly the percentage we would expect to be significant by chance. Additionally, as Table OA 2.14 shows, these apparent effects lack consistency: the individual treatments fail to always push Democrats or Republicans in the same direction. In all, results suggest that treatment effects do not vary appreciably by partisanship.

Table OA 2.14: Estimating Conditioning of Treatment Effects on Reports of Prevalence of Party-Stereotypical Group Members by Partisanship

	Blacks	Atheists/Agnostics	LGB	Union	Rich	Evangelical	South	Over 65
(Intercept)	35.74*** (4.53)	29.61*** (4.57)	27.96*** (5.48)	32.57*** (4.63)	29.48*** (5.60)	48.22*** (5.30)	48.00*** (4.22)	48.52*** (4.30)
Incentives	-2.33 (6.48)	-3.75 (6.54)	-5.55 (7.83)	7.57 (6.62)	9.57 (8.01)	-12.31 (7.58)	-10.82 (6.03)	-7.52 (6.15)
Sum-to-100	-6.99 (7.74)	-6.86 (7.81)	-5.54 (9.35)	7.02 (7.90)	9.63 (10.56)	-6.55 (10.00)	17.78* (7.95)	2.03 (8.10)
Base rates provided	-.42 (6.74)	-.35 (6.80)	2.62 (8.14)	-4.41 (6.88)	7.21 (8.32)	3.20 (7.88)	-1.53 (6.27)	4.27 (6.39)
Democratic PID	-.79 (5.34)	1.17 (5.39)	-2.09 (6.46)	4.50 (5.45)	4.39 (6.60)	-1.88 (6.25)	-6.12 (4.97)	-2.37 (5.07)
Republican PID	5.51 (7.08)	-4.61 (7.14)	1.79 (8.55)	7.75 (7.22)	-3.54 (8.74)	-3.03 (8.28)	-12.37 (6.59)	-14.71* (6.71)
Incentives X Democratic PID	4.65 (7.69)	4.29 (7.76)	11.24 (9.29)	-13.02 (7.85)	-7.34 (9.50)	19.24* (8.99)	13.05 (7.15)	9.00 (7.29)
Sum-to-100 X Democratic PID	-.46 (9.21)	.61 (9.29)	3.89 (11.13)	-8.01 (9.40)	-16.43 (12.09)	-2.44 (11.45)	.87 (9.11)	-6.00 (9.28)
Base rates provided X Democratic PID	7.09 (7.89)	1.64 (7.96)	6.98 (9.53)	4.73 (8.05)	1.24 (9.74)	6.44 (9.22)	16.46* (7.34)	2.60 (7.48)
Incentives X Republican PID	10.08 (9.97)	7.39 (10.06)	-1.38 (12.04)	-6.06 (10.17)	-9.50 (12.31)	19.41 (11.66)	10.96 (9.28)	18.42 (9.45)
Sum-to-100 X Republican PID	-2.83 (12.53)	18.29 (12.64)	5.79 (15.14)	-12.33 (12.79)	-7.87 (15.12)	2.56 (14.32)	4.30 (11.39)	12.45 (11.60)
Base rates provided X Republican PID	12.99 (9.82)	21.16* (9.91)	9.13 (11.86)	7.14 (10.02)	.63 (12.13)	11.79 (11.49)	14.04 (9.14)	15.69 (9.31)
R ²	.09	.05	.04	.03	.04	.07	.15	.06
Adj. R ²	.05	.02	.01	-.00	.01	.04	.12	.02
Num. obs.	331	331	331	331	335	335	335	335

Note: Perceptions of pure independents and the standard estimation condition serve as baselines for partisanship and condition. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

OA 2.6 Does Educational Attainment Condition Treatment Effects?

To further assess the external validity of these results, we estimate the effects of the treatments within groups of respondents based on educational attainment. Education is a particularly troubling covariate because it may be that more educated people are also more numerate or more aware of groups' base rates, and therefore that these treatments have greater effects among less educated respondents. Since Turkers tend to be more educated, this may threaten the external validity of our results by obscuring meaningful patterns that exist in the population writ large.

To maximize statistical power, we estimate the effect of these treatments on “average error”:

$$\text{Average error} = \frac{1}{n} \sum_{g_i=1}^n \frac{\text{Estimated } \%_{g_i} - \text{True } \%_{g_i}}{\text{True } \%_{g_i}}$$

where g denotes groups, indexed by i . As the table below shows, only one treatment has a statistically significant effect within any of these categories: The `base rates` condition significantly worsens perceptual error among respondents with some college. Thus, education does not appear to strongly or significantly condition the treatment effects (or lack thereof) that we observe.

Table OA 2.15: Average Treatment Effects in the Robustness Study, by Respondent Education

	DV: Average error		
	HS degree or less	Some college	BA or higher
Base rates provided	.06 (.08)	.12*** (.04)	.04 (.04)
Incentives	-.07 (.08)	.00 (.03)	(.04)
Sum-to-100	.02 (.08)	-.00 (.04)	-.00 (.03)
Constant	.42 (.06)	.36 (.02)	.36 (.03)
R^2	.07	.06	.02
n	39	176	167

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

OA 2.7 Affect Toward Groups is a Weak Predictor of Perceptions of Share of Groups in the Parties

Expressive benefits (rather than misperception) are a potential alternative explanation for the apparent misperceptions we document. Under this explanation, respondents dislike particular social groups and also dislike the out-party and, thus, declare the out-party to be excessively composed of groups they dislike. If expressive responding explained our findings, we would expect perceptual errors to be associated with how much a respondent likes a group. At the start of the extremity perceptions experiment we asked respondents to rate the eight groups related to party prototypes on a 101-point feeling thermometer. (We separated these feeling thermometers and the experimental content with a lengthy demographics and political information battery.) If dislike of the groups and the out-party explains our primary descriptive finding, we should find a significant correlation between respondents' feeling thermometer ratings for group g and the reported perceptions of how prevalent g is in party p .

We estimate these relationships with OLS regression individually for each group-party dyad. Letting i index respondents, g groups, and p parties, we estimate $\hat{\beta}$ from the following model:

$$Pr(g|p)_i = \alpha_g + \beta(FT_{ig}) + \epsilon_i$$

As the table below shows, the estimated associations between affect toward groups and perceptions of their shares in the party are small. For most group-party dyads, people with very cold affect toward group g only overestimate the prevalence of g in party p by a few percentage points over those with very warm affect toward the group. This is especially substantively small because people tend to err about these percentages by nearly 20 points, across all group-party dyads. And statistically, affect toward the group fails to significantly predict perceptions of $Pr(g|p)$ for all eight of the group-party dyads at conventional significance levels.

Table OA 2.16: Feeling Thermometer Ratings for Groups Fail to Predict Perceptions of Group Prevalence

	$\hat{\beta}$	Std. error	95% conf. interval	n
Democratic Party Groups				
Blacks	-0.01	0.05	[-0.11., 0.10]	297
Union members	-0.04	0.05	[-0.15, 0.06]	297
Gay, lesbian, & bisexual	-0.07	0.05	[-0.17, 0.03]	297
Atheist/Agnostic	-0.03	0.05	[-0.13., 0.06]	297
Democratic Party Groups				
The rich/earn over \$250,000	0.01	0.04	[-0.07., 0.10]	659
Evangelicals	-0.02	0.04	[-0.09, 0.05]	659
Southerners	-0.03	0.03	[-0.09, 0.04]	659
The young/people under 35	0.02	0.02	[-0.03, 0.07]	659

Note: The coefficient is from the regression of response to the question, "What percentage of supporters of party p do you think are members of group g ?" on feeling thermometer rating of g . Both variables scaled 0-100.

OA 2.8 Results from the Sum to 100 Condition

OA 2.8.1 Full Descriptive Results

Table OA 2.17: Average Perception of the Percentage of Democrats Belonging to Party-Stereotypical and Complementary Groups

	Mean Perception	True Estimate
Race		
<i>Black</i>	28.4%	24.0%
Non-Hispanic White	41.5%	59.4%
Latino/Hispanic	20.6%	1.0%
Other	9.5%	5%
Religion		
<i>Atheist/Agnostic</i>	25.9%	9%
Protestant	26.4%	45%
Catholic	28.8%	21%
Other	18.9%	24%
Sexual Orientation		
<i>LGBTQ</i>	24.6%	6.3%
Heterosexual	75.4%	93.7%
Union Affiliation		
<i>Union member</i>	36.8%	10.5%
Not a union member	63.2%	89.5%

NOTE: The estimates of the actual percentages of Democrats belonging to racial groups sum to slightly more than 100 because of the way the ANES asks about Hispanic/Latino background separately from race.

Table OA 2.18: Average Perception of the Percentage of Republicans Belonging to Party-Stereotypical and Complementary Groups

	Mean Perception	True Estimate
Income		
<i>Over \$250,000</i>	29.3%	2.0%
\$100,000-\$250,000	27.6%	20.2%
\$50,000-\$100,000	23.7%	36.8%
Under \$50,000	19.4%	40.8%
Religion		
<i>Evangelical Christian</i>	38.9%	34%
Mainline Protestant	21.4%	20%
Catholic	28.2%	22%
Other	11.6%	19%
Age		
<i>Over 65</i>	44.9%	21.3%
40-64	39.5	45.6%
18-39	15.7%	33.1%
Region		
<i>From the South</i>	39.1%	35.7%
Not from the South	60.9%	64.3%

OA 2.8.2 Respondents Underestimate the Prevalence of Counter-Stereotypical Group Identifiers in Parties

Table OA 2.19 below presents the results of one-sample *t*-tests comparing the average perception of the percentage of a party belonging to a counter-stereotypical group to the actual prevalence of that group in the party. It does so for the five group-party dyads in which we provided respondents with more than two groups in the complex task (thus not providing a *de facto* counter-stereotypical group).

Table OA 2.19: Respondents Underestimate the Percentage of Partisans Who Belong to Counter-Stereotypical Groups

Party-Group Dyad	<i>n</i>	Mean Estimated %	Std. Error	Actual Estimated %	$P(T > t)$
Dems.–White	47	41.5	2.1	60	< 0.001
Dems.–Protestant	47	26.4	2.2	45	< 0.001
Reps.–Other relig.	51	11.6	1.8	19	< 0.001
Reps.–Under 40	51	15.7	1.4	33.1	< 0.001
Reps.–Under \$50K	51	19.4	2.6	40.8	< 0.001

OA 2.9 Mode Effects of Sliders (vs. Text Entry)

One possible explanation for the finding that respondents estimates were more inaccurate in the `base rates` condition is that the condition used sliders rather than text entry boxes to elicit perceptions. That is, there may be a *mode effect* of sliders in which the format increases estimates. To determine whether this is the case, we conducted a follow-up study ($n = 101$) in February 2017. We administered the basic perceptual items (without base rates provided) to random subsets of respondents with either sliders or text entry. As the results below show, across group-party dyads, sliders are associated with perceptions that are roughly three points larger than those collected via text entry. These results are not statistically significant, although this may reflect the relatively small sample. More importantly, the 3-point difference is not substantively significant in light of the fact that perceptions of party composition are often biased by twenty points or more (see Table 1).

Table OA 2.20: Average Perception of $Pr(\text{group}|\text{party})$ by Instrumentation

Party-Group Dyad	Text Entry	Sliders	Difference	$Pr(T > t)$
Dem.-Non-white	42.1 ($SE = 2.7, n = 46$)	43.3 ($SE = 2.5, n = 55$)	1.2	0.74
Dem.-Atheist/Agnostic	35.6 ($SE = 3.2, n = 46$)	32.4 ($SE = 3.0, n = 55$)	-3.2	0.47
Dem.-Age 18-34	41.3 ($SE = 2.5, n = 46$)	45.5 ($SE = 2.9, n = 55$)	4.1	0.29
Dem.-LGB	21.2 ($SE = 3.5, n = 46$)	23.2 ($SE = 2.7, n = 55$)	2.0	0.64
Rep.-Age 65+	39.0 ($SE = 2.8, n = 46$)	41.5 ($SE = 2.7, n = 55$)	2.5	0.51
Rep.-Evang.	45.1 ($SE = 3.4, n = 46$)	51.2 ($SE = 3.1, n = 55$)	6.1	0.19
Rep.-\$250K+	20.6 ($SE = 3.4, n = 46$)	26.9 ($SE = 2.9, n = 55$)	6.3	0.16
Rep.-Rural	44.4 ($SE = 2.8, n = 46$)	47.4 ($SE = 2.8, n = 55$)	3.0	0.46
Across dyads	36.2 ($SE = 2.0, n = 368$)	38.9 ($SE = 1.5, n = 440$)	2.8	0.26

NOTE: For individual group-party dyads, we test for significance with t -tests. In the bottom row, in which we estimate the mode effect of sliders across dyads, we stack the data such that the perception—rather than the respondent—is the unit of analysis, then regress perceptions on an indicator for the slider condition. We include dyad fixed effects to account for different average perceptions across dyads, and we cluster standard errors by respondent to account for correlation of error within-respondents.

OA 2.10 Perceptions of $Pr(\text{Party}|\text{Group})$

As part of an August 2016 study assessing the psychological mechanisms that lead people to overestimate $Pr(\text{group}|\text{party})$, we asked MTurkers to estimate the percentage of a party-stereotypical group that is Democratic, Republican, and independent. (These groups are shown in the table below, along with results. We limited the study to two groups per party—and only asked respondents about one party-group pair—because some respondents later saw corrective information and we needed to limit the number of cells for power purposes. We selected one group per party for which a majority does belong to that party, and another group for which only a plurality belongs to the party.) Interestingly, respondents appear relatively accurate, especially in comparison to the inaccuracy with which they estimate $Pr(\text{group}|\text{party})$ in the analogous `sum-to-100` condition in the “alternative explanations” experiment.

Table OA 2.21: Perceptions of Group Composition by Party

	Democratic	Independent	Republican
Lesbian/gay/bisexual			
Actual	63	15	21
Perceived	62.0	20.3	17.7
Union members			
Actual	41.9	32.9	23.8
Perceived	52.7	16.0	31.3
Evangelicals			
Actual	28	16	56
Perceived	21.8	12.4	65.8
\$250K+			
Actual	42.9	7.5	49.7
Perceived	28.0	13.3	58.7

OA 2.11 Perceptions of Base Rates of Party-Stereotypical Groups in the Population at Large

In the alternative explanations study, after measuring party-specific perceptions, we asked respondents assigned to the standard estimation condition to estimate the percentage of the US adult population that belongs to a randomly-assigned subset of the eight party-stereotypical groups. As the table below shows, consistent with previous work (e.g., Wong2007), respondents tend to overestimate the prevalence of these groups. However, misperceptions do appear to be party-specific: perceptions of the prevalence of these groups in their associated parties are significantly higher than those for the population writ large. And, importantly, the substantive difference between these party-specific and base rate perceptions tend to be quite large.

Table OA 2.22: Comparison of Party-Specific Perceptions to Perceptions of Population Base Rates of Party-Stereotypical Groups

Group	Mean Perceived Base Rate	Mean Perceived Party Rate	Difference
Southerners	32.74%	41.94%	-9.20**
Over 65	30.36%	46.54%	-16.18***
Evangelical	35.5%	49.98%	-14.48***
Earning Over \$250K	11.4%	28.6%	-17.19***
Black	31.38%	35.96%	-4.58
Atheists or Agnostics	22.93%	28.04%	-5.11+
Union Members	25.74%	33.52%	-7.78**
LGBT	14.86%	27.33%	-12.47**

+ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

The estimates presented in Table OA 2.22, $p(\text{group}|\text{representative party})_P - p(\text{group})_P$ inform us as to whether people’s misperceptions significantly exceed what we would expect if they were only using their erroneous base rates to assess $p(\text{group}|\text{party})$. To better understand misperceptions about subpopulation composition, we can compute a difference-in-differences:

$$(p(\text{group}|\text{representative party})_P - p(\text{group}|\text{representative party})_A) - (p(\text{group})_P - p(\text{group})_A)$$

where P indexes perceived quantities and A indexes actual quantities. While the results in the above

table confirm that base rates alone do not drive these perceptions, and that they reflect something about party stereotypes, the D/D estimator can tell us whether one of those factors—misperceived base rates or party stereotyping—more heavily influences the apparent beliefs we observe. If the D/D estimate is significantly negative, then the misperception is more a function of base rate error, in the aggregate. By contrast, if the D/D estimate is significantly positive, then the base rate error contributes relatively little to the misperception in the aggregate. The table below presents the results, showing that base rate error contributes less than apparent party stereotyping for five of the eight party-group dyads, and contributes more for none of them.

Note that the quantity being estimated (and presented in the table) is the raw error of the party-specific perception minus the raw error of the base rate perception.

Table OA 2.23: Difference-in-Differences Estimates: Do Misperceptions of Group Base Rates Contribute Significantly More/Less Than Beliefs About Parties to the Misperceptions We Observe?

Party-Group Dyad	D/D Estimate
Republicans—Southerners	7.04 **
Over 65	7.88 **
Republicans—Evangelical	-0.82
Republicans—Earning Over \$250K	16.99 ***
Democrats—Black	4.56
Democrats—Atheists or Agnostics	2.10
Democrats—Union Members	8.58 ***
Democrats—LGBT	9.97 **

+ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

OA 2.12 Failure to Reduce Mean Absolute Perceptual Error in the Alternative Explanations Conditions

In the main paper, we primarily focus on the similarity of the point estimates of the mean perception of the percentage of party p belonging to group g between conditions. Another way to analyze the data is to stack it so that the unit of analysis is not the respondent, but the respondent-perception. (Each respondent appears 4-8 times in the data set, depending on the condition to which she was assigned.) Stacking the data this way, we can determine whether any of the conditions—Sum to 100, Incentives, or Base Rates Provided—reduce mean absolute perceptual error.

We first do this by regressing mean absolute error for each perception of party p belonging to group g on indicator variables for the three treatments (leaving the Standard estimation condition as the baseline). We include fixed effects for each $g - p$ dyad and cluster standard errors at the respondent level. As the table below shows, neither providing incentives for accuracy nor requiring participants to consider complementary groups and sum the percentage of each group to 100 has any kind of substantively or statistically significant effect. And, consistent with results in the paper, providing base rates for group g actually appears to increase error by 21.8%, on average.

Table OA 2.24: Impact of Different Ways of Asking about Party Perceptions on Mean Absolute Error in Perceptions

	Mean Directional Error	Mean Absolute Error
Incentives	0.89 (2.25)	0.66 (1.91)
Sum-to-100	-0.52 (2.03)	-1.94 (1.74)
Base rates	7.17*** (2.51)	5.05** (2.22)
Constant	18.95*** (1.58)	23.13*** (1.32)
Party-group dyad fixed effects	X	X
R ²	0.09	0.05
Reported perceptions	2664	2664
Respondents	382	382

NOTE: Mean error is the average deviation of a respondent's reported perceptions of the % of party p belonging to group g from the true %. Model estimated via OLS. The "standard" condition serves as the baseline. Standard errors, clustered by respondent, are reported in parentheses. * = $p < .10$, ** = $p < .05$, *** = $p < .01$, two-tailed.

OA 3 Observational Evidence on the Consequences of Misperceptions (From the 2015 IGS-California Poll)

The 2015 IGS-California Poll sampled 4257 California residents through Survey Sampling International (SSI). The non-probability sample matches the population quite well on crucial demographic variables (see [OA 3.1](#) for demographics). From this sample, we randomly selected 1815 partisans to answer party composition questions like those above.

OA 3.1 Sample Demographics and Characteristics

The table below compares the distribution of demographic covariates in the SSI sample used throughout the paper to other established benchmarks.

Table OA 3.25: Comparison Between Sample Demographics and Benchmarks

Sampling frame	IGS Poll	Weighted IGS Poll	CCES	Weighted CCES	CA Census	CA Sec. of State
	(August 2015)	(August 2015)	(September 2012)	(September 2012)	(2010)	(2015)
	population	population	population	population	population	registered voters
	quota (SSI)	quota (SSI)	quota (YouGov)	quota (YouGov)	census	census
Age						
18-29	26%	27%	18%	24%		
30-39	17%	20%	9%	16%		
40-49	12%	10%	13%	17%		
50-64	28%	27%	36%	26%		
65 & over	17%	17%	23%	17%		
Gender						
Female	59%	51%	50%	51%	50%	
Male	41%	49%	50%	49%	50%	
Race						
Asian	14.5%	17.8%	5%	8%	17%	
Black/African-American	4%	7%	9%	7%	8%	
Hispanic/Latino	19%	28%	20%	21%		
Native American	2%	1%	1%	1%		
White/Caucasian	61%	47%	59%	56%	75%	
Ethnicity						
Hispanic or Latino					38%	
Not Hispanic or Latino					62%	
Education						
Some high school	1%	12%	3%	11%	12%	
High school/GED	13%	24%	17%	23%	24%	
Some college/2-year degree	36%	35%	28%	31%	34%	
4-year college degree	33%	18%	25%	19%	18%	
Graduate/professional degree	17%	11%	13%	10%	11%	
Party registration/ID						
Democratic	46%	44%	44%	40%		43%
Republican	24%	34%	24%	22%		28%
No party preference	27%	30%	22%	28%		24%
Other	3%	3%	10%	10%		5%

OA 3.2 Dependent Measures

In the paper, we show that perceptions about party composition predict beliefs about aggregate party policy preferences, affective polarization, and intransigent voting behavior. This section provides more detail on these dependent measures

OA 3.2.1 Beliefs about Mass Party Policy Preferences

We first asked respondents what percentage of Democrats or Republicans in California they believed supported six of the following policy statements. On the next screen, we asked them about the other party's support for those same statements. Statements marked (RC) were reverse coded so that all responses reflected the percentage of the party that respondents saw as taking the conservative position.

- The government should implement a single-payer health care system, directly providing insurance coverage for all Americans free of charge. (RC)
- The government should significantly cut spending on health care, only helping to pay for emergency care for the elderly and those with very low incomes.
- Undocumented immigrants living in the US who learn English, pay back taxes, and lack a criminal record should be allowed to stay in the country legally. (RC)
- The federal government should restrict and control people coming to live in our country more than it currently does.
- The government should raise taxes on people who earn over \$250,000 per year and cut taxes for people who earn less than that. (RC)
- The government should lower the tax rate on corporations.
- There should be stricter background checks for gun purchasers. (RC)
- The government should promote the expansion of oil, coal, and natural gas production more than the development of alternative energy sources.

- To slow climate change, the government should institute a carbon tax on companies that would keep emissions at or just below their current levels. (RC)
- Government-funded Social Security benefits should be increased. (RC)
- The government should reduce the rate of growth in Medicare spending by transitioning to a voucher system that helps seniors to buy private insurance instead of directly covering health costs.
- The federal government should subsidize student loans for low-income students. (RC)
- The government should create a school voucher program, paying private and parochial school tuition for families so that they have choice over their children's education.
- US foreign policy should emphasize military strength over diplomacy.
- The US should use military force if Russia invades a NATO ally (like Estonia or Latvia) as it did Ukraine.
- The government should raise the minimum wage that employers must pay their workers to \$13.10, the estimated living wage. (RC)
- The government should pass a law guaranteeing all workers the right to hold their jobs in a company whose employees are represented by a union, regardless of whether they join that union or not.
- The federal government should do more to make sure that local police forces treat people equally, regardless of race or ethnicity. (RC)
- It should be illegal for public universities to promote diversity on campus by considering applicants' racial and ethnic backgrounds when admitting students.
- Abortion should be legal under all circumstances. (RC)
- Abortion should be illegal under all circumstances.
- Insurance companies, pharmacists, and employers should be allowed to refuse selling or covering birth control.

- Same-sex couples should be allowed to marry. (RC)
- Marijuana should be legal for adults to purchase and use recreationally, with government regulation similar to the regulation of alcohol. (RC)
- The death penalty should be a legal option for punishing the most serious crimes.

OA 3.2.2 Partisan Voting

The “partisan voting behavior” index is constructed from three items:

1. Because California uses a “top-two” format for primary elections, voters from any party can vote for candidates for any party. Thinking about your own district, how likely are you to vote for a (out-party candidate) in the 2016 congressional primary? (5-point response scale ranging from “Definitely will vote for a (out-party candidate)” to “Definitely will not vote for a (out-party candidate)”)
2. How upset would you be if (an out-party candidate) won the presidential election in 2016? (5-point response scale ranging from “Extremely upset” to “Not upset at all”)
3. Would you consider switching your political party registration in the future? (5-point response scale ranging from “Never” to “It’s very possible”)

Cronbach’s α for this index is 0.67. While this only implies moderate inter-item reliability, a principal component analysis suggests that one dimension captures most of the variation:

Table OA 3.26: Principal Components/Correlation

Component	Eigenvalue	Difference	Proportion	Cumulative
1	1.84	1.16	.61	.61
2	.68	.20	.23	.84
3	.48	–	.16	1

Table OA 3.27: Principal Components (Eigenvectors)

Item	Comp. 1	Comp. 2	Comp. 3
House voting	.62	-.14	.77
Presidential voting	.57	-.59	.57
Party switch	.54	.79	.28

OA 3.2.3 Affective Polarization

The items in the social distance index are identical to the one used in the MTurk social distance experiment. Cronbach’s alpha is 0.71 for respondents asked about their out-party (identical to the alpha calculated in the MTurk experiment), while it is 0.75 for respondents asked about their in-party. Once again, PCA (based on the subsample asked about their out-party) offers evidence that one component captures most of the variation and that item-loadings on that dimension are robust:

Table OA 3.28: Principal Components/Correlation

Component	Eigenvalue	Difference	Proportion	Cumulative
1	2.46	1.85	.61	.61
2	.61	.09	.15	.77
3	.52	.10	.13	.90
4	.42	–	.10	1

Table OA 3.29: Principal Components (Eigenvectors)

Item	Comp. 1	Comp. 2	Comp. 3	Comp. 4
Marriage	.50	-.71	.77	.38
Neighbor	.53	-.08	.57	-.79
Work	.46	.88	.09	-.04
Honorary degree	.51	.18	-.69	.48

To further assess the appropriateness of the index, we replicate the analysis in Table 4 but with four different 3-item DVs instead of the 4-item DV. That is, we drop one item from the index and then repeat the regression analysis, drop the next item and repeat the analysis, etc. Doing so necessarily attenuates estimated associations; since individual items are measured with error, increasing the number of items in an index improves precision (Ansolabehere, Rodden, and Snyder 2008). Conversely, decreasing the number of items reduces the precision with which we can estimate associations and effects.

Results are largely consistent across specifications, implying that no one item in the index drives the result presented in the paper. Estimated associations between misperception of the parties’ composition and these indices are in consistent directions and of similar magnitude across models, in both bivariate and multivariate contexts. As expected, these coefficients are estimated with less precision, and one coefficient falls just outside of conventional levels of significance (the two-tailed p -value associated with “average perceptual error” in Column 6 is 0.12). See Table OA 3.30, in which the headings for each column indicate the items included in that index:

- M: “Your son or daughter **marrying** a Democrat (Republican)”
- N: “Your next door **neighbor** putting a "Hillary Clinton 2016" (“Jeb Bush 2016”) sign in his yard
- P: “**(President)** Bill Clinton (George W. Bush) receiving an honorary degree from a college in your state for his post-presidency humanitarian work”
- W: “Being assigned to **work** closely with an Occupy Movement (Tea Party) supporter at your job”

Table OA 3.30: IGS Poll Social Distance Results, Using Various 3-Item DVs

	3-Item DV: N, P, W	(3)	(4)	(5)	(6)	(7)	(8)	
Average perceptual bias, out-party composition	(1) 0.15*** (0.03)	(2) 0.08** (0.03)	(3) 0.11*** (0.03)	(4) 0.05 (0.03)	(5) 0.13*** (0.03)	(6) 0.06** (0.03)	(7) 0.17*** (0.03)	(8) 0.12*** (0.03)
Mean FT for out-party groups		0.33*** (0.03)	0.33*** (0.03)		0.33*** (0.03)		0.33*** (0.03)	
Strong partisan		0.05*** (0.01)	0.05*** (0.01)		0.06*** (0.01)		0.05*** (0.01)	
PID: Republican		-0.00 (0.01)	-0.01 (0.01)		-0.01 (0.01)		0.01 (0.01)	
Constant	0.57 (0.01)	0.41 (0.02)	0.56 (0.01)	0.40 (0.02)	0.55 (0.01)	0.39 (0.02)	0.55 (0.01)	0.37 (0.02)
R2	0.02	0.16	0.01	0.18	0.02	0.20	0.03	0.20
SER	0.16	0.15	0.15	0.14	0.15	0.13	0.15	0.14
n respondents	926	925	926	925	926	925	926	925

OA 4 Survey Experiments on the Effects of Social Misperceptions of the Parties

OA 4.1 MTurk Sample Demographics for The Extremity Perceptions and The Affect Study

Table OA 4.31: Characteristics of the MTurk Sample

	Extremity Perceptions Study	Partisan Affect Study	Population Estimate
Partisanship			
Democratic (inc. leaners)	59.9%	57.3%	49.0%
Republican (inc. leaners)	20.8%	19.0%	39.0%
Non-leaning Independent	19.3%	23.8%	11.9%
Gender			
Female	45.9%	50.4	50.9%
Male	54.1%	49.6	49.1%
Race			
White/Caucasian	81.4%	79.3%	63.7%
Black/African-American	7.9%	9.4%	12.2%
Asian-American/Pacific Islander	11.1%	8.4%	4.8%
Native American/Native Alaskan	1.7%	2.6%	1.1%
Hispanic/Latino		6.1%	16.4%
Ethnicity			
Latino/Hispanic	8.9%		
Not Latino/Hispanic	91.1%		
Education			
Less than high school	1.3%	0.7%	8.9%
High school diploma (or equiv.)	10.9%	9.5%	31.0%
Some college	40.1%	43.2%	28.0%
4-year degree	35.8%	36.8%	18.0%
Advanced degree	12.0%	9.7%	9.3%
Age			
18-29	48.2%		22.1%
30-49	38.2%		35.7%
50+	13.6%		42.2%
18-39		75.7%	39.1%
40-64		22.7%	43.7%
65+		1.6%	17.2%

NOTE: Population estimates come from the 2010 US Census, except for partisanship, which comes from the 2012 ANES.

OA 4.2 Manipulation in the Survey Experiment

The exact question given to participants in the “tell” condition is shown in Figure OA 4.1. It is similar to the questions given to participants in the other conditions, except that we told those participants they would learn the correct information and thus be able to check their answers at the end of the survey.

Figure OA 4.1: Questions in the “Tell” Condition

We are interested in how Americans perceive the two main political parties. To keep the survey short, some respondents will see questions about Republicans, and others about Democrats.

Just give us your best guesses to the questions below. At the end of these questions, we will give you the correct answers so you can check how well you did.

What percentage of Democrats do you think are...?

Black	<input type="text"/>
Atheist or agnostic	<input type="text"/>
Union members	<input type="text"/>
Gay, lesbian, or bisexual	<input type="text"/>

On the screen immediately after these questions, we tailored the correct information based on whether respondents overestimated or underestimated the percentage of the out-party belong to group g . If participants overestimated, they saw this message: “The percentage of Democrats (Republicans) who are g is smaller than you think. Only $x\%$ are g . (You overestimated by $[\frac{\text{participant's guess} - x}{x}]\%$).”

If participants underestimated the percentage of the out-party belonging to g , we showed them this message: “The percentage of Democrats (Republicans) who are g is larger than you think. $x\%$ are g . (You underestimated by $[\frac{x - \text{participant's guess}}{x}]\%$).”

OA 4.3 The Nature of Elicited Perceptions about Composition (and What That Means for the “Ask” Condition)

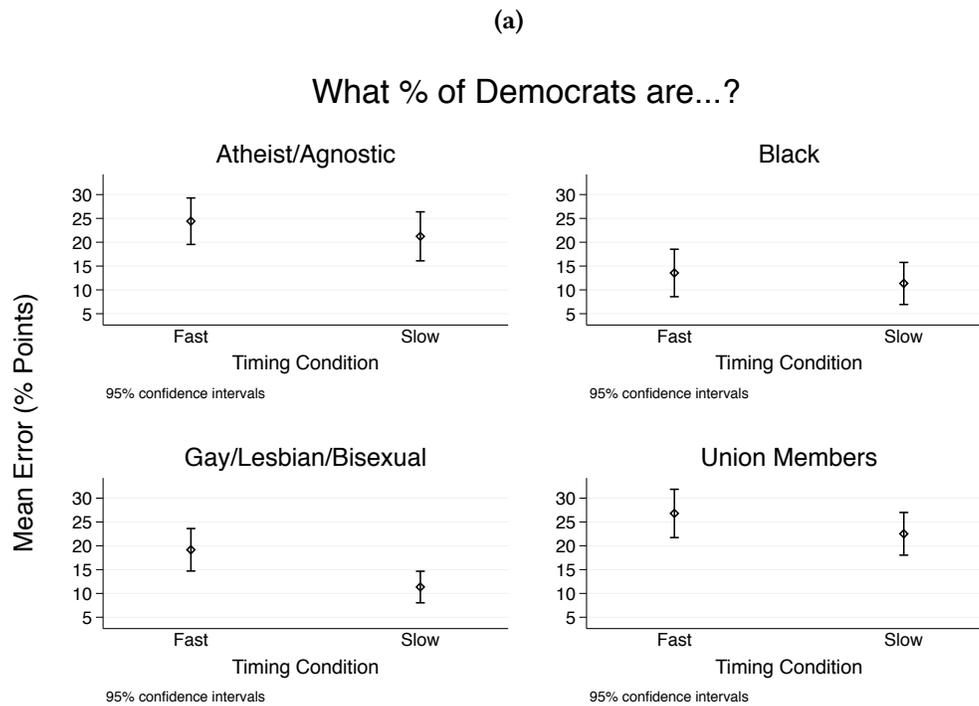
Given generally low levels of political knowledge in the American public, we doubt that more than a small fraction of Americans hold precise beliefs about the shares of various groups in the parties. However, the absence of precise beliefs does not imply a lack of cognition. Instead, we contend that people carry crude beliefs about party composition, that these beliefs map to specific numerical estimates (with noise), and that people react to social, political, and policy-relevant stimuli based on the implicit mapping between the two. We further assert that survey researchers can elicit that mapping through items like those we employ in these studies.

If the assumption about “fuzzy beliefs” is correct, the mapping between crude beliefs about composition and specific numbers (percentages) is cognized only upon elicitation. Thus, if researchers are truly interested in the effect of the “mental pictures” of the parties that people generally carry, responses that are as close to “automatic” as possible are likely to be most valid. In particular, requiring respondents to spend significant time considering these numbers before responding may yield reports that reflect additional considerations and reasoning beyond what people would normally consider when thinking about parties outside the survey environment.

In work addressing the measurement of these perceptions, we found that requiring respondents to more deeply consider these numbers does yield smaller reported shares of party-stereotypical groups in the parties. In particular, in some additional work, we randomly assigned respondents to one of two conditions: a “fast” condition designed to elicit perceptions as close to automatic as possible by limiting respondents to ten seconds per item, and a “slow” condition in which respondents had to look at the item for fifteen seconds before a slider appeared on screen for them to provide their response. (Both conditions presented one item per screen.) As the figures below show, mean responses were less error-prone in the “slow” condition for all eight party-group dyads, although reports were still quite erroneous. These results comport with our assertion that requiring respondents to more explicitly consider these quantities alters the mapping between fuzzy beliefs and reported perceptions, and in a systematically downward manner.

This bears on our experiments on the consequences of these perceptions in two (related) ways. In the `control` condition, to the extent that perceptions of party composition affect beliefs about partisans’

Figure OA 4.2: Average Responses (and Perceptual Error) Tend to Be Lower in the “Slow” Condition

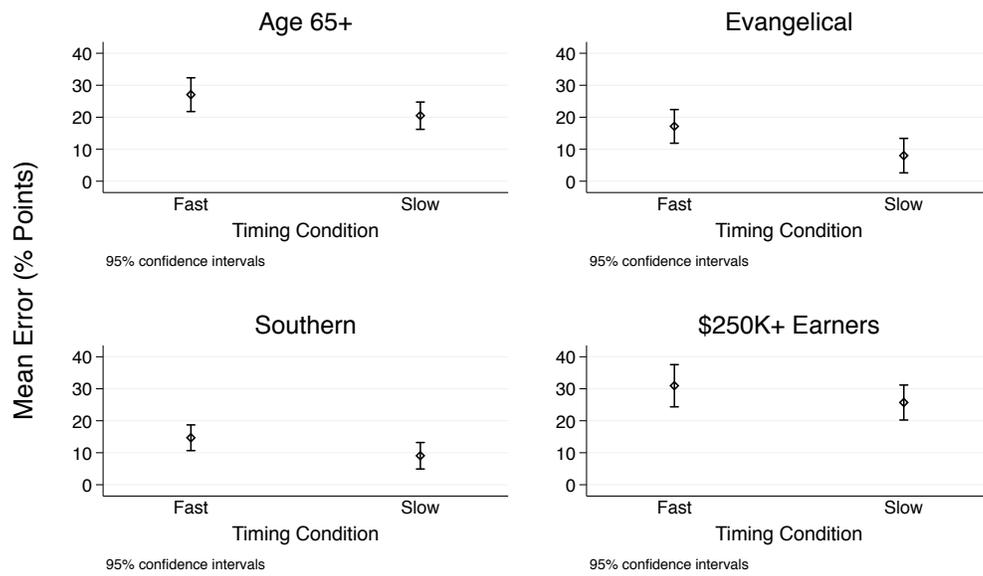


positions and partisan affect, the effect comes from fuzzy implicit beliefs, unmapped to explicit quantities (as we did not ask about the percentage of out-partisans belonging to party-stereotypical groups prior to administering dependent measures). By contrast, in the `ask` condition, the effect of these perceptions is mediated by the mapping of fuzzy beliefs to specific numbers (on the screens prior to the dependent measures). And that act of translating these implicit beliefs to specific numbers likely leads respondents to down-weight the estimates as they run their implicit numbers by additional cognitive filters. Thus, given that the `tell-control` comparison implies that these perceptions affect our dependent measures, to the extent that people downwardly-revise their automatic responses to the perceptual items in the `ask` condition—as the plots above imply they are apt to do—we would expect the `ask` condition to have some degree of a treatment effect itself.

The point also has implications for the descriptive data we present. To whatever extent people spend more than the bare minimum time necessary to transcribe their implicit beliefs, it downwardly adjusts the reported perceptions of share of party-stereotypical groups in the parties. In effect, we believe

(b)

What % of Republicans are...?



that people's perceptions of the share of party-stereotypical groups in the parties are yet more skewed.

OA 4.4 Manipulation Checks

OA 4.4.1 Reduction of Mean Absolute Error in the “Tell” Group in the Partisan Affect Study

As we note in the paper, in the partisan affect experiment, we not only asked participants assigned to the “tell” condition to estimate the percentage of out-party supporters belonging to four party-stereotypical groups prior to administering the dependent measures, but also in a quiz at the very end of the survey. Participants tended to be more accurate in the latter battery. The mean absolute error (from the true survey-based estimates) decreased drastically for participants’ estimates regarding each of the eight group-party dyads, as Table OA 4.32 shows.

Table OA 4.32: Manipulation Check: Mean Absolute Error

Group-Party Dyad	Mean Absolute Error	
	Initial	Recall
Reps.–Southerners	19.16	8.61
Reps.–Over 65	29.87	6.79
Reps.–Evangelical	24.96	9.47
Reps.–Earning Over \$250K	37.35	3.67
Dems.–Black	24.5	5.9
Dems.–Atheists/Agnostics	24.02	2.87
Dems.–Union Members	32.67	4.48
Dems.–LGBT	28.44	3.09

OA 4.4.2 Individual-Level Manipulation Analysis for the Partisan Affect Study

Since we asked “tell” participants to estimate the percentage of out-party supporters belonging to the four party-stereotypical groups both before and after the manipulation check, we can investigate whether individual participants’ perceptions tended to become more accurate. We use a Wilcoxon signed-rank test to do so. Since our data are matched pairs—a pre-test and a post-test for each respondent—we test the null hypothesis that our manipulation failed to affect participants’ perceptions. If this hypothesis is correct, then we would expect equal numbers of participants to have more accurate perceptions on the pre-test and on the post-test. The signed-rank test evaluates this sharp null hypothesis for each group-party dyad by determining the sign and absolute difference between each respondent’s pre- and post-test reported perceptions, ranking these absolute differences, and then computing the absolute value of the

sum of the signed ranks. If the manipulation failed to affect perceptions, we would expect the test statistic to be 0. But as Table OA 4.33 shows, the test statistic is positive and statistically significant for each of the eight group-party dyads, implying that the manipulation moved participants' perceptions about out-party composition, and that such change stuck throughout the survey.

Table OA 4.33: Participants Assigned to the “Tell” Condition Tend to Become More Perceptually Accurate

Party-Group Dyad	<i>n</i> More Accurate	<i>n</i> Less Accurate	Sum Ranks	<i>z</i>	<i>P</i> > $ z $
Dems.–Black	72	14	3138	6.5	< 0.001
Dems.–Atheist/Agnostic	75	6	3572	7.6	< 0.001
Dems.–LGBT	75	11	3508	7.3	< 0.001
Dems.–Union	79	5	3463	7.5	< 0.001
Reps.–Evangelical	132	25	10,553	8.7	< 0.001
Reps.–Over 65	151	14	13,150	10.3	< 0.001
Reps.–Over \$250K	163	4	14,425	11.0	< 0.001
Reps.–Southern	123	39	9068	7.2	< 0.001

OA 4.4.3 The Manipulation Appears to Present Novel Information

An alternative notion of the manipulation is not only that it causes participants to learn, but also that the information is novel. We check for manipulation this way by asking participants how much the information presented to them on the “tell” screen surprises them. This task serves a second purpose as well: it provides respondents with a task on the manipulation screen, which both requires participants to spend time reading the information (rather than click through the screen) and deters demand effects by masking the manipulation as a question. We asked respondents how much they were surprised by the “tell” information in both the extremity perceptions and the affect studies. We present the results of this question in the table below.

Table OA 4.34: “Tell” Participants Appear Surprised by the Information We Present

“Overall, how surprised are you by these statistics?”	E.P. Study	P.A. Study
Very surprised	29.9%	33.3%
Somewhat surprised	38.8%	36.6%
A little surprised	20.9%	18.3%
Not surprised at all	10.5%	11.7%

A possible concern arising from respondent surprise is that “chastened” respondents may have become more tentative in their responses to the extremity perception and attitudinal items. That is, reduced confidence in their political knowledge—rather than the treatment information itself—may have led respondents to “hedge” more in their responses to the dependent measures. We would expect such a mechanism to affect beliefs and attitudes more generally—i.e., reduced confidence in political considerations should moderate all political attitudes. But in a placebo test, we find that the `tell` treatment—which only provides information about out-party composition—does not affect beliefs about in-party extremity or attitudes toward the in-party. The difference between the ask and control conditions on perceptions of *in-party* extremity (scaled 0-1) is 0.01 (95% CI: [-0.02, 0.04]), as is the difference between the tell and control conditions (95% CI: [-0.02, 0.04]). The difference between the ask and control conditions on *in-party* feeling thermometers (scaled 0-100) is 0.75 (95% CI: [-2.79, 4.29]), and the difference between the tell and control conditions is 0.62 (95% CI: [-2.97, 4.21]). Thus, party-specific information appears to have party-specific effects.

OA 4.5 Wording and Scales for Political Perception Questions

We randomly assigned participants to respond to questions about Democrats first or Republicans first. We asked the following four questions about where participants thought partisans tend to stand politically:

Taxes “Which of the following statements do you think comes closest to what the average Republican Party supporter believes about taxes?” (Subquestion: “How about the average Democratic Party supporter?”)

- Decrease federal income taxes on just the highest earners, keeping the tax rate the same on all others
- Decrease federal tax rates for all income groups
- Maintain current levels of federal income taxes on all
- Increase federal income taxes on the highest earners, keeping the tax rate the same on all others
- To address inequality, establish a national maximum income by taxing all income over a certain amount at 100

Abortion “Which of the following statements do you think comes closest to what the average Republican Party supporter believes about abortion?” (Subquestion: “How about the average Democratic Party supporter?”)

- By law, abortion should never be permitted
- The law should permit abortion only if the woman’s life is in danger
- The law should permit abortion only if the woman’s life is in danger or in cases of rape or incest
- The law should permit abortion if the woman’s life is in danger, in cases of rape or incest, if there is a serious chance of a birth defect, and at the physician’s discretion in the first two trimesters
- By law, a woman should be able to obtain an abortion as a matter of personal choice in the first two trimesters

- By law, a woman should always be able to obtain an abortion as a matter of personal choice

Gay rights “Which of the following statements do you think comes closest to what the average Republican Party supporter believes about gay rights?” (Subquestion: “How about the average Democratic Party supporter?”)

- Gay sex should be illegal and punishable by imprisonment, similar to the penalties for committing incest and bestiality
- Gay sex should be legal. However, civil unions or any other formal recognition of gay partnerships should not be allowed
- Same-sex civil unions (but not marriage) should be allowed. However, gay couples should not be allowed to adopt children
- Same-sex civil unions (but not marriage) should be allowed, and gay couples in civil unions should be allowed to adopt children
- Same-sex couples should be allowed to marry each other and adopt children
- Same-sex couples should be allowed to marry each other and adopt children, and the government should require that all schools teach children about homosexual relationships

Race “Which of the following statements do you think comes closest to what the average Republican Party supporter believes about racial and civil rights policy?” (Subquestion: “How about the average Democratic Party supporter?”)

- Any laws protecting racial groups should be repealed, including all voting rights and civil rights legislation
- Non-discrimination laws in universities and workplaces should be repealed
- The government should investigate and punish racial discrimination by universities and employers, but hiring or admissions based on race should be illegal
- Universities and employers should be encouraged to consider applicants’ backgrounds to improve diversity, but no quotas should be set

- The government should mandate an aggressive affirmative action program in education and the workplace to ensure that certain numbers of underrepresented minorities are hired/admitted
- In addition to affirmative action, the government should provide cash payments to minority groups as reparations for slavery and other past injustices

OA 4.6 Table of Results from the Extremity Perceptions Experiment

Table OA 4.35: Misperceptions Cause People to Attribute Extreme Policy Preferences to the Typical Out-Party Supporter

	DV: Extremity Perception							
	Full Sample				Just Partisans			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Perceptual error			0.41***	0.40***			0.39***	0.37***
			(0.10)	(0.10)			(0.11)	(0.11)
Assignment to tell	-0.02	-0.06**	0.05	0.05	-0.07***	-0.07***	0.04	0.03
	(0.02)	(0.02)	(0.06)	(0.06)	(0.02)	(0.03)	(0.07)	(0.07)
Perceptual error X tell			-0.24*	-0.23*			-0.23	-0.21
			(0.13)	(0.13)			(0.14)	(0.14)
Assignment to ask	-0.01	-0.04*	-0.03	-0.03	-0.03	-0.03	-0.01	-0.01
	(0.02)	(0.02)	(0.06)	(0.06)	(0.02)	(0.02)	(0.07)	(0.07)
Perceptual error X ask			-0.03	-0.02			-0.06	-0.06
			(0.13)	(0.13)			(0.15)	(0.15)
Constant	0.30***	0.35***	0.15***	0.18**	0.35***	0.27***	0.17***	0.08
	(0.02)	(0.08)	(0.05)	(0.09)	(0.02)	(0.02)	(0.05)	(0.06)
Indicators for educational attainment		X		X		X		X
Policy fixed effects	X	X	X	X	X	X	X	X
R ²	0.04	0.05	0.06	0.06	0.05	0.05	0.06	0.06
SER	0.44	0.45	0.45	0.45	0.46	0.45	0.45	0.45
Policy perceptions	4144	4008	4008	4008	3236	3236	3236	3236
Participants	1036	1002	1002	1002	809	809	809	809

NOTE: In the full sample, non-leaning independents were randomly assigned to the Democratic or Republican treatment arm. The control condition serves as the baseline. Perceptual error is the mean error in respondents' perceptions of the percentage of the out-party belonging to party-stereotypical groups. All variables are scaled 0 to 1. Standard errors, clustered by respondent, are reported in parentheses. * = $p < .10$, ** = $p < .05$, *** = $p < .01$, two-tailed.

OA 4.7 Alternative Specifications of Perceived Extremity, with Results from Extremity Perceptions Experiment

We primarily operationalize perceived extremity as the placement of the typical out-party supporter at the ideologically congruent endpoint of the policy scale. That is, we say that a respondent perceives extremity in the out-party if he locates the typical Democrat at the most liberal scale point, or if he locates the typical Republican at the most conservative scale point. This comports most closely with our hypothesis that social perceptions of the out-party as highly composed of prototypical identifiers cause people to see typical out-party supporters as intense policy demanders. It further allows clean interpretation: the results are easily read as comparisons of proportions of participants who place Democrats (Republicans) at the scale end-point.

However, there are other ways to operationalize perceived extremity. We focus on three here, which, unlike our primary operationalization, are non-binary. (All variables are scaled 0-1. Note, however, that our “winsorizing” procedure effectively removes the lower half of the scale for one of these measures.)

First, one may operationalize perceived extremity as the degree to which participants place Democrats toward the liberal scale endpoint and Republicans toward the conservative scale endpoint. That is, one may rescale the partisan placements such that placing a Democrat (Republican) at the extreme conservative (liberal) endpoint is 0, and placing a Democrat (Republican) at the extreme liberal endpoint is 0, with equally separated values at each point in between. The results using this “Raw, directional placement” measure of extremity perception are presented in columns 1-4 of Table [OA 4.36](#).

This measure is problematic, though. From a face validity standpoint, it’s difficult to claim that placing the typical Democrat at the conservative endpoint (e.g., “Abortion should always be illegal”) is the opposite of perceived extremity. And since most respondents “get it right”—that is to say, most respondents place Democrats and Republicans on the “correct” ideological side of the spectrum—the bulk of the density is above 0.5, so the effective range of the measure is [0.5, 1]. But the handful of perceptions that are on the “wrong” side add significant noise to the estimates of treatment effects, and importantly, since these perceptions are far away from the bulk of the data and likely reflect significant measurement error, they produce significant attenuation bias.

One way to deal with this problem is through a process similar to winsorizing the data (Wilcox

and Keselman 2003). We recode any values on the “wrong” side of the distribution—that is values less than 0.5—to 0.5. The results using this winsorized measure are presented in columns 5-8.

Finally, one could operationalize extremity as the absolute distance of one’s perceived perception of the typical out-partisan’s position from the scale midpoint. Since this measure is agnostic about directionality, this operationalization deviates most significantly from our hypothesis regarding perceptions of partisans as intense policy demanders, in a manner consistent with the perceived interests of the parties’ core groups. However, it also has stronger face validity as a pure measure of perceived extremity. The results using this measure are presented in columns 9-12.

As the table shows, results are similar across all operationalizations, and all these results are similar to those presented in the paper: the “Tell” condition appears to significantly reduce perception of extremity in the out-party (or randomly-assigned party, in the case of non-leaning independents), and we consistently find evidence of an interaction between the “Tell” treatment and the degree to which participants saw the out-party as composed of stereotypical identifiers prior to receiving treatment. (As in the paper, the statistical significance of this interaction term hovers around the $p = 0.10$ mark here.)

Table OA 4.36: Results of the Extremity Perceptions Experiment Under Different Specifications of the Dependent Measure
 DV: Raw Placement, Directional DV: Winsorized Placement, Directional DV: Absolute Distance of Placement from Scale Midpoint

	DV: Raw Placement, Directional			DV: Winsorized Placement, Directional			DV: Absolute Distance of Placement from Scale Midpoint					
	Full Sample	Just Partisans	Full Sample	Full Sample	Just Partisans	Full Sample	Full Sample	Just Partisans	Just Partisans			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Perceptual error		0.15** (0.06)		0.14** (0.06)		0.22*** (0.08)		0.20** (0.09)		0.12* (0.06)		0.11* (0.07)
Assignment to Tell		-0.03** (0.01)		-0.02** (0.01)		0.03 (0.06)		-0.05** (0.02)		-0.04*** (0.02)		-0.05*** (0.02)
Perceptual error X Tell		-0.04 (0.08)		-0.07 (0.09)		-0.16 (0.11)		-0.15 (0.12)		-0.18** (0.09)		-0.17* (0.10)
Assignment to Ask		-0.01 (0.01)		-0.00 (0.01)		-0.02 (0.05)		-0.01 (0.06)		-0.04** (0.02)		-0.03 (0.05)
Perceptual error X Ask		0.02 (0.08)		-0.03 (0.09)		-0.02 (0.11)		-0.04 (0.12)		0.01 (0.09)		-0.01 (0.10)
Constant		0.75*** (0.01)		0.76*** (0.01)		0.47*** (0.04)		0.49*** (0.04)		0.63*** (0.01)		0.59*** (0.03)
Policy fixed effects	X	X	X	X	X	X	X	X	X	X	X	X
R2	0.04	0.05	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
SER	0.24	0.24	0.23	0.23	0.36	0.35	0.35	0.35	0.31	0.31	0.31	0.31
Policy perceptions	4008	4008	3236	3236	4008	4008	3236	3236	4008	4008	3236	3236
Participants	1002	1002	809	809	1002	1002	809	809	1002	1002	809	809

OA 4.8 Experimental Results: Independent Participants

OA 4.8.1 Extremity Perceptions Experiment

Table OA 4.37: Effect of the Experimental Treatments (Baseline = Control) on Independents' Perceptions of Partisans' Extremity

	Coefficient	Std. Error	$p > t $
Ask	-0.07	.04	0.11
Tell	-0.01	0.04	0.74
Constant	0.52	0.03	0.00
R^2	0.02		
n	193		

OA 4.8.2 Social Distance Experiment

Table OA 4.38: Effect of the Experimental Treatments (Baseline = Control) on Independents' Affect Toward a Party (Randomly Assigned)

	Coefficient	Std. Error	$p > t $
Ask	-0.02	.02	0.41
Tell	0.01	0.02	0.62
Constant	0.52	0.03	0.00
R^2	0.01		
n	154		

OA 4.9 Regression Tables for Affect Experiments

Table OA 4.39: Misperceptions Cause People to Feel Partisan Animus

	DV: Out-party FT		DV: Social distance	
	(1)	(2)	(3)	(4)
Perceptual error		-0.10 (0.07)		0.05 (0.08)
Assignment to tell	0.06*** (0.02)	-0.00 (0.05)	-0.03* (0.02)	-0.00 (0.04)
Perceptual error X tell		0.14 (0.10)		-0.06 (0.07)
Assignment to ask	0.01 (0.05)	-0.03 (0.06)	-0.01 (0.01)	-0.03 (0.04)
Perceptual error X ask		0.08 (0.10)		0.04 (0.08)
Constant	0.27 (0.01)	0.31 (0.03)	0.66 (0.01)	0.64 (0.03)
R ²	0.01	0.05	0.00	0.01
SER	0.22	0.22	0.16	0.16
Participants	808	808	664	664

NOTE: Partisan respondents only. The control condition serves as the baseline. Perceptual error is the mean error in respondents' perceptions of the percentage of the out-party belonging to party-stereotypical groups. All variables are scaled 0 to 1. Feeling thermometer coded such that 0 = low affect and 1 = high affect; social distance coded such that 0 = socially proximate, 1 = socially distant. Standard errors are reported in parentheses. * = $p < .10$, ** = $p < .05$, *** = $p < .01$, two-tailed.

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