

# Examining Partisan Asymmetries in Fake News Sharing and the Efficacy of Accuracy Prompt Interventions

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April 13, 2022

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## Abstract

The spread of misinformation has become a central concern in American politics. Recent studies of social media sharing suggest that Republicans are considerably more likely to share fake news than Democrats. However, such inferences are confounded by the far greater supply of right-leaning fake news—Republicans may indeed be more prone to sharing fake news, or they may simply be more exposed to it. This article disentangles these competing explanations by examining sharing intentions in a balanced information environment. Using a large national survey of YouGov respondents, we show that Republicans are indeed more prone to sharing ideologically concordant fake news than Democrats, but that this gap is not large enough to explain differences in sharing observed online. Encouragingly, however, we also find that accuracy prompt interventions that reduce the spread of fake news are equally effective across parties, suggesting that fake news sharing among Republicans is not an intractable problem.

Keywords: misinformation, social media, fake news, partisan asymmetries

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# Introduction

While the rise of the internet once promised to expand and equalize access to political information, the growing supply of online misinformation amid rising levels of political polarization has caused widespread anxiety. Of particular concern is fake news, or disinformation—“fabricated information that mimics news media content in form but not in organizational process or intent” (Lazer et al., 2018). With 86% of Americans now consuming news online (Shearer, 2021) and 46% accessing news through social media (Mitchell et al., 2020), particular attention has been paid to online fake news in recent years. Recent research estimates that over 25% of American adults—or 64 million people—visited a fake news website during the final weeks of the 2020 U.S. election (Moore et al., 2022).

Especially concerning are recent observations that Republicans are substantially more likely to share fake news than Democrats (Grinberg et al., 2019; Guess et al., 2019). This asymmetry raises normative concerns about imbalanced democratic accountability and trust in democratic institutions, with both elites and citizens on one side of the political aisle less constrained by facts than those on the other. Yet the reasons for this asymmetry are not well understood. The prevailing perspective posits that Republicans are inherently more susceptible to sharing fake news, whether due to a greater likelihood of believing misinformation in general (Miller et al., 2016; Pasek et al., 2015), lower ability to distinguish real news from fake news (Basol et al., 2020; Garrett and Bond, 2021; Pennycook et al., 2021), or psychological traits associated with political bias (Jost et al., 2013; Jost, 2017).

However, higher levels of fake news sharing among Republicans may simply reflect the greater supply of right-leaning fake news in the information ecosystem. With the majority of fake news supporting conservative viewpoints (Benkler et al., 2018; Allcott and Gentzkow, 2017; Garrett and Bond, 2021), Republicans should be expected to share more fake news simply because they have greater exposure to it, even if Democrats are equally (or even more) prone to share fake content when they encounter it. This is especially likely given the tendency for both Democrats and Republicans to be exposed to, (Stroud, 2010; Bakshy

et al., 2015) and preferentially share (Barberá et al., 2015; Osmundsen et al., 2021; Pennycook et al., 2021), ideologically concordant content. The differential exposure confound leads to an observational equivalence in past work: evidence that Republicans share more fake news than Democrats can reflect either greater demand for, or supply of, fake news on the political right.

The present article addresses this confound, providing a strict test of partisan asymmetries in the willingness to share fake news using a large national survey of U.S. adult Facebook users recruited by YouGov in the months preceding the 2020 U.S. presidential election. We address the issue of observational equivalence faced by past work by examining news sharing in an information environment with a balanced supply of news, both in terms of veracity (true or false) and partisan alignment (left-leaning or right-leaning). Within this environment, respondents were each exposed to 20 political headlines—sampled randomly from a larger set of 59 recent headlines—and asked to report their likelihood of sharing each. We use this design to measure partisan differences in sharing discernment—the extent to which more true news is shared relative to false news.

We find that when sharing news that is ideologically concordant, Republicans are significantly less discerning between real and fake news than Democrats: The proportion of shared articles that are false was 34% greater for Democrats (.57) than Republicans (.43). For ideologically discordant news, Democrats and Republicans are approximately equally discerning. Thus, we find evidence that Republicans do indeed have some greater predilection to share fake identity-confirming news, and therefore that the patterns observed on social media cannot be entirely explained by differences in exposure. However, the magnitude of the difference in predilection observed here is not sufficient to explain why Republicans share between 200% and 500% percent more fake news than Democrats (Grinberg et al., 2019; Guess et al., 2019).

The finding that Republicans are at least somewhat more prone to sharing fake news lends urgency to the question of whether existing interventions are effective in increasing sharing

discernment, especially among Republicans. While most prior work on anti-misinformation interventions has focused on rectifying inaccurate beliefs (e.g. debunking or correcting falsehoods (Nyhan and Reifler, 2010; Wittenberg and Berinsky, 2020)), recent work has begun to target social media sharing. For example, a series of recent studies have found that prompting users to consider the concept of accuracy increases subsequent sharing discernment (Pennycook et al., 2020, 2021; Epstein et al., 2021; Roozenbeek et al., 2020; Rathje et al., 2021). Although these accuracy prompts have been shown to be effective overall, whether they work for Republicans has been contested (Roozenbeek and Van der Linden, 2019; Rathje et al., 2022).

We address this question by randomly assigning a separate set of respondents in the same survey to receive one of three different accuracy prompt interventions, which shift attention to whether news is accurate (Pennycook and Rand, 2021). Unlike past work that examines partisan asymmetries in responsiveness to accuracy prompts (Roozenbeek and Van der Linden, 2019; Rathje et al., 2022), we use a headline set that is balanced on partisan lean together with a higher quality sample of social media users. We find that accuracy prompts are equally effective in increasing sharing discernment among Democrats and Republicans, allaying concerns that they fail to work where our data suggest they are needed the most: among Republicans who encounter ideologically concordant false content.

Together, our findings indicate that while Republicans are more prone to sharing fake news than Democrats, the magnitude of this asymmetry is insufficient to explain the large partisan differences in sharing observed in recent studies. Our findings also demonstrate that the problem of partisan asymmetries in sharing fake news is not intractable: contrary to recent claims, interventions aimed at improving discernment by increasing attention to accuracy can improve the veracity of political news shared by Republicans and Democrats alike. These results are especially promising given that one of the interventions we test, a 30-second public service announcement video, is more easily deployable online than previously tested interventions, and in fact was deployed at scale using targeted advertisements by a

non-profit organization during the 2020 US Election.

## Individual Differences in Sharing Fake News

The questions of who is most prone to sharing fake news, and most resistant to interventions aimed at slowing its spread, are both practically and normatively consequential. Practically, a prerequisite to prescribing a remedy to the problem of fake news is understanding who is spreading it. Current methods of slowing the spread of fake news—including the targeted removal of specific users and content from social media (Yang et al., 2022), expert and crowd-sourced fact checks (Brashier et al., 2021; Pennycook et al., 2020; Yaqub et al., 2020), and interventions aimed at increasing digital literacy and attention to accuracy (Guess et al., 2020; Pennycook et al., 2021; Badrinathan, 2021)—require an understanding of who to target. Normatively, the preferential spread of fake news on one side of the political spectrum threatens to asymmetrically undermine democratic accountability and trust in democratic institutions. While any erosion of democratic norms is consequential, asymmetric erosion can lead to different sets of rules for members of opposing parties, leading them to respond to unfavorable political events and conditions (e.g., a lost election) in a manner that is untethered from reality.

A common claim in the growing literature on fake news and online misinformation is that Republicans and conservatives are more prone to spread fake news than Democrats and liberals (Grinberg et al., 2019; Guess et al., 2019). From a theoretical perspective, this claim is supported by decades of research suggesting psychological differences between liberals and conservatives that make the latter more prone to political bias. For instance, conservatives demonstrate higher levels of personality traits and cognitive styles expected to predispose one to political bias, including greater needs for cognitive closure, higher levels of dogmatism, and lower levels of self-reflection (Jost et al., 2013, 2017; Jost, 2017; Baron and Jost, 2019). More closely tied to the spread of fake news, conservatives are also more likely to resist

information that challenges one’s worldview (Barberá et al., 2015; Nam et al., 2013) and rely on intuitive (Type 1) information processing (Jost et al., 2017; Jost and Krochik, 2014; Pennycook and Rand, 2019).

Past work on misinformation more broadly—including misperceptions, conspiracy theories, and political rumors—lend further support to the expectation that individuals on the political right are more likely to spread fake news and resist intervention. For instance, conservatives are more likely to believe in misinformation and conspiracy theories (Miller et al., 2016; Pasek et al., 2015; Van der Linden et al., 2021) and question historical (Americans landed on the moon), scientific (climate change is true), and public health (smoking causes cancer) findings (Lewandowsky et al., 2013). Recent work on social media specifically suggests that conservatives are more likely to believe online bots (Yan et al., 2021), a potential vector of transmission for fake news.

However, there are also reasons to expect that liberals and conservatives might be equally prone to sharing fake news and responding to interventions. The most prominent of these takes the form of pushback against the supposed consequences of psychological differences between liberals and conservatives. While these well-documented differences should result in greater political bias in theory, recent work finds that this is not necessarily the case in practice (Kahan, 2013; Kahan et al., 2017; Ditto et al., 2018; Guay and Johnston, 2021; Frimer et al., 2017; Ryan and Aziz, 2021). Specifically, conservatives and Republicans do not appear to privilege ideologically concordant information more than Democrats (Ditto et al., 2018, 2019; Tappin and McKay, 2019). In fact, many of the traits typically associated with conservatives, such as need for certainty, do not appear to be associated with this type of political bias at all (Guay and Johnston, 2021). Similarly, there is recent pushback on left-right asymmetries in belief in scientific findings. Specifically, Washburn and Skitka (2017) find that both liberals and conservatives were less likely to correctly interpret scientific results when results conflicted with their prior attitudes and McPhetres et al. (2021) find surprisingly little polarization across a large number of scientific issues.

# Partisan Asymmetries in Sharing Fake News

With these theoretical expectations in mind, we turn to recent empirical work that examines whether the amount of fake news shared on social media differs by ideology or political party, typically by scraping a large sample of articles shared by Facebook or Twitter users. For instance, [Grinberg et al. \(2019\)](#) analyze articles shared by over 16,000 Twitter users, using the ideological composition of their follower networks to infer the partisanship of individual users. Some recent work goes a step further by linking social media data with user's survey responses, enabling more robust measures of respondent partisanship ([Guess et al., 2019](#)). Such studies have overwhelmingly concluded that fake news is shared more by social media users on the political right ([Grinberg et al., 2019; Guess et al., 2019; Allcott and Gentzkow, 2017](#)).

These designs are well-suited for describing the total amount of fake news that is shared by different subsets of the population. However, these studies face a common confound that limits the inferences that can be drawn about whether Republicans or Democrats are more prone to sharing fake (vs. real) news. Namely, the supply of fake news is asymmetric across partisan and ideological lines, with a far greater supply of fake news on the right than the left ([Benkler et al., 2018; Allcott and Gentzkow, 2017; Garrett and Bond, 2021](#)).

This confound results in an observational equivalence between two sides of the fake news asymmetry hypothesis. On the one hand, the observation that Republicans and conservatives are responsible for sharing a greater amount of fake news could result from a greater propensity to share fake news. That is, individuals on the political right may be more prone to share fake content upon being exposed to it, whether due to certain personality/cognitive traits thought to predispose one to political bias (e.g., [Jost et al. 2017](#)), lower trust in scientific findings (e.g., [Lewandowsky et al. 2013](#)), or some other factor. On the other hand, the result that Republicans and conservatives share more fake news could result even if Democrats and liberals are equally prone to share fake news. Given a perfect partisan symmetry in the propensity to share fake news, the greater supply of fake news on the political

right would still produce the apparent sharing asymmetry observed in past work.

The asymmetry in supply of fake news may be further exacerbated by the tendency of both Democrats and Republicans to not only be exposed to congenial information but also to preferentially share congenial information (Guess et al., 2020; Grinberg et al., 2019; Pennycook et al., 2021). The tendency to share congenial news could serve to exacerbate the confound that results in observational equivalence in studies examining partisan differences in sharing fake news.

This confound limits the inferences recent work can draw about how Democrats and Republicans differ in their underlying propensity to share fake news. For instance, Guess et al. (2019) find that conservatives are far more likely to share articles from fake news sources than liberals in 2016, but note that this asymmetry “is consistent with the pro-Trump slant of most fake news articles produced during the 2016 campaign... and thus might not represent a greater tendency of conservatives to share fake news than liberals conditional on being exposed to it.” Likewise, Osmundsen et al. (2021) observe that Republicans were more likely to share news from fake news sources, but note that this difference could be driven by large partisan asymmetries in the supply of fake news.<sup>1</sup>

In this paper, we take up the task of directly testing for partisan asymmetries in news sharing by measuring sharing behavior in a balanced information environment, where respondents from a large national sample of social media users recruited by YouGov are exposed to equal amounts of left- and right-leaning true and false news headlines. This balanced information environment enables us to draw inferences about how likely Democrats and Republicans are to share true (vs. false) news, and how this varies based on the political concordance of that news. While this approach departs from past observational social media

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<sup>1</sup>One potential method of addressing this confound is controlling for exposure to fake news when measuring asymmetries in fake news sharing. However, this approach is made challenging by the difficulty in measuring what content social media users are exposed to (Lazer, 2020) and the limited amount of left-leaning fake news that appears in random samples of social media users. Interestingly, Grinberg et al. (2019) use this approach in a secondary analysis and find that while approximately twice as many people on the political right shared fake news content during the 2016 election than people on the political left, this difference disappears when conditioning on exposure to fake news (pg. 4, Figure 4).

studies by prioritizing internal validity, thus enabling more meaningful inferences, we take two steps to maximize generalizability and external validity. First, the 20 headlines shown to each respondent are sampled randomly from a larger set of 59 headlines that appeared on online news websites, which enables us to draw inferences about a wider range of headlines. Second, we use a sharing intentions measure that headline-level analyses find to be correlated with actual sharing behavior on social media—and, even more importantly, to show similar correlation patterns with a range of covariates as is observed using actual sharing ([Mosleh et al., 2020](#)).

## Partisan Asymmetries in the Efficacy of Fake News Sharing Interventions

A second question concerns the extent to which Democrats and Republicans respond differently to interventions aimed at increasing sharing discernment. A growing body of research seeks to understand how to best combat the sharing of fake news, ranging from methods that train social media users to detect false content to attaching warning labels to false content or removing it entirely ([Baron and Jost, 2019](#); [Clayton et al., 2019](#); [Nyhan et al., 2019](#)). The question of for whom these interventions are more versus less effective has implications for how the interventions are designed and deployed.

Here, we investigate this question, with a particular focus on accuracy prompt interventions ([Byles et al., 2021](#); [Epstein et al., 2021](#); [Pennycook et al., 2020, 2021](#); [Roozenbeek et al., 2020](#)); for a review, see ([Pennycook and Rand, 2021](#)). Past work has suggested that even people who value accuracy may share false news because they simply forget to stop and consider whether it is true before sharing. Thus, prompts that redirect users' attention back to accuracy can improve the quality of the news they share, both in survey experiments and a field experiment on Twitter. A variety of different accuracy prompts have been shown to be effective ([Epstein et al., 2021](#)), and the approach works for a wide variety of headlines

(Pennycook et al., 2020, 2021).

Despite this overall promise, however, recent work has raised questions about whether accuracy prompts are less effective for Republicans than for Democrats. For example, using quota-matched participants from Lucid evaluating headlines about COVID-19, Roozenbeek et al. (2020) found that an accuracy prompt was ineffective for Republicans, whereas Epstein et al. (2021) found that accuracy prompts worked equally well for Democrats and Republicans. Using convenience samples from Amazon Mechanical Turk evaluating political headlines, Pennycook et al. (2021) found that accuracy prompts worked less well for Republicans than Democrats, but still significantly improved sharing discernment even for Republicans. Meta-analyzing the results of 5 accuracy prompt experiments, (Rathje et al., 2022) found that accuracy prompts were ineffective for Republicans; and meta-analyzing the result of 20 accuracy prompt experiments, Pennycook and Rand (2022) found that accuracy prompts were less effective for Republicans in convenience samples but not in more representative samples.<sup>2</sup> Overall, then, it remains unclear whether accuracy prompts can effectively reduce the share of fake political news among Republicans.

Therefore, in addition to examining partisan differences in the propensity of Americans to share fake news, we take up the question of whether accuracy prompt efficacy varies across partisanship. By using a more representative sample of users and a larger set of politically balanced headlines than prior work, we aim to more clearly understand if accuracy prompts can effectively increase the quality of political news shared by Republicans.

## Data & Methodology

We recruited 2,015 U.S. adult survey respondents from YouGov approximately two months before the 2020 U.S. presidential election (August 28 - September 6, 2020).<sup>3</sup> YouGov draws

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<sup>2</sup>Note that the data from the current study are included in this meta-analysis, but all of the other samples using political headlines are either convenience samples from Mechanical Turk or quota-matched samples from Lucid. Therefore, the current paper investigates partisan differences in this higher quality national sample from YouGov.

<sup>3</sup>This research was deemed exempt by the [REDACTED FOR PEER REVIEW]’s Research Ethics Board.

respondents from a demographically balanced panel of U.S. survey respondents who are invited to participate in individual surveys for compensation. All analyses are weighted according to gender, age, race, education, region, and past presidential vote based on registered voters in the U.S. Census Bureau’s November 2016 Current Population Survey. The balanced partisan and demographic nature of this sample is particularly important for drawing valid inferences about partisan asymmetries in sharing discernment. We measured respondents’ party identification on a 7-point scale ranging from “Strong Democrat” to “Strong Republican” and ideology on a 5-point scale ranging from “Very Liberal” to “Very Conservative.”

Respondents were randomly assigned with equal probability to one of four experimental conditions that determined what, if anything, they were shown prior to the news sharing task. Respondents assigned to the control condition were shown nothing prior to the news sharing task. The remaining respondents were assigned to receive one of three interventions aimed at prompting them to consider accuracy, and thus increase the quality of the news they shared. The first two of these accuracy prompt interventions were adapted from prior work (Pennycook et al., 2021, 2020; Epstein et al., 2021). These included the Evaluation treatment, in which respondents were shown a single non-political news headline and asked to judge its veracity (Figure 1A)<sup>4</sup>; and the Importance + Norms treatment (Epstein et al., 2021), in which respondents were asked “Do you believe it’s important to think about whether a news article is true or false before sharing it on social media?” with response options “yes” and “no” (Figure 1B), and then (regardless of their response) shown the message “90% of people say it’s important to consider accuracy before sharing content.” The third treatment was a novel accuracy prompt intervention developed for this study, consisting of a 30-second animated public service announcement style video emphasizing the importance of paying attention to the accuracy of information shared on social media (Figure 1C)<sup>5</sup>. Links to the

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<sup>4</sup>Respondents were randomly assigned to see one of five news headlines (two true headlines, three false headlines). After rating the headline as true or false, half of respondents received feedback about whether they had answered correctly.

<sup>5</sup>The PSA video featured an animation of an individual considering whether a series of news articles were real or fake, with the following text displayed throughout the video: “90% of people say it’s important to only share accurate content on social media/But the chaos of social media can make it hard to keep your

Figure 1: Accuracy Nudges and Headline Example



Panel A: Evaluation intervention, Panel B: Important & Norms intervention, Panel C: frame from Video intervention, Panel D: One of the 49 headlines that respondents reported sharing intentions for.

interventions are included in the SM Section 4.

All respondents were then shown 20 recent news headlines and reported how likely they would be to share each. Instructions read “Next you will be presented with a set of news headlines (20 in total). We are interested in whether you would consider sharing these stories on Facebook.” Each subsequent screen featured a news article as it would appear on Facebook, with a headline (“e.g., Trump Science Advisor Denies Apollo Landings Ever mind on accuracy/So people often share news they would have realized was false—if they’d thought about it/Remember to think before you share.”

Happened”), the source of the headline (e.g., [worldwidetodailyreport.com](http://worldwidetodailyreport.com)) and the original image accompanying the headline when it was published (Figure 1D). Respondents were asked “If you were to see the above post on Facebook, how likely would you be to share it?” and answered using a 6-point likert scale ranging from “extremely unlikely” to “extremely likely”. Recent item-level analyses show that self-reported sharing intentions elicited in this way are strongly correlated with actual sharing behavior on Twitter, and, even more importantly, show similar patterns of correlation between sharing and covariates (Mosleh et al., 2020). Furthermore, the Evaluation accuracy prompt intervention used in this study, which was developed using self-report sharing intentions, was also found to be effective on actual sharing in a field experiment on Twitter ([Pennycook et al., 2021](#)).

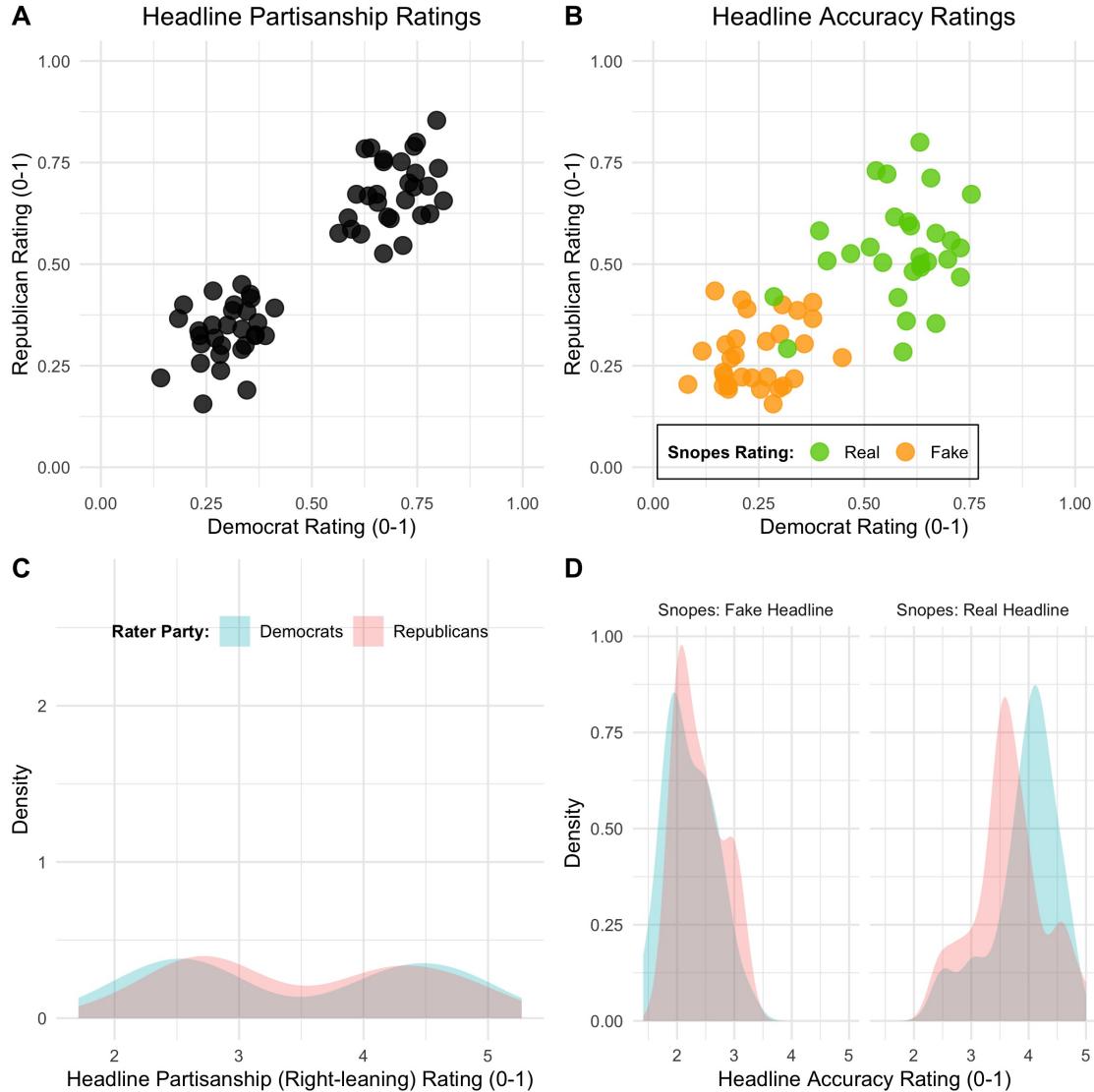
The 20 headlines viewed by respondents were balanced by partisanship (left-leaning, right-leaning) and veracity (true or false), such that each respondent saw 5 true left-leaning headlines, 5 false left-leaning headlines, 5 true right-leaning headlines, and 5 false right-leaning headlines.<sup>6</sup> In order to increase generalizability, the 20 headlines viewed by each respondent were sampled from a larger set of 59 headlines. We followed [Pennycook et al. \(2021\)](#) methodology for selecting headlines, drawing false articles from fact-checking websites (e.g., Snopes.com) and true news articles from a wide variety of mainstream sources.

In a pre-test, an independent quota-matched sample of N=880 survey respondents recruited on Lucid rated an even larger set of 216 headlines on partisanship (“Assuming the headline is entirely accurate, how favorable would it be to Democrats vs. Republicans”) and veracity (“What is the likelihood that the headline is true?”), among other things. We then used these pre-test ratings to construct a balanced headline set for our experiment. As illustrated by Figure 2, Democratic and Republican raters had high levels of agreement about which headlines were left- and right-leaning (Panels A and C,  $r = .91$ ). Democratic and Republican raters also had high levels of agreement on which headlines were true vs.

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<sup>6</sup>We use the term false headlines to underscore the fact that, although not factually true, they are real headlines that appeared on actual websites (as opposed to fake headlines that are made up by researchers, e.g, ([Pereira et al., 2018](#))).

**Figure 2: Pre-test Accuracy and Partisanship Ratings of Headlines**



Independent ratings of headlines by Lucid respondents. Democrat and Republican respondents agreed on the partisanship of the headlines (Panel A,  $r = .91$ ) and whether each headline was true or fake (Panel B,  $r = .74$ ).

false (Panels B and D,  $r = .74$ ) indicating that perceptions of veracity are not largely driven by partisanship.

Most prior work examining news sharing has focused on the raw difference in sharing probability of true news versus false news (often termed “sharing discernment”) (Guess et al., 2020; Ternovski et al., 2021; Pennycook et al., 2021). Recently, however, concerns have been raised about this approach because it does not account for baseline differences in

sharing rates (and thus can be misleading in contexts where overall levels of sharing vary) ([Sirlin et al., 2021](#)).

To illustrate the problem with the raw difference measure, consider a case in which Democrats and Republicans are (i) both twice as likely to share true news compared fake news, but (ii) the overall propensity to share news generally (regardless of veracity) is 1.5 times as high for Republicans compared to Democrats. For example, say Republicans share 15% of false headlines and 30% of true headlines; whereas Democrats share 10% of false headlines and 20% of true headlines. Estimating the interaction between type and headline veracity, capturing the difference in differences, gives  $(.30-.15) - (.20-0.10) = .05$ . This would lead one to conclude that there is a 5 percentage point partisan asymmetry in sharing discernment: Republicans share 15 percentage points more true than false, whereas Democrats share only 10 percentage points more true than false. Yet it seems inappropriate to conclude from this observation that Democrats are less discerning than Republicans: members of both parties are twice as likely to share true than false, and as a result, 2/3 of the content shared by members of both parties is true.

Given that the aim of this paper is to understand whether Republicans are more prone than Democrats to share fake content relative to real content, accounting for baseline differences in overall sharing rates is therefore critical. To do so, we follow [Sirlin et al. \(2021\)](#) and operationalize sharing discernment as the percentage of shared articles that are true for each respondent

$$\text{discernment} = \frac{\# \text{ shared headlines that are true}}{\# \text{ of shared headlines}} \times 100 \quad (1)$$

where shared articles are those a respondent reports being extremely, moderately, or slightly likely to share (as opposed to extremely, moderately, or slightly unlikely to share).<sup>7</sup>

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<sup>7</sup>Any measure of relative differences in sharing discernment necessarily excludes respondents who report no intention to share all of the 20 headlines, since the denominator is zero. These respondents are not of substantive interest when examining partisan asymmetries in sharing discernment or the efficacy of accuracy nudges, but have the potential to introduce bias if distributed unevenly across party or experimental conditions. We show that this is not the case in SM 3.2.

This approach facilitates a more meaningful interpretation of the results presented here, but collapses across potentially meaningful variation in the strength of sharing intent (extremely, moderately, and slightly likely/unlikely to share). As shown in SM 3.1, however, conducting a version of the analysis that is less interpretable but does not collapse across the likert scale categories, using

$$\text{alt. discernment} = \frac{\text{mean sharing intention for true headlines}}{\text{mean sharing intention for all headlines}} \quad (2)$$

produces qualitatively equivalent results.

When determining confidence intervals and p-values for these measures, it is important to account for correlated sharing intentions within headlines (each of the 20 headlines were randomly sampled from a larger set of 59 headlines) (Pennycook et al., 2021; Judd et al., 2012; Yarkoni, 2022). Thus, rather than simply calculating the fraction of shared content that is true for each subject and using that quantity as the dependent variable in a regression, we use a two-stage bootstrapping approach. First, we account for variation at the respondent level with a 1,000 iteration bootstrap, sampling individual respondents with replacement. Within each of these iterations, we then randomly sample 20 headlines with replacement for each subject to account for variation at the headline level. We then calculate the outcome of interest for each bootstrap iteration, directly yielding a 95% confidence interval (and allowing us to calculate a p-value by determining the fraction of iterations in which the outcome is in the expected direction, and doubling that fraction to make the p-value 2-sided).

## Results

### Partisan Asymmetries in Sharing Discernment

We begin by examining the extent to which sharing intentions among Democrats and Republicans in the control condition differ in their likelihood to share true and false headlines. The

top row of Figure 3 reports the probability of sharing headlines separately for Democrats and Republicans, and by the veracity and ideological concordance of headlines.<sup>8</sup> Across all headline types, respondents are more likely to share true headlines than false headlines. Critically, however, the extent of this difference varies by respondents' party and ideological concordance of the headline.

Among concordant headlines (Panel A), Republicans are 1.55 times more likely than Democrats to share false headlines, and 1.19 times more likely to share true headlines. For discordant headlines (Panel B), Republicans are 1.17 times more likely than Democrats to share false headlines, and 1.25 times more likely to share true headlines.

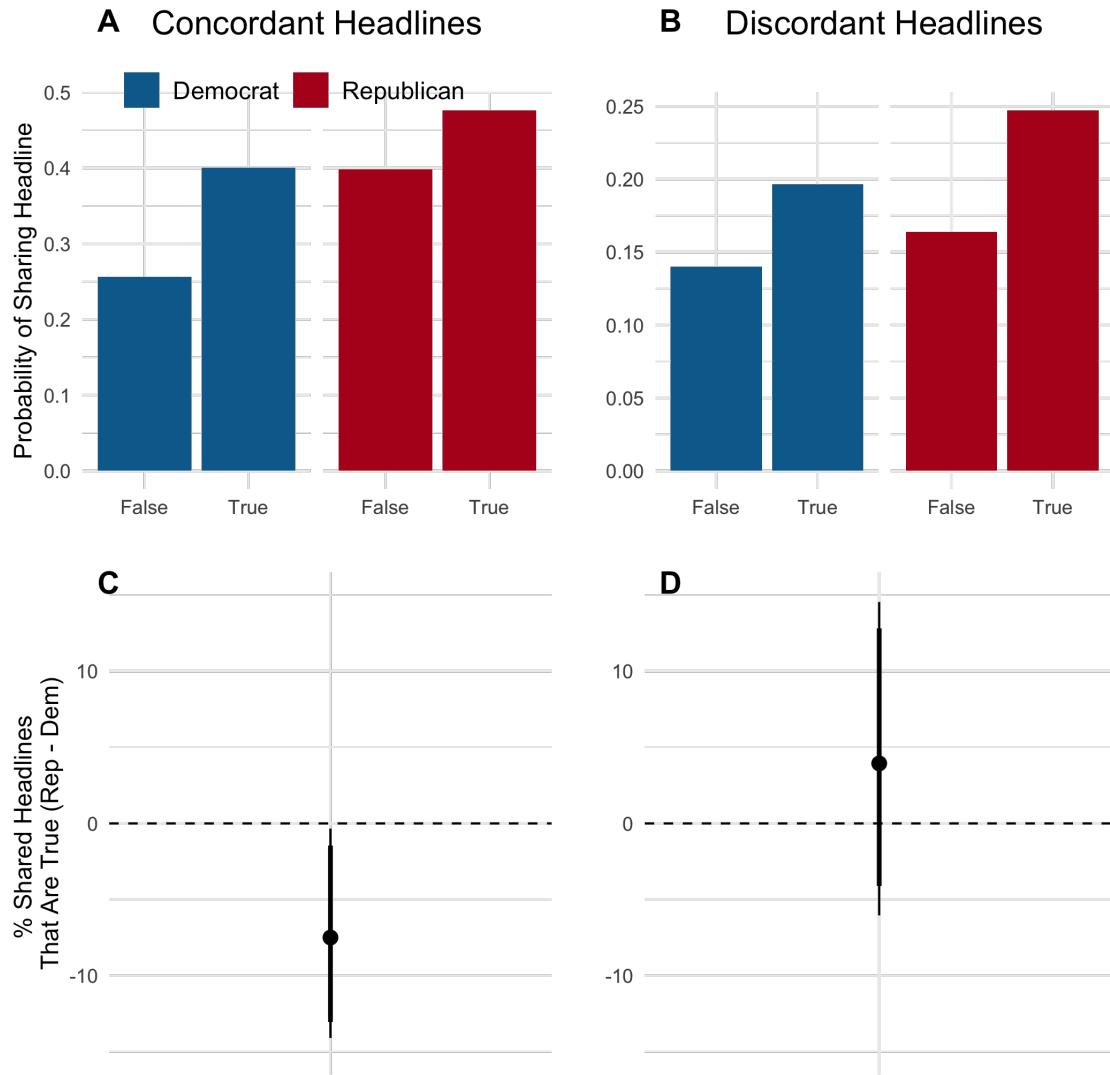
As can be seen, Republicans are more likely to share all four types of news than Democrats. Thus, as described in detail above, it is necessary to account for overall sharing rates in order to assess how partisanship is associated with the quality of news shared. To that end, we consider partisan differences in discernment—the proportion of shared headlines that are true (Equation 1). For ideologically concordant headlines, 65.5% of shared headlines are true among Democrats, whereas 57.2% of shared headlines are true among Republicans. This suggests that there is indeed a partisan asymmetry in sharing discernment, such that Democrats are 1.15 times more discerning than Republicans ( $65.5\% / 57.2\% = 1.15$ ); or, put differently, the fraction of concordant news shared that is false is 1.24 times higher for Republicans compared to Democrats ( $42.8\% / 34.5\% = 1.24$ ).

To determine whether this difference is statistically significant, we regress sharing discernment (Equation 1) on an indicator for respondent party (0 = Democrat, 1 = Republican), excluding Independents who do not lean toward either party, and controlling for age, gender, and educational attainment. Panel C reports the parameter estimate for party in this model when examining concordant headlines ( $b = -7.5$ ), indicating that a smaller fraction of shared headlines are true for Republicans relative to Democrats ( $p = .042$ ). Section 3.1 in the Sup-

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<sup>8</sup>In the main analysis we discretize the 6-point sharing intention scale to simplify the interpretation (share = extremely/moderately/slightly likely to share, not share = extremely/moderately/slightly unlikely to share). In the supplementary materials (SM 3.1) we replicate our analysis using the non-discretized sharing intention measure.

**Figure 3: Partisan Differences in Sharing Intentions by Headline Veracity Concordance**



Top row: Mean sharing intention for headlines that are true and false for ideological concordant headlines (A) and discordant headlines (B), accounting for survey weights. Bottom row: Parameter estimates reflecting the difference in the percentage of shared articles that are true between parties (Republicans - Democrats) with 90 and 95% bootstrapped confidence intervals, controlling for respondent age, gender, and educational attainment.

plementary Materials reports the same analysis for the non-discretized operationalization of sharing discernment given in Equation 2 above ( $b = -.150$ ,  $p = .006$ ).

For headlines that are ideologically discordant, there are no meaningful partisan differences (Panel D): 62.6% of shared headlines are true among Democrats, whereas 66.6% of

shared headlines are true among Republicans, a difference which is not statistically significant ( $p = .40$ ; non-discretized operationalization,  $p = .72$ , see SM 3.1). Importantly, not only is the result for concordant significantly different from zero while the result for discordant is not, but the two estimates are significantly different from each other ( $b = -12.53$ ,  $p = .002$ ; non-discretized operationalization,  $p=.018$ ). This is also the case when using two alternative operationalizations of respondent left-right orientation: 7-point party identification scale (including ‘pure’ Independents;  $p < .001$ ) and self-placement on 5-point ideological scale (extremely liberal to extremely conservative;  $p = .058$ ; see SM 2.1).

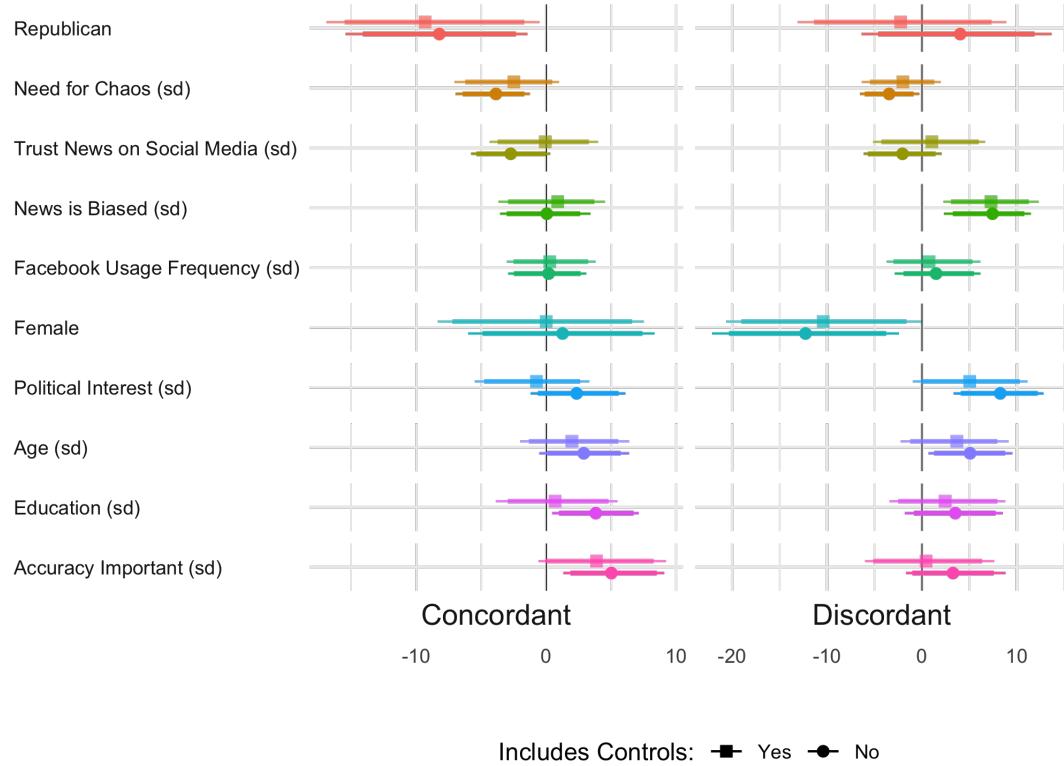
In summary, while Democrats and Republicans exhibit similar levels of sharing discernment when encountering articles that support the opposing political perspective, Republicans are significantly less discerning when it comes to articles that are ideologically concordant.

As an additional robustness check and to further understand the correlates of sharing discernment, we run models predicting sharing discernment for concordant and discordant headlines (separately) with a larger set of predictors, including Need for Chaos ([Arceneaux et al., 2021](#)), trust in news found on social media, belief that news is biased, frequency of Facebook usage, political interest, and belief that accuracy is important when deciding which articles to share online. We specify two sets of models: one with all covariates predicting sharing discernment and one with each covariate predicting sharing discernment separately.

Parameter estimates for both sets of models are reported in Figure 4. Of particular importance is that Republicans have lower sharing discernment for concordant headlines even after controlling for the full range of other covariates. Among concordant headlines, Need for Chaos is also negatively associated with sharing discernment, while education and importance placed on sharing accurate information are positively associated with sharing discernment, though these relationships are only statistically significant in the models that enter each predictor separately without any other covariates. Among discordant headlines, Need for Chaos and being female are negatively associated with sharing discernment, while political interest, age, and belief that news is biased (but only when not including covariates)

are positively associated with sharing discernment.

**Figure 4: Predictors of Sharing Discernment**



Predictors of sharing discernment for ideologically concordant (left panel) and discordant (right panel) headlines, with 90 and 95% bootstrapped confidence intervals. Models run with controls control for all other covariates.

## Partisan Asymmetries in Efficacy of Accuracy Prompt Interventions

Lower levels of sharing discernment among Republicans who encounter ideologically concordant articles raise normative concerns, particularly given that on the supply side, the majority of fake news is right-leaning. Next, we examine whether accuracy prompts designed to increase sharing discernment by shifting attention to accuracy are effective in mitigating this problem. To maximize statistical power, we begin by pooling across the three different

accuracy prompt interventions used in our experiment.<sup>9</sup> We estimate the treatment effect by regressing sharing discernment on an indicator for treatment (vs. control) among the combined sample of Democratic and Republican respondents, as well as separately for members of each party.

As illustrated by Figure 5, the effect of seeing an accuracy nudge increased the percentage of shared articles that are true by 6.0 percentage points on average ( $p = .012$ ; non-discretized operationalization,  $p=.006$ , see SM 3.1). This treatment effect is nearly identical for Democrats ( $\beta = 5.9$ ,  $p = .044$ ; non-discretized operationalization,  $p=.058$ ) and Republicans ( $\beta = 6.2$ ,  $p = .03$ ; non-discretized operationalization,  $p=.02$ ) and does not differ significantly by party ( $p = .914$ , non-discretized operationalization,  $p=.902$ ). The treatment effect also does not differ across the 7-point party identification ( $p = .934$ ) or 5-point ideology scales ( $p = .45$ ).

Moreover, the accuracy nudge is equally effective in increasing discernment where the problem is the worst: for Republicans who encounter ideologically concordant headlines. Indeed, we observe no significant differences in the effect on Democrats versus Republicans for either ideologically concordant or discordant headlines (model results are reported in SM 2.2)

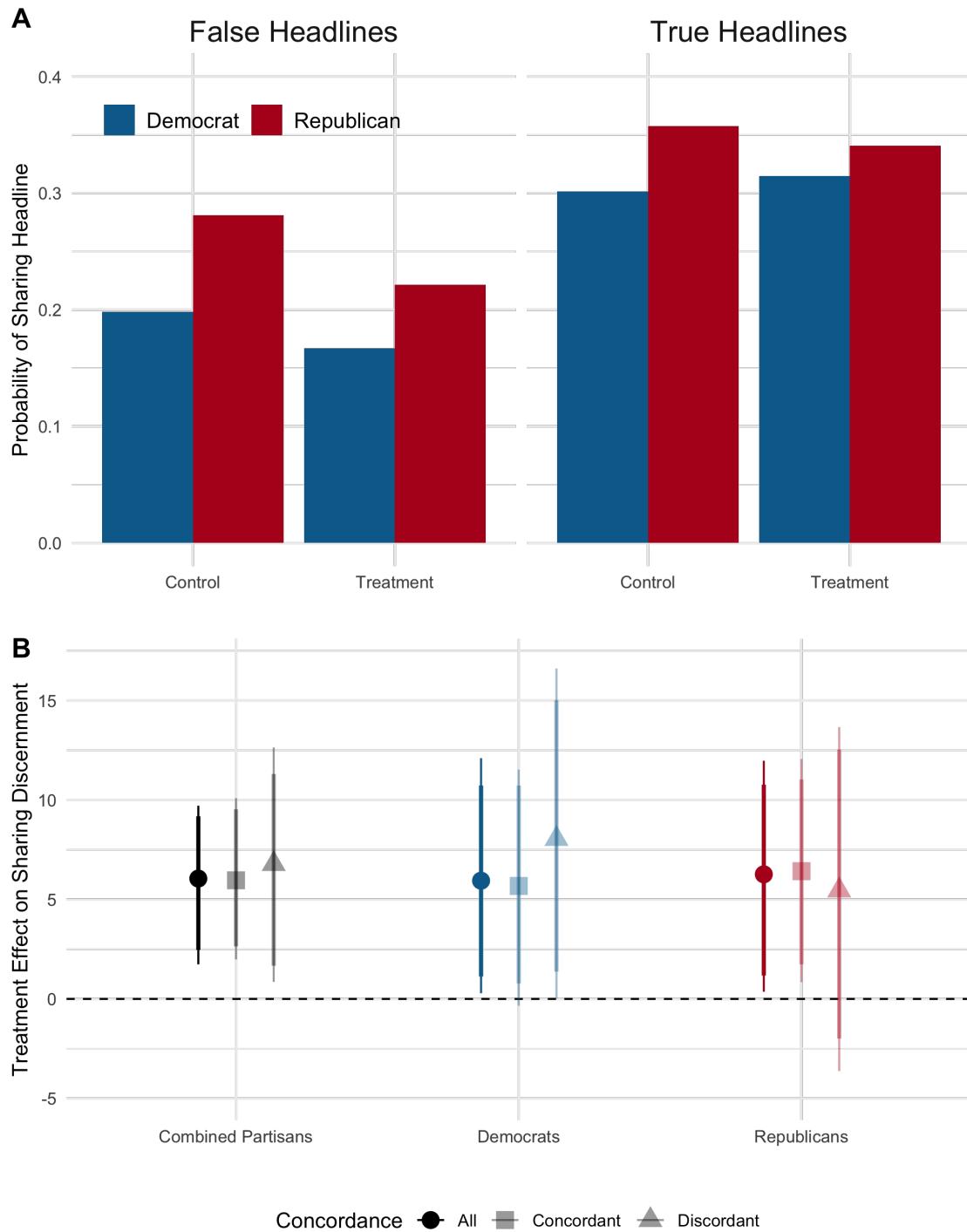
We also examine heterogeneity in the treatment effect across the wider set of variables described above (e.g., Need for Chaos, belief that news is biased, trust in news found on social media, etc.). Overall, we find that the effect of the accuracy prompt is widely consistent across many types of people (SM 3.4). The exception is that prompts are more effective among older adults ( $p = .016$ ) and slightly less effective among those with higher levels of Need for Chaos ( $p = .06$ ). Importantly, when controlling for treatment heterogeneity among this wider set of covariates, there continues to be no significant heterogeneity across political party.

Finally, we examine how the treatment effect varies across different versions of the accu-

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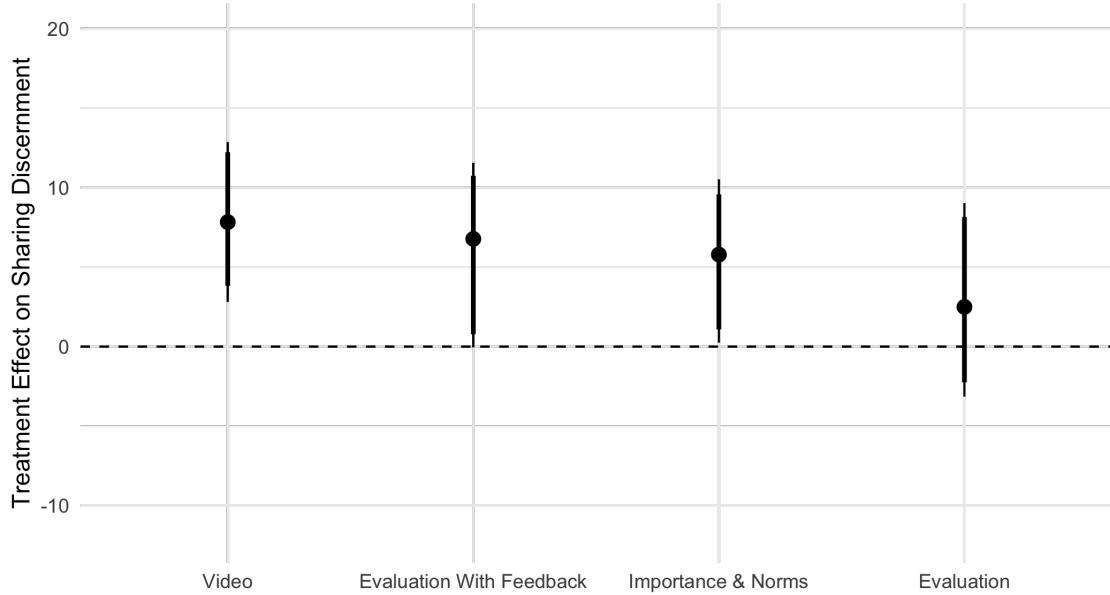
<sup>9</sup>There was very low overall attrition on the survey (33 out of 2,015 respondents, or 1.64%) and differences in attrition across experimental conditions were minimal (SM 1.1).

**Figure 5: Effect of Accuracy Nudge on Sharing Discernment**



Treatment effect on sharing discernment (percentage of shared articles that are true) calculated separately by party and ideologically concordant/discordant headlines, with 90% and 95% confidence intervals.

**Figure 6: Treatment Effect by Accuracy Prompt Version**



Treatment effect on sharing discernment (percentage of shared articles that are true) calculated separately by accuracy nudge type, with 90% and 95% confidence intervals.

racy prompt, which differ in the level of interaction required by respondents. Of particular interest is whether the PSA video intervention introduced in this study, which requires no interaction and is therefore more easily deployable on a large scale (e.g. through ad buys), is as effective as previous versions of the accuracy prompt, which ask respondents whether accuracy is important to them or to rate headlines as true or false. As illustrated in Figure 6, all of the prompt implementations have directionally positive effects, and none of the pairwise comparisons between implementations are significant, indicating no significant differences in effectiveness across prompt implementations (see SM 3.3). Furthermore, three of the four accuracy prompt implementations result in statistically significant increases in sharing discernment relative to the control, including the PSA video. Only the Evaluation prompt, which asks respondents to rate whether a neutral headline is true or false without providing feedback about whether they answered correctly, did not result in a significant increase in discernment relative to the control; although this particular Evaluation implementation has been shown to be broadly effective in a large internal meta-analysis ([Pennycook and Rand](#),

2022) and two replications by other groups (Roozenbeek et al., 2020; Byles et al., 2021).

## Discussion

Recent studies showing that Republicans share more fake news than Democrats can reflect either that Republicans have a greater tendency to share fake news or are simply more exposed to it. Using a set of real-world headlines balanced across veracity and partisanship and a high-quality national sample of Facebook users, we show that Republicans are indeed somewhat more prone to sharing ideologically concordant fake news than Democrats. This difference is substantively meaningful in magnitude (1.24 times larger fraction of shared news that is false for Republicans compared to Democrats), and statistically significant and robust to multiple operationalizations of sharing discernment and left-right orientation (e.g., ideology).

How, then, does the magnitude of the partisan difference we observe compare to what has been observed previously using social media data? Grinberg et al. (2019) found that Twitter users on the political right are 2.5 times more likely to share fake news than those on the political left during the 2016 U.S. presidential election, and that those on the extreme right were 4.3 times more likely to share fake news than those on the extreme left. Similarly, Guess et al. (2019) found that Republicans shared 8.5 times more fake headlines on Facebook than Democrats during the same time period. To compare our results to theirs, we focus on the comparable statistic from our study of Republicans sharing 1.55 times more false concordant headlines than Democrats—a difference that, although substantial, is much smaller than differences that have been observed in social media data.

This suggests that much of the partisan difference in fake news sharing observed on social media is not easily attributable to partisan differences in the tendency to share falsehoods. What else, then, can explain this asymmetry? Among the most likely explanations for these differences is asymmetric exposure to fake news. Recent claims that Republicans share

more fake news than Democrats are drawn from users' behavior on social media, where the majority of fake news is right-leaning ([Benkler et al., 2018](#); [Allcott and Gentzkow, 2017](#); [Garrett and Bond, 2021](#)) and therefore more likely to be seen by Republicans. Our research design holds exposure to fake news constant across parties and finds far smaller partisan asymmetries than past work. Similarly, it may be that content differences drive asymmetries in sharing—for example, right-leaning fake news on social media may be more compelling and shareable than left-leaning fake news. Another possibility is that fake news is primarily shared by a very small number of conservative ‘super spreaders’ [Grinberg et al. \(2019\)](#); [Guess et al. \(2020\)](#); [Nikolov et al. \(2020\)](#), who are unlikely to be contained in a sample of the size used in our experiment. For instance, [Grinberg et al. \(2019\)](#) found that 0.1% of Facebook users accounted for 79.8% of shares from fake news sources during the 2016 election and that these users were far more likely to be conservative than liberal.

Regardless of the mechanism, greater levels of misinformation sharing among Republicans would be particularly concerning if interventions aimed at improving sharing discernment were ineffective for Republicans—as has been suggested for accuracy prompts ([Roozenbeek and Van der Linden, 2019](#); [Rathje et al., 2022](#)). Reassuringly, we find that accuracy prompts are actually equally effective at improving sharing discernment for members of both parties. Together, our findings suggest that while Republicans are more prone to sharing fake news than Democrats, accuracy prompts are capable of remediating this problem.

Finally, our experimental findings have direct implications for growing efforts to deploy interventions in the field to combat fake news online. Past work has focused on developing interventions that require a high level of interaction, for instance by asking individuals to rate the accuracy of a news story [Pennycook et al. \(2021\)](#) or play a 15 minute game ([Roozenbeek and Van der Linden, 2019](#)). While this level of interaction is likely partially responsible for their efficacy, it makes them more difficult to deploy online. We report the first experimental test of a 30-second non-interactive PSA video explaining the importance of sharing accurate information online, and found it to be as effective as previous interactive interventions. This

is encouraging for the wider deployment of interventions aimed at increasing discernment. Indeed, based on the results of this experiment, a non-partisan advertising non-profit deployed the video as an advertisement on websites likely to contain disinformation during the 2020 U.S. election. During the 2020 Senate runoff election in Georgia, for example, the video received 18.2 million views in 4 weeks and had a completion rate (78%) much higher than typical political ads, suggesting high levels of engagement.

Concern about the consequences of fake news for democracies is widespread, and recent work documenting partisan asymmetries in sharing fake news online has implications for how this problem is solved. Together, our findings suggest these partisan asymmetries are driven in part by a greater propensity to sharing fake content among Republicans, but that this difference alone is not sufficient to explain the large asymmetries documented in recent observational work on Facebook and Twitter. Moreover, the consistent effect of accuracy prompts across members of both parties, as well as the efficacy of a novel video prompt, suggest that the problem of sharing fake news is not as intractable as recent work may lead one to fear.

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## **Supplementary Materials**

Examining Partisan Asymmetries in Fake News Sharing  
and the Efficacy of Accuracy Prompt Interventions

**Contents:**

<b>1. Survey Details</b>	<b>2</b>
1.1 Attrition	2
<b>2. Additional Model Results</b>	<b>3</b>
2.1 Sharing Discernment by Respondent Party and Headline Concordance	3
2.2 Heterogeneous Treatment Effects	4
2.2.a By Headline Concordance	4
2.2.b By Respondent Party	4
<b>3. Robustness Checks</b>	<b>6</b>
3.1 Figures 3-5 with Alternative Sharing Discernment Outcome (Equation 2)	6
3.2 Respondents Omitted From Analysis	8
3.3 Pairwise Comparisons of Treatment Effects By Accuracy Nudge Version	10
3.4 Heterogeneous Treatment Effects	11
<b>4. Description of OSF Repository Content</b>	<b>11</b>
4.1 YouGov Codebook	12
4.2 Headline Images	12
4.3 Accuracy Nudge Videos	12

## 1. Survey Details

### 1.1 Attrition

Attrition in the YouGov sample was extremely low, with only 33 out of 2,015 respondents (1.64%) starting but not completing the survey. To determine whether differences between conditions are statistically significant we run pairwise logistic regressions predicting attrition. The only statistically significant ( $p < .05$ ) difference occurs between the accuracy and headline conditions ( $p = .019$ ). Two additional pairs are marginally significant: the control and headline conditions ( $p = .061$ ) and the accuracy and PSA conditions (.089).

**Table S1: Attrition by Experimental Condition**

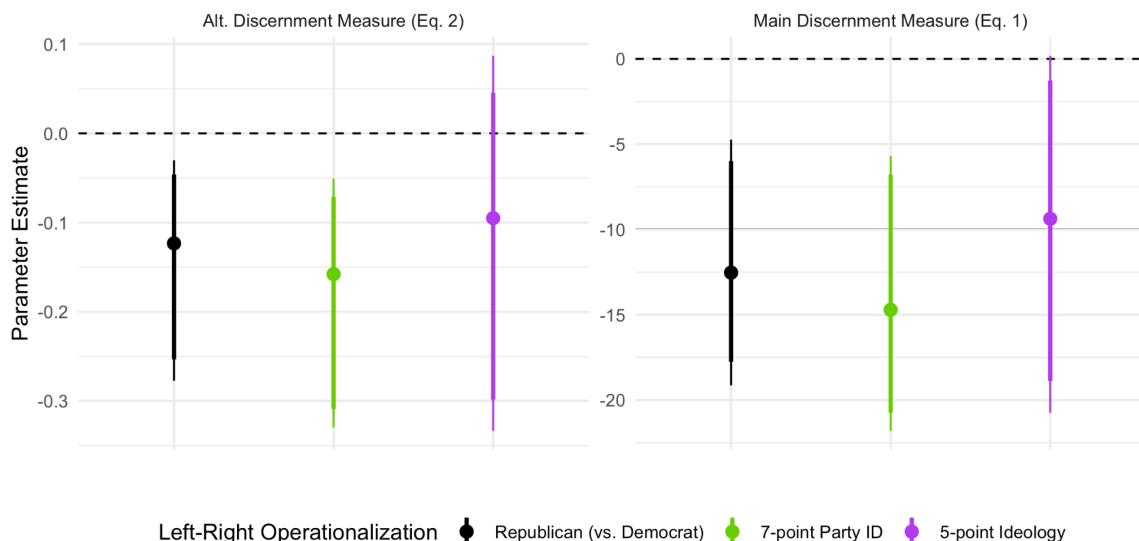
Condition	Total N	Attrited N (%)
Control	509	7 (1.4%)
Accuracy	522	5 (1.0%)
Headline	257	9 (3.5%)
Headline (Feedback)	251	0 (0.0%)
PSA Video	509	12 (2.4%)
All	<b>2,015</b>	<b>33 (1.6%)</b>

## 2. Additional Model Results

### 2.1 Sharing Discernment by Respondent Party and Headline Concordance

Figure 3 in the manuscript presents the results of two models that predict sharing discernment with an indicator for respondent party: one for concordant headlines and one for discordant headlines. To determine whether the effect of party on sharing discernment varies significantly across concordant and discordant headlines, we model an interaction between party and headline concordance. In the manuscript we report the p-value associated with this interaction ( $p = .002$ ) and Figure S1 below reports parameter estimates from this model with bootstrapped 90 and 95 percent confidence intervals. As a robustness check we replicate these models with two additional operationalizations of respondent left-right orientation. Our primary operationalization is an indicator variable for whether respondents identify with the Democratic (0) or Republican (1) party, including independents who identify with one of the two parties as partisans but excluding pure independents from the analysis. Our first alternative operationalization is the 7-point party ID scale (1 = Strong Democrat, 7 = Strong Republican), which includes these pure independents (4 = independent). The second alternative operationalization is a 5-point ideological scale ranging from “Very liberal” (1) to “Very conservative” (5), with respondents answering “not sure” coded as moderate (4).

**Figure S1: Sharing Discernment by Respondent Party and Headline Concordance**



Parameter estimates for interactions between headline concordance and respondent left-right orientation, with bootstrapped 90 and 95% confidence intervals.

## 2.2 Heterogeneous Treatment Effects

### 2.2.a By Headline Concordance

**Figure S2: Heterogeneity in Treatment Effects by Headline Concordance**

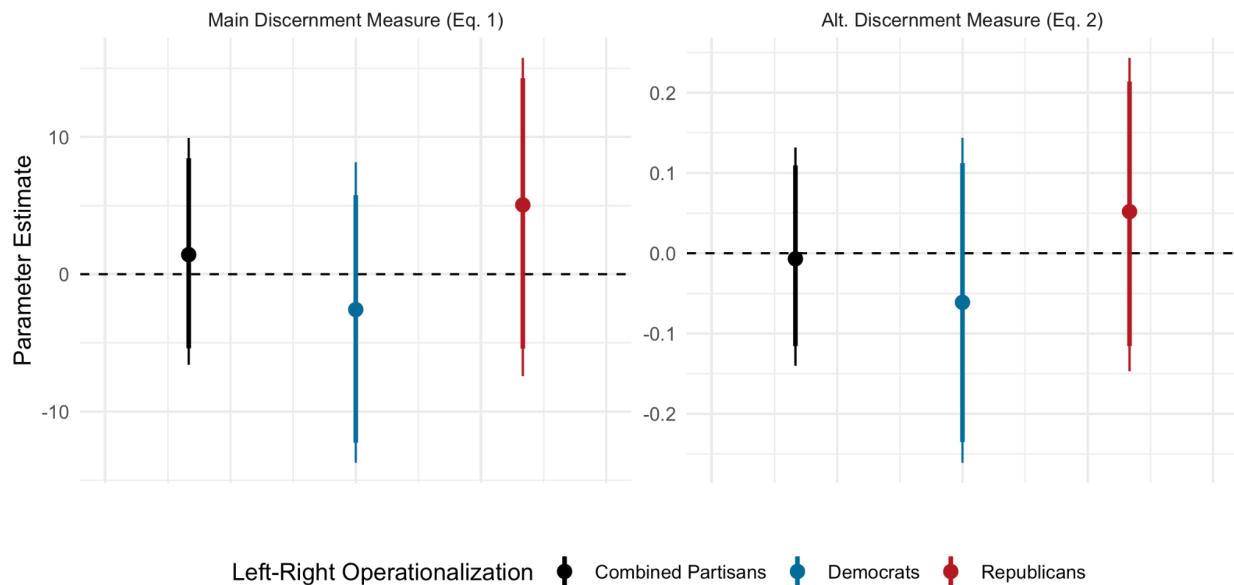


Figure 4 in the manuscript reports treatment effects separately by headline concordance (concordant, discordant) and respondent party (Republican, Democrat) and report p values from models testing whether the treatment effect differed significantly by headline concordance. Figure S2 reports parameter estimates and associated bootstrapped 90% and 95% confidence intervals for these models.

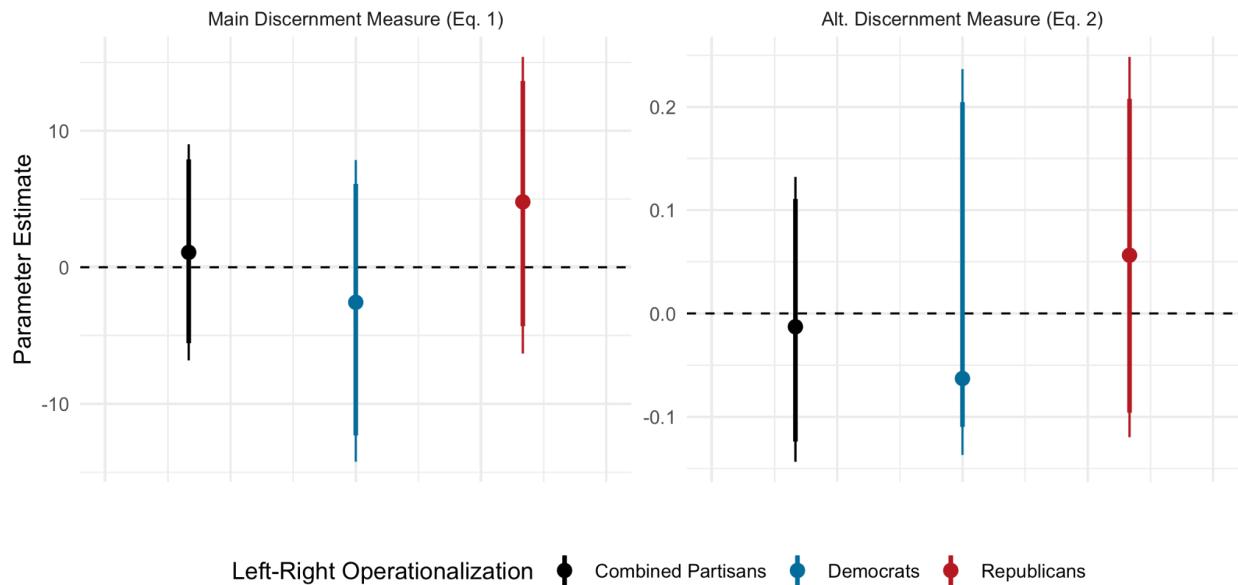
Parameter estimates and bootstrapped 90% and 95% confidence intervals for models test for heterogeneity in treatment effects across headline concordance for Democrats and Republicans ('Combined Partisans'), as well as Democrats and Republicans separately.

### 2.2.b By Respondent Party

Figure 4 in the manuscript reports treatment effects separately by headline concordance (concordant, discordant) and respondent party (Republican, Democrat) and report p values from models testing whether the treatment effect differed significantly by respondent party. Figure S3 reports parameter estimates and associated bootstrapped 90% and 95% confidence intervals for these models, run separately by operationalization of respondent left-right

orientation (Democrat vs. Republican, 7-point party identification scale, and 5-point ideology scale) and operationalization of sharing discernment (the main discernment measure, given by Equation 1 in the manuscript, and the alternative measure of discernment given by Equation 2). In all of these models respondent left-right orientation does not moderate the effect of the accuracy nudges on sharing discernment.

**Figure S3: Heterogeneity in Treatment Effect by Respondent Party**



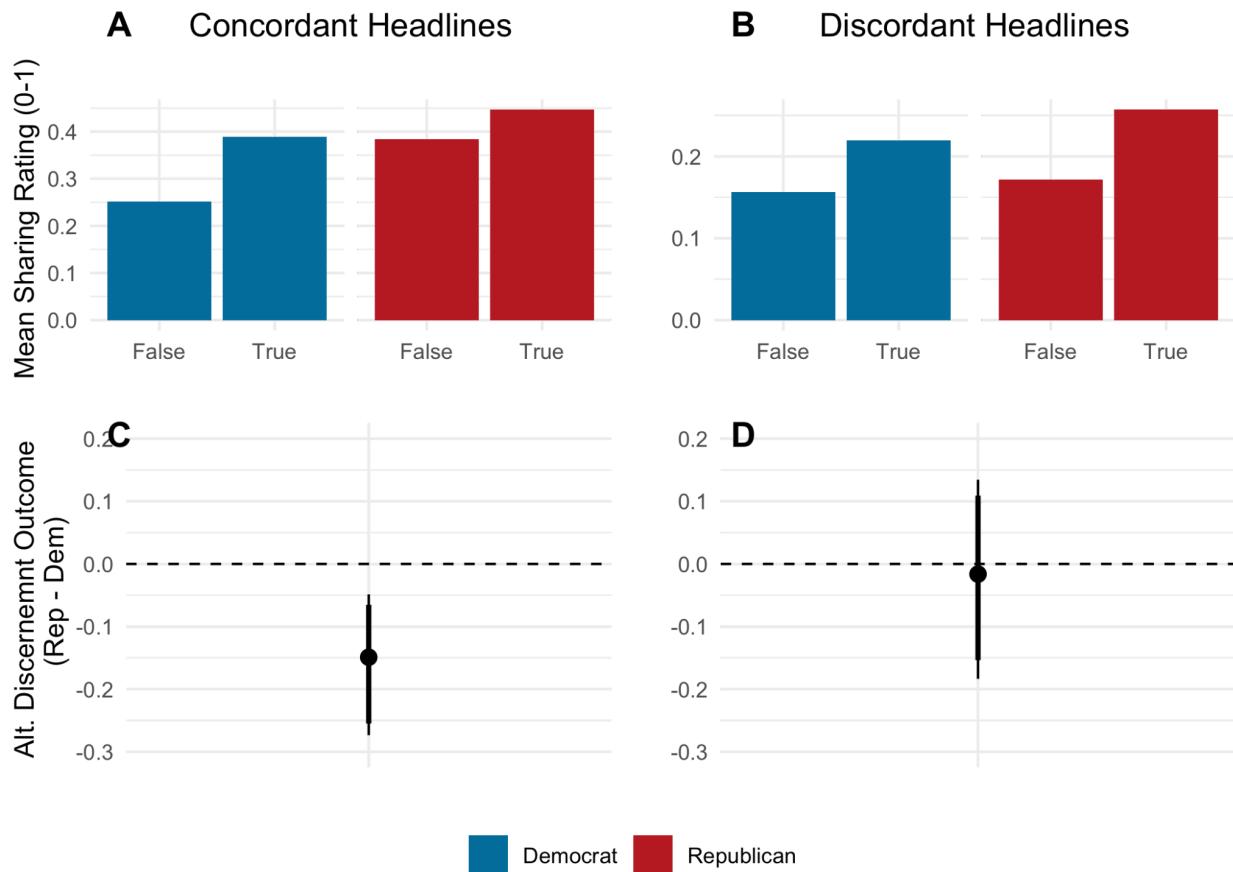
Parameter estimates and bootstrapped 90% and 95% confidence intervals for models test for heterogeneity in treatment effects across multiple operationalizations of respondent left-right orientation (Republican vs. Democrat, 7-point party identification scale, and 5-point ideology scale) and sharing discernment (left and right panels).

### 3. Robustness Checks

#### 3.1 Figures 3-5 with Alternative Sharing Discernment Outcome (Equation 2)

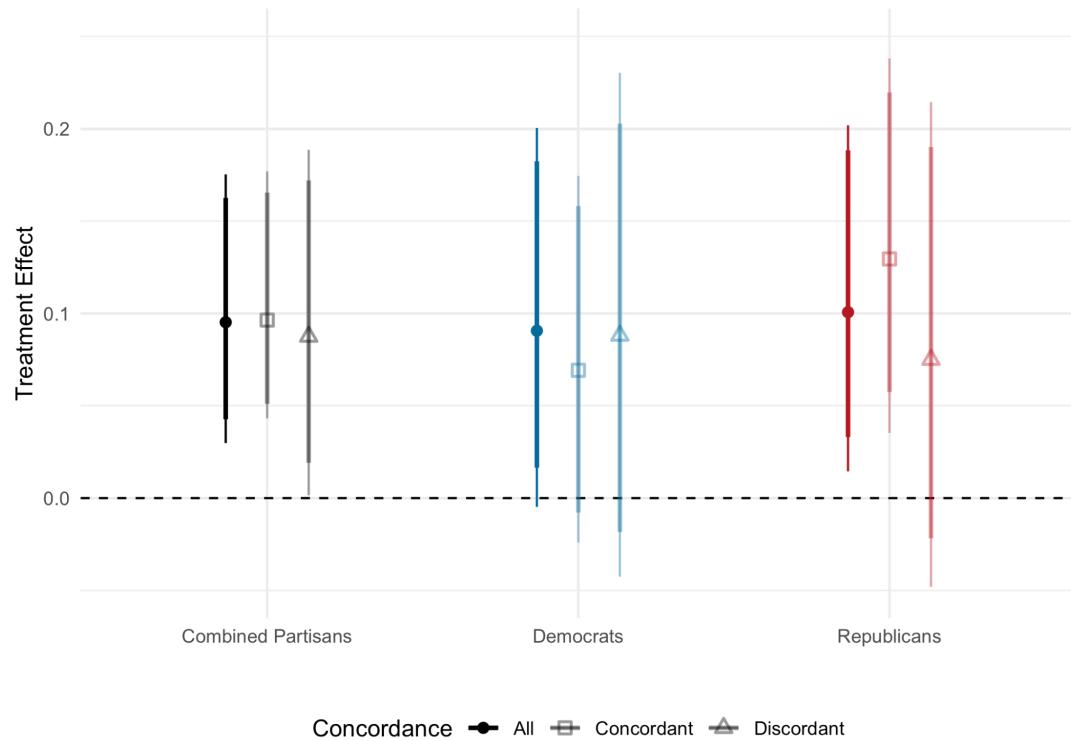
Below we reproduce Figures 3-5 of the manuscript with the alternative sharing discernment outcome, which is given by Equation 2 (mean sharing likelihood for shared articles that are true / mean sharing likelihood for all shared articles).

**Figure S4: Partisan Differences in Sharing Intentions by Headline Veracity & Concordance**



*Top row: Mean sharing likelihood for ideological concordant headlines (A) and discordant headlines (B), accounting for survey weights. Bottom row: Parameter estimates reflecting the difference in sharing discernment between parties (Republicans - Democrats) with 90 and 95% bootstrapped confidence intervals, controlling for respondent age, gender, and educational attainment.*

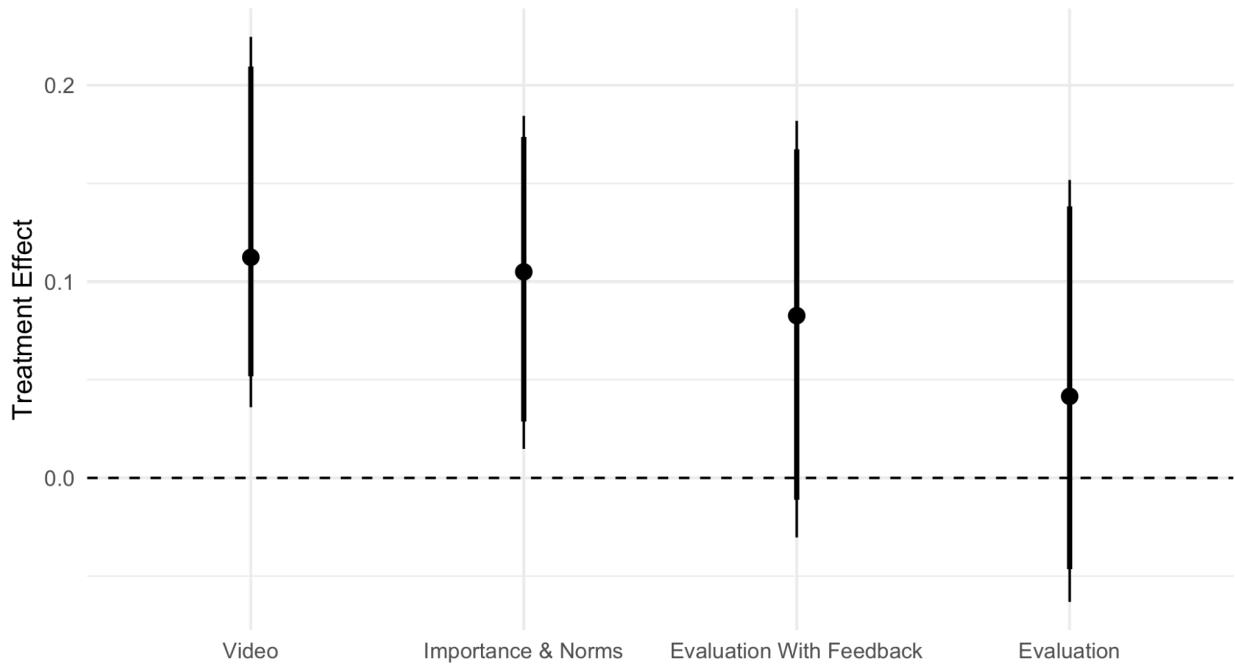
**Figure S5: Effect of Accuracy Nudge on Sharing Discernment**



*Treatment effect on sharing discernment calculated separately by party and ideologically concordant/discordant headlines, with 90% and 95% confidence intervals.*

**Figure S6: Treatment Effect by Accuracy Nudge Version**

*Treatment effect on sharing discernment calculated separately by accuracy nudge type, with 90% and 95% confidence intervals.*



### 3.2 Respondents Omitted From Analysis

As discussed in the manuscript, our measures of sharing discernment exclude respondents who choose not to share any of the 20 headlines they viewed. Below we test whether these respondents vary by party (Democrat vs. Republican), experimental condition (accuracy nudge, no accuracy nudge), and/or a combination of both. We run this analysis separately for the main (Table S2) and alternative (Table S3) operationalizations of sharing discernment. The first excludes respondents who reported the lowest 3 categories of sharing likelihood for each headline (extremely unlikely, very unlikely, somewhat unlikely) while the second excludes only those who reported being extremely unlikely to share each headline. Each model is run with OLS. Of the 1,747 Democrats and Republicans in the sample, 258 (14.77%) reported the lowest sharing intention category for all headlines. 1,747 Democrats and Republicans in sample. 448 (25.64%) reported one of the lowest 3 sharing intention categories for all headlines. We find no significant differences for either across respondent party, experimental condition, or a combination of both.

**Table S2: Never-Sharers, Main Sharing Discernment Measure**

	<i>Dependent variable:</i>		
	Lowest 3 Categories for All Headlines		
	(1)	(2)	(3)
Party (Republican)	-0.002 (0.021)		-0.017 (0.042)
Treatment		0.008 (0.024)	-0.001 (0.032)
Party (Republican) X Treatment			0.020 (0.048)
Constant	0.257 (0.014)	0.251* (0.021)	0.258*** (0.028)
Observations	1,747	1,747	1,747

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

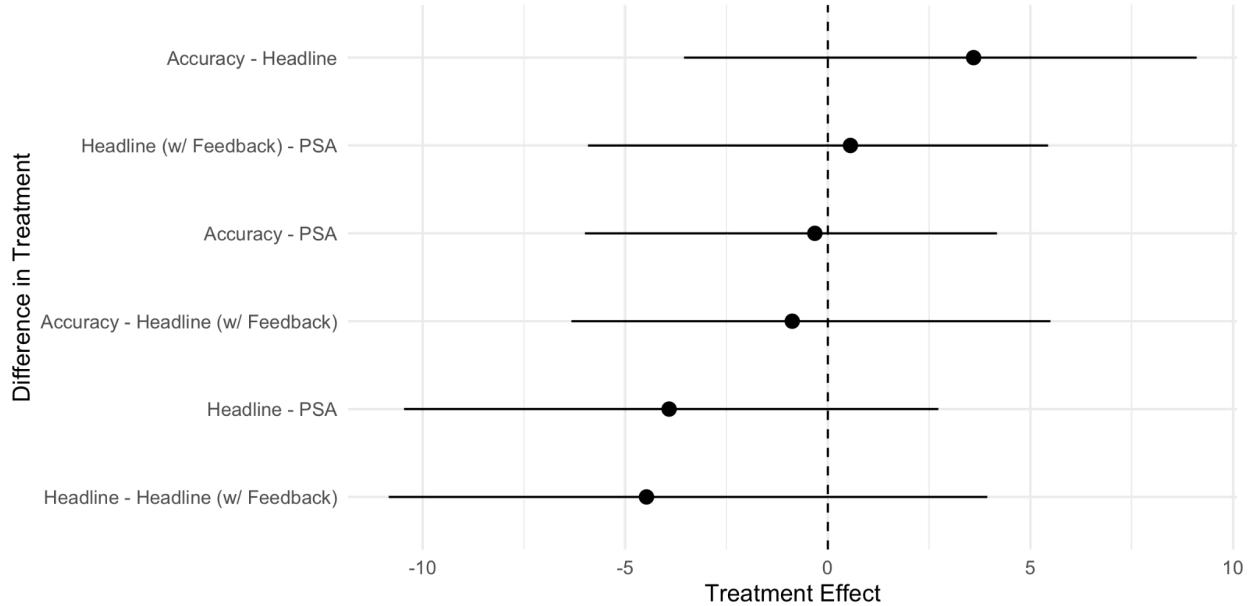
**Table S3: Never-Sharers, Alternative Sharing Discernment Measure**

	<i>Dependent variable:</i>		
	Shared No Headlines		
	(1)	(2)	(3)
Party (Republican)	-0.005 (0.017)		0.010 (0.034)
Treatment		-0.001 (0.020)	0.009 (0.026)
Party (Republican) X Treatment			-0.020 (0.039)
Constant	0.150 (0.012)	0.148* (0.017)	0.143*** (0.023)
Observations	1,747	1,747	1,747

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

### 3.3 Pairwise Comparisons of Treatment Effects By Accuracy Nudge Version

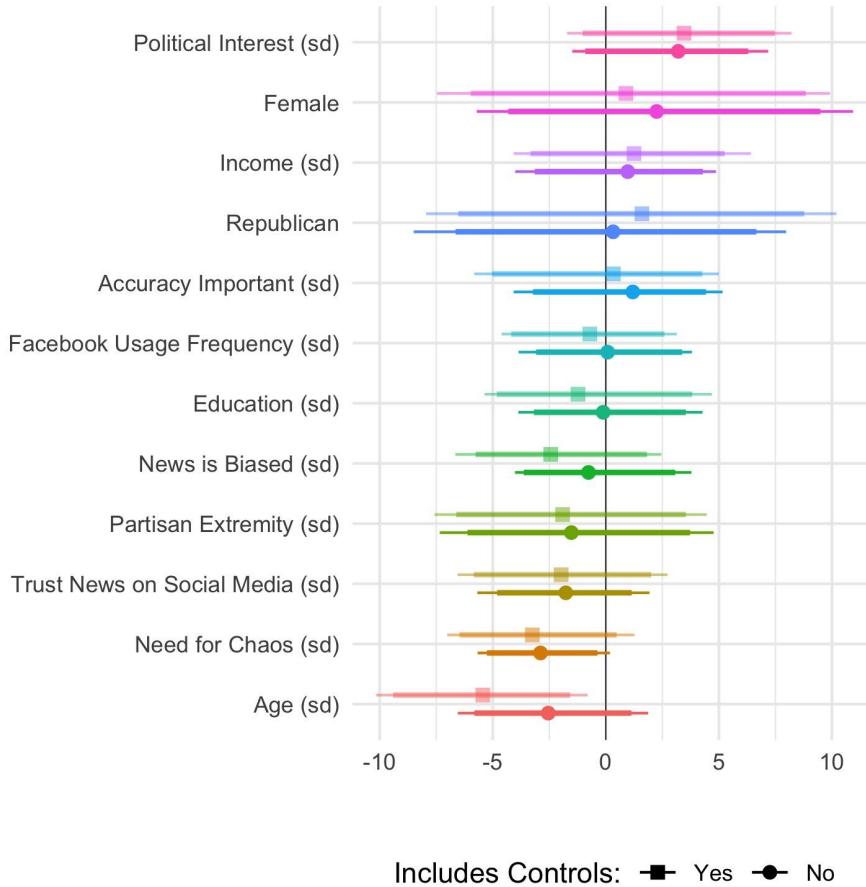
**Figure S7: Pairwise Comparison of Treatment Effects Across Accuracy Nudge Versions**



Pairwise differences in treatment effect of accuracy nudge versions on sharing discernment, with 95% bootstrapped confidence intervals.

### 3.4 Heterogeneous Treatment Effects

**Figure S8: Heterogeneity in Treatment Effects**



Heterogeneity in the effect of the accuracy prompt (pooled) on sharing discernment, with 95% bootstrapped confidence intervals. Models with controls include controls for all other covariates.

## 4. Description of OSF Repository Content

The following materials are available online at [osf.io/dbfut/?view\\_only=865bcacb375c4be8b712bbe1ad781197](https://osf.io/dbfut/?view_only=865bcacb375c4be8b712bbe1ad781197) and described below: the codebook for the YouGov survey, images of all headlines viewed by respondents, and the accuracy nudges seen by respondents in the treatment conditions.

#### 4.1 YouGov Codebook

The YouGov codebook contains question wording and response options for all survey questions, including the sharing intention outcomes.

#### 4.2 Headline Images

The folder entitled “headline\_images” contains images for each of the 59 headlines viewed by respondents. The “file headline\_images\_key.txt” crosswalks the headline image names and variable names in the data.

#### 4.3 Accuracy Nudge Videos

The folder entitled “accuracy\_nudges” contains the stimuli seen by respondents in the treatment conditions.