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BRIEF REPORT

The Political (A)Symmetry of Metacognitive Insight Into Detecting Misinformation

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Political misinformation poses a major threat to democracies worldwide, often inciting intense disputes between opposing political groups. Despite its central role for informed electorates and political decision making, little is known about how aware people are of whether they are right or wrong when distinguishing accurate political information from falsehood. Here, we investigate people's metacognitive insight into their own ability to detect political misinformation. We use data from a unique longitudinal study spanning 12 waves over 6 months that surveyed a representative U.S. sample ($N = 1{,}191$) on the most widely circulating political (mis)information online. Harnessing signal detection theory methods to model metacognition, we found that people from both the political left and the political right were aware of how well they distinguished accurate political information from falsehood across all news. However, this metacognitive insight was considerably lower for Republicans and conservatives—than for Democrats and liberals—when the information in question challenged their ideological commitments. That is, given their level of knowledge, Republicans' and conservatives' confidence was less likely to reflect the correctness of their truth judgments for true and false political statements that were at odds with their political views. These results reveal the intricate and systematic ways in which political preferences are linked to the accuracy with which people assess their own truth discernment. More broadly, by identifying a specific political asymmetry—for discordant relative to concordant news—our findings highlight the role of metacognition in perpetuating and exacerbating ideological divides.

Public Significance Statement
This preregistered study suggests that people from both the political left and the political right are aware of how well they distinguish accurate political information from falsehood across all news. However, this metacognitive insight was considerably lower for Republicans and conservatives—than for Democrats and liberals—when they faced statements that challenged their ideological commitments. People's awareness of the accuracy and fallibility of their own knowledge thus partly differs across ideological divides, which may fuel broader societal trends such as political polarization.

Keywords: decision making, metacognition, misinformation, politics, signal detection

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continued

Political misinformation poses a major threat to democracies worldwide (Lewandowsky et al., 2020; Porpora & Sekalala, 2019). A plethora of research has investigated people's ability to distinguish between accurate political information and falsehoods, the individual-level (Ecker et al., 2022) and macro-level (Grinberg et al., 2019; Guess et al., 2019, 2020) drivers of this ability, and its political symmetry or asymmetry (Garrett & Bond, 2021). However, despite the central role this ability plays in informed electorates and political decision making, surprisingly little is known about people's metacognitive insight into their ability to discern accurate from inaccurate political information (for a recent review of metacognition research on misinformation, see Rapp & Withall, 2024): To what extent are people aware of whether they are right or wrong when judging the accuracy of political (mis)information? Does that level of insight vary by political leaning and ideology or as a function of political extremism? And what psychological factors and demographics are associated with the accuracy of metacognitive insight?

Metacognition—thinking about thinking—can manifest itself in the confidence that people have in their own cognition, such as their beliefs (Flavell, 1979). This aspect of metacognition has several functional roles. First, in the absence of clear cues about who is knowledgeable, people rely on confident others (i.e., they use a confidence heuristic; Price & Stone, 2004; Sah et al., 2013; Tenney et al., 2008). Second, the more confident people are in their beliefs, the more willing and likely they are to defend them (Babad et al., 1987; Compton & Pfau, 2005). Third, the less confident people are in their judgments, the less likely they are to act on them and the more likely they are to seek additional information (Berner & Graber, 2008; Fischer et al., 2022; Locander & Hermann, 1979; Meyer et al., 2013; Schulz et al., 2020). And finally, confidence translates into real-world action: More confident individuals are more likely to vote (Ortoleva & Snowberg, 2015) and people with more accurate confidence about their COVID-19 beliefs (i.e., more confident when right and less confident when wrong) were more likely to comply with recommended public health measures during the pandemic (Fischer et al., 2023).

A particularly promising measure for quantifying people's metacognition in terms of how well their confidence tracks their beliefs is *metacognitive efficiency* (Fleming, 2017).[1] It is considered the gold standard of all measures of metacognition as it uses signal detection theory (SDT; Overgaard, 2015) to express people's metacognition relative to their level of knowledge. In contrast, a simple measure of metacognition that only quantifies the extent to which confidence discerns between correct and incorrect judgments is confounded by knowledge as well as confidence and knowledge response biases (Galvin et al., 2003; for more information, see Overview of the Reanalyses). Metacognitive efficiency is theoretically optimal when people's levels of knowledge are matched by similar levels of metacognition. An emerging line of research applies metacognitive efficiency to the study of misinformation in politically contested domains (Fischer et al., 2019; Fischer & Said, 2021; Lisi, 2023). However, research that quantifies metacognitive efficiency often relies on a limited number of trials (e.g., Fischer et al., 2019) and may therefore be unable to capture between- and within-subject variability in metacognition (Rausch & Zehetleitner, 2022).

For some general knowledge domains—such as topics within biology and physics—people's knowledge and confidence are aligned: Their levels of knowledge are matched by similar levels of metacognition (Fischer et al., 2019; Lisi, 2023).[2] By contrast, in more politicized knowledge domains—such as climate change and COVID-19[3]—people's confidence does not track the accuracy of their knowledge as well as would be expected based on their knowledge (Fischer et al., 2019; Lisi, 2023; Thaller & Brudermann, 2020), a phenomenon that has been dubbed *metacognitive blind spots* (Fleming, 2021).

Thus far, no research has investigated metacognition in the domain of political misinformation within a single methodologically and theoretically coherent framework. Here, we fill this gap by using state-of-the-art methods based on SDT to directly compare meta-level (i.e., how well confidence discerns correct from incorrect judgments) and object-level (i.e., how well judgments discern stimulus from noise) performance. Based on the notions that the low-quality information environments of politically contentious topics negatively affect metacognitive efficiency—by not providing reliable feedback on whether confidence is justified, thus making confidence judgments ill-informed—and that information about politics is often characterized by biased reporting or outright misinformation (see, e.g., Allcott & Gentzkow, 2017; Arceneaux & Truex, 2022; Washington Post Fact Checker, 2021), we expected to find metacognitive blind spots for detecting political misinformation:

[1] For a glossary of key terms, see Supplemental Table S1.

[2] Note that both Fischer et al. (2019) and Lisi (2023) administered factual knowledge questions devised by the National Science Foundation on scientific facts that were neither controversial nor politicized. Moreover, these studies investigated national samples from Germany (Fischer et al., 2019) and the United Kingdom (Lisi, 2023), where—unlike in the United States—biology and physics tend to not be politicized.

[3] There is evidence that climate change is politicized across countries including the United States (Kennedy, 2020) and Germany (Fischer & Said, 2021; Kinkartz, 2019), and that COVID-19 is politicized in the United States (Hart et al., 2020).

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Hypothesis 1.1 (metacognitive ideal hypothesis): Metacognitive efficiency for political statements is lower than the theoretically optimal metacognitive efficiency.

Hypothesis 1.2 (domain comparison hypothesis): Metacognitive efficiency for political statements is lower than for nonpoliticized domains such as biology and physics (Fischer et al., 2019).

Many studies have examined political (a)symmetries at the object level. Republicans, relative to Democrats, are both exposed to and share more articles from unreliable websites (Grinberg et al., 2019; Guess et al., 2019, 2020), and there is growing evidence that conservatives are more susceptible to misinformation than liberals (Sultan et al., 2024). Similarly, political (a)symmetries in epistemic motives and abilities have also been a central theme in recent research. Several studies have found that conservatives score higher than liberals on measures of dogmatism, rigidity, and intolerance to ambiguity, whereas liberals score higher on integrative complexity, cognitive reflection, and need for cognition (Jost, 2017). While meta-analytic evidence suggests that partisan bias—evaluating information that aligns with one's political views more positively—is bipartisan (Ditto et al., 2019), these conclusions have been challenged for methodological reasons (Baron & Jost, 2019). Moreover, despite comparable levels of task performance, conservatives have been found to be more confident than liberals across a range of judgment and decision making tasks (Ruisch & Stern, 2021). If the quality of the information environment directly affects metacognitive efficiency and Republicans are confronted with more low-quality information (Grinberg et al., 2019; Guess et al., 2019, 2020), it should hold that metacognitive efficiency is lower for Republicans (conservatives) than for Democrats (liberals).[4] In addition, political extremism—independent of partisanship—is associated with a lower likelihood of confidence discerning correct from incorrect judgments in more basic, perceptual tasks (Rollwage et al., 2018); political extremists can therefore also be expected to show lower metacognitive efficiency for detecting political misinformation. Taken together, metacognitive efficiency seems likely to be particularly low for extreme conservatives. We therefore examined these hypotheses:

Hypothesis 2.1a (asymmetry hypothesis; political party identification): Metacognitive efficiency for political statements is lower for Republicans than for Democrats.

Hypothesis 2.1b (asymmetry hypothesis; political ideology): Metacognitive efficiency for political statements is lower for conservatives than for liberals.

Hypothesis 2.2 (ideological extremity hypothesis): Metacognitive efficiency for political statements decreases strictly monotonically with political extremism on both sides of the political spectrum.

Hypothesis 2.3 (asymmetrical ideological extremity hypothesis): Metacognitive efficiency for political statements decreases more strongly with political extremism for conservatives than for liberals.

Finally, various epistemic beliefs—such as having faith in one's own intuition for facts, believing that truth is political, and having a need for evidence—have been found to predict conspiracist ideation and misinformation discernment (Garrett & Weeks, 2017; Rudloff & Appel, 2023). These beliefs may be related to metacognitive insight. For instance, initial judgments that feel correct are less likely to prompt conscious reflection (Fletcher & Carruthers, 2012; Thompson et al., 2011). In line with this account, individuals with higher metacognitive efficiency are more likely to overcome initial biases when evaluating external evidence (Said et al., 2022). Age may also be associated with metacognitive efficiency for detecting political misinformation. For one thing, there is some evidence that metacognitive efficiency decreases with age (Culot et al., 2023; Palmer et al., 2014). For another thing, older adults are more likely than younger adults to be exposed to low-quality news on social media (Grinberg et al., 2019; Guess et al., 2020), they share it at higher rates (Guess et al., 2019), and they are more likely to forget corrections (Swire et al., 2017). The present research therefore also investigates how metacognitive efficiency relates to epistemic beliefs and age by addressing these hypotheses:

Hypothesis 3.1 (faith in intuition for facts hypothesis): The stronger people's faith in their intuition for identifying facts, the lower their metacognitive efficiency for political statements.

Hypothesis 3.2 (truth is political hypothesis): The stronger people's belief that truth is political, the lower their metacognitive efficiency for political statements.

Hypothesis 3.3 (need for evidence hypothesis): The higher people's need for evidence, the higher their metacognitive efficiency for political statements.

Hypothesis 3.4 (age hypothesis): Metacognitive efficiency for political statements declines with age.

Reanalysis of Garrett and Bond (2021)

To test our hypotheses about people's insight into their ability to discern true from false political information, we reanalyzed data from a longitudinal study (12 waves across 6 months) that surveyed a representative U.S. sample (N = 1,191) on the most widely circulating political (mis)information online at the time of each wave (Garrett & Bond, 2021).

Transparency and Openness

The original data are available on the Harvard Dataverse (https://doi.org/10.7910/DVN/CGV6NP), and our code and preregistration are available on OSF (https://osf.io/veja6/). Data were analyzed using R, Version 4.3.1 (R Core Team, 2023). We adopted a two-step preregistration procedure (see Supplemental Material S2 for details): First, we preregistered our secondary data analysis following the template of van den Akker et al. (2021). Second, we preregistered our analysis code, which we developed based on a 20% subsample of the data that served as the exploration data set.

[4] Political party affiliation and ideological views are related concepts, but exhibit notable distinctions. While political party affiliation pertains to people's formal or informal membership of a particular political party, ideological views encompass a wider range of beliefs, principles, and values that steer their political cognition and influence their stances on diverse issues. Yet, the two are highly correlated—both in the Garrett and Bond (2021) sample and in the U.S. population more broadly (Twenge et al., 2016).

After this second step, we ran the same code on all data. All code changes since the code preregistration (i.e., the second step of the preregistration) can be seen as a git-diff on the project's GitHub repository.[5]

Garrett and Bond (2021)

Garrett and Bond (2021) recruited 1,204 participants representative of the U.S. population through YouGov. We excluded three participants who did not provide data on their political ideology and/or psychological factors. To account for participant satisficing, as preregistered, we additionally excluded 349 (3%) wave-level data sets from 149 (12%) participants for waves in which they selected the same response option more than 90% of the time (following Rollwage et al., 2018). This led to 10 participants (1%) being completely excluded from analysis, yielding a final sample size of 1,191 participants used for model fitting (see Overview of the Reanalyses). The sample covers a range of ages, genders, education levels, and political parties/ideologies. Importantly, both extremes of the liberal–conservative ideological spectrum were well represented: 101 (9%) of participants identified as "very liberal" and 123 (10%) as "very conservative" (on a 7-point scale; see Supplemental Material S3, Supplemental Table S2, and Supplemental Figure S2 for further participant information). On average, participants in our final sample rated 168 statements—up to 21 times more items than in previous studies (see, e.g., Fischer et al., 2019), thereby greatly enhancing measurement precision.

From January to July 2019, Garrett and Bond (2021) collected 20 of the most viral political news articles circulating online (10 true, 10 false) every 2 weeks using the NewsWhip application programming interface, then compiled brief statements reflecting the title and/or content of each article. This procedure yielded a clearly defined reference class to which the study's results can be generalized (Dhami et al., 2004; Gigerenzer et al., 1991). Crowdworkers from Amazon's Mechanical Turk determined the political slant of the statements as left, right, or neutral. At each wave, participants in the YouGov panel reported whether they were familiar with each of the 20 statements. They then judged whether each statement was true or false (knowledge; "True" or "False") and how confident they were in their decision (confidence; "Definitely" [high] or "Probably" [low]) on the following scale: (a) Definitely True; (b) Probably True; (c) Probably False; (d) Definitely False.

Overview of the Reanalyses

To measure the accuracy of participants' political knowledge, we used d' as specified in an SDT framework (Macmillan & Creelman, 2004) to quantify participants' ability to discern true from false political statements based on their true-positive and false-positive rates. Recent research has demonstrated that SDT is an important methodology for misinformation research, enabling researchers to disentangle discrimination ability and response bias (Batailler et al., 2022; Gawronski et al., 2023; Modirrousta-Galian & Higham, 2023; Sultan et al., 2022).

Analogously, we quantified metacognition as the degree to which participants' confidence judgments differentiated between correct and incorrect accuracy judgments, given their level of knowledge (Maniscalco & Lau, 2012). To this end, we computed *metacognitive sensitivity* at the level of knowledge distributions. This approach defines an additional d'—meta-d'—as the level of knowledge that a metacognitively ideal respondent would need to produce the observed confidence data. Because d' and meta-d' are measured on the same signal-to-noise ratio scale, they can be directly compared. Therefore, relative metacognitive sensitivity—*metacognitive efficiency*—can be calculated as either a ratio (M_{ratio} = meta-d'/d') or a difference score (M_{diff} = meta-d' − d'), factoring out the confounding influence of object-level performance (i.e., political knowledge) by quantifying metacognition relative to a given level of knowledge (Fleming & Lau, 2014).

When meta-d' equals d', participants are metacognitively ideal and can use all of the information available for the object-level task (discerning true from false political statements) when reporting confidence. When meta-d' is less than d', participants have a lower ability to report confidence judgments than would be expected given the accuracy of their knowledge. In some cases, meta-d' may be higher than d', such as when participants draw on hunches (Rausch & Zehetleitner, 2016; Scott et al., 2014), engage in deeper analysis of the stimulus information (Charles et al., 2013; Rabbitt & Vyas, 1981), or possess knowledge about other factors influencing task performance while forming their metacognitive assessments (Fleming & Daw, 2017).

Consider two individuals distinguishing between true and false news. Individual A discerns well between accurate information and falsehood ($d' = 1.1$) and their confidence levels accurately reflect their performance: They are often confident when correct and rarely confident when wrong; this indicates high metacognitive sensitivity (meta-$d' = 1.1$). Their metacognitive efficiency is therefore M_{ratio} = meta-$d'/d' = 1.1/1.1 = 1$. Individual B does poorly at distinguishing accurate information from falsehood ($d' = 0.6$), and, because metacognitive sensitivity is inherently confounded with knowledge, their metacognitive sensitivity (meta-$d' = 0.6$) is also diminished: They are only sometimes confident when correct and they are sometimes confident when wrong. Their metacognitive efficiency is $M_{ratio} = 0.6/0.6 = 1$. In other words, both individuals exhibit different levels of object-level (d') and meta-level sensitivity (meta-d'), yet—given their different levels of knowledge—they are equally efficient at using their object-level knowledge to inform their confidence judgments (both $M_{ratio} = 1$). Metacognitive efficiency thus provides a more comprehensive understanding of an individual's metacognitive insight than metacognitive sensitivity alone because it takes into account the confounding effects of knowledge.

We focused on metacognitive efficiency in all main analyses. To compute metacognitive efficiency, we employed a hierarchical Bayesian procedure (Fleming, 2017), adapting the code provided at https://github.com/smfleming/HMeta-d. A hierarchical approach allowed us to estimate metacognitive efficiency at individual and group levels.[6]

[5] The only meaningful differences, beyond using 100% (instead of 20%) of the data, are that we (a) computed Bayes factors to test Hypothesis 3.1–Hypothesis 3.4 and (b) decided against removing meta-d' outliers, because our analyses use Spearman correlations, which are robust to outliers. Using robust statistical methods that are able to deal with outliers is preferable to removing them (Karch, 2023). For the diff view of all code changes since code preregistration, see https://github.com/stefanherzog/misinformation_and_metacognition/compare/v0.1...v1.0.

[6] For details on the Markov chain Monte Carlo setup, see Supplemental Material S4.

Results

Overall Insight Into the Accuracy of Truth Judgments

Overall, people's knowledge and confidence for political statements were almost perfectly aligned (Hypothesis 1.1; see Figure 1).[7] Even though most values of the M_{ratio} distribution were estimated to be below $M_{ratio} = 1$ ($M_{ratio} = 0.95$, 95% CI [0.92, 0.98]; see Figure 1), they were practically indifferent from optimal metacognitive efficiency. The model estimated a 99.9% probability that the average metacognitive efficiency in the study population would lie in a preregistered region of practical equivalence (ROPE) around the theoretically optimal metacognitive efficiency (i.e., $M_{ratio} = 1$, ROPE = 0.9–1.1; Kruschke, 2018). These results resemble findings from more general knowledge domains such as biology and physics (Hypothesis 1.2; $M_{ratio} = 0.99$, 95% CI [0.88, 1.16], Fischer et al., 2019; $M_{ratio} = 0.98$, 95% CI [0.91, 1.05], Lisi, 2023), and stand in contrast to the impaired metacognition found in domains such as climate change ($M_{ratio} = 0.47$, 95% CI [0.38, 0.64], Fischer et al., 2019; $M_{ratio} = 0.17$, 95% CI [0.08, 0.32], Thaller & Brudermann, 2020, values extracted from figures) and COVID-19 ($M_{ratio} = 0.82$, 95% CI [0.77, 0.86]; Lisi, 2023).

Political Antecedents of Metacognitive Efficiency

Consistent with Garrett and Bond (2021), our analysis re-established that political knowledge (i.e., d') decreases with self-reported level of conservatism (see Figure 2, Panel A). The more conservative participants were, the less they correctly distinguished true from false political statements. We also examined the results based on statement concordance and asked to what extent participants' political views were associated with increased accuracy—in terms of discrimination ability (d'), metacognitive sensitivity (meta-d'), and metacognitive efficiency (M_{ratio})—for concordant statements (i.e., statements where partisan bias facilitated accumulating evidence for the correct answer) and with decreased accuracy for discordant statements (i.e., statements where partisan bias impeded accumulating evidence for the correct answer; see also Derreumaux et al., 2023). To study whether participants' political views biased their information processing, we operationalized each statement's concordance using the following three factors: (a) a statement's slant (i.e., pro-liberal/-Democrat, pro-conservative/-Republican, or neutral), (b) a statement's truth (i.e., true or false), and (c) a participant's political views (i.e., liberal/Democrat or conservative/Republican). This conceptualization led to three statement subgroups (see also Table 1 and Supplemental Material S2):

- *Concordant statements:* Biased information processing may increase accuracy when what a participant wants (e.g., a liberal participant wanting a pro-conservative statement to be false) aligns with the true state of the world (e.g., false).
- *Discordant statements:* Biased information processing may decrease accuracy when what a participant wants (e.g., a liberal participant wanting a pro-conservative statement to be false) misaligns with the true state of the world (e.g., true).
- *Neutral statements:* Biased information processing may have no effect on accuracy when what a participant wants (e.g., a liberal participant not wanting a politically neutral statement to be either true or false) neither aligns nor misaligns with the true state of the world (e.g., true).

Across the ideological spectrum, we found a strong effect for statement concordance: Participants were significantly better at discerning between accurate information and falsehoods for concordant than for discordant statements, with neutral statements falling in between (see Figure 2, Panel A; meta-d' showed, by and large, results qualitatively similar to those for d', see Figure 2, Panel B.).

At the metacognitive level, participants across the ideological spectrum were close to the metacognitive ideal of $M_{ratio} = 1$ (Hypothesis 2.2 and Hypothesis 2.3; see Figure 2, Panel C).[8] However, we found a striking effect for statement concordance: With increasing conservatism, participants had a harder time judging the accuracy of their own truth judgments on discordant statements challenging their ideological views, manifesting in markedly lower metacognitive efficiency. At the extreme, for conservatives judging discordant statements, $M_{ratio} = 0.12$ (95% CI [0.05, 0.22]), suggesting that 88% of the evidence available for their truth judgments was lost when making metacognitive judgments. This pattern of results held when pooling different degrees of self-reported liberalism and conservatism (Hypothesis 2.1b), as well as when comparing Democrats and Republicans (Hypothesis 2.1a; see Supplemental Material S5 and Supplemental Figures S3–S9 for additional analyses; see Supplemental Material S6 and Supplemental Figures S10–S12 for robustness checks).

Previous research on partisan bias and misinformation belief has found that people are more likely to believe pro-ingroup than pro-outgroup information (see, e.g., Batailler et al., 2022; Pennycook & Rand, 2021; Van Bavel & Pereira, 2018). Our results go beyond those findings in two ways. First, we demonstrate another, distinct pathway via which partisan bias influences people's discrimination ability (i.e., d'), namely, by biasing the processing of information in a way that facilitates discrimination ability for concordant statements and impedes it for discordant ones (see also Derreumaux et al., 2023, for conceptually similar results in a drift diffusion model analysis). This result is different from, say, Batailler et al. (2022) finding that partisan bias lowers the response threshold and increases discrimination ability for congruent statements (i.e., statements that align with participants' ideology irrespective of statement truth). Second, we show that political views influence information processing not only at the object level (d'), but also at the meta level, that is, both metacognitive sensitivity (meta-d') and, for conservatives, insight into the accuracy of their judgments (M_{ratio} or metacognitive efficiency).

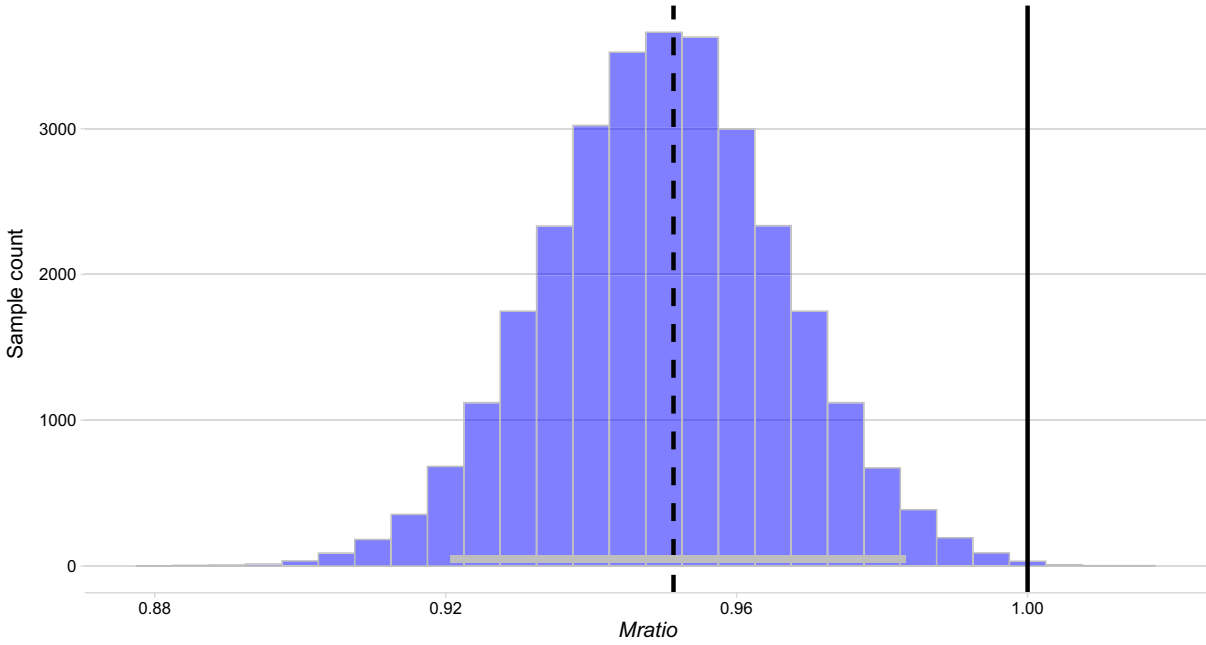
It is important to note that because the political statements were selected based on virality metrics, they were not equally distributed in terms of their partisan slant: Most of the falsehoods reflected positively on conservatives and were thus discordant for

[7] For detailed information on all hypothesis tests (i.e., Hypothesis 1.1–Hypothesis 3.4), see Supplemental Material S4.

[8] In particular for M_{ratio}, results (i.e., posterior of the group-level mean and its 95% CI) for all statements do not consistently match the average of the three statement subgroups (i.e., concordant, discordant, and neutral statements). This may be because combining multiple-item difficulty levels in a single analysis can inflate estimates of metacognitive ability (Rahnev & Fleming, 2019). The full analysis of all statements included both relatively easy and hard items (in this case, concordant and discordant statements), potentially inflating estimated metacognitive insight relative to the statement subgroup analyses.

Figure 1

Bayesian Hierarchical Estimate of the Group-Level Mean for Metacognitive Efficiency Estimated Across All Participants



Note. Vertical solid line at $M_{ratio} = 1$ denotes theoretically optimal metacognitive efficiency; vertical dashed line denotes the point prediction (i.e., posterior median of the group-level mean); gray bar above the *x*-axis shows the 95% credible interval of that mean. Region of practical equivalence (ROPE) ranges from $M_{ratio} = 0.9$–1.1. See the online article for the color version of this figure.

conservatives in our three-way concordance coding. However, this should have no bearing on our results as the analyses account for the different proportions of true/false statements that are pro-ingroup or pro-outgroup across the political spectrum (see Supplemental Material S4). That is, for Hypotheses 2.1a–2.3, we ran separate models for different subgroups of participants and/or statements (e.g., only conservatives judging discordant statements), thus estimating metacognitive efficiency only for these subgroups, without them being influenced by, for example, the distribution of statement slant.

Predictors of Metacognitive Efficiency

Age and several epistemic beliefs were to some extent associated with metacognitive efficiency, but contrary to the predicted directions. As preregistered, we used the difference score (M_{diff})—instead of the ratio (M_{ratio})—of participants' individual-level estimates of metacognitive efficiency in order to explore the relationship of metacognitive efficiency with epistemic beliefs and age because more than 10% of the individual-level M_{ratio} estimates were uninterpretable (i.e., $M_{ratio} \leq 0$ or NA).[9] Our results revealed that participants who had higher faith in their intuition for facts (Hypothesis 3.1; $\rho = .08$, $p = .004$; $BF_{10} = 3.91$; see Figure 3, Panel A) and belief that truth is political (Hypothesis 3.2; $\rho = .10$, $p < .001$; $BF_{10} = 17.3$; see Figure 3, Panel B) had slightly higher metacognitive efficiency. Participants' need for evidence was not predictive of their metacognitive efficiency (Hypothesis 3.3; $\rho = -.04$, $p = .23$; $BF_{10} = 0.14$; see Figure 3, Panel C). Last, the older the participants, the slightly higher their metacognitive efficiency (Hypothesis 3.4; $\rho = .13$, $p < .001$; $BF_{10} = 2780.6$; see Figure 3, Panel D).

Discussion

How aware are people of whether they are right or wrong when judging the accuracy of political (mis)information? And is this metacognitive insight associated with their political views? Contrary to our hypotheses, we found that, across all statements, people from both the political left and the political right were aware of how well they distinguished accurate information from falsehood: Their confidence tended to match the accuracy with which they distinguished statements as true or false, indicating ideal metacognitive efficiency (i.e., a level of metacognition matching their level of knowledge).

However, when evaluating statements that challenged their ideological commitments, people on the political right showed significantly lower levels of metacognitive efficiency, revealing a selective metacognitive failure for discordant news. By combining a large-scale data set and real-world news statements with state-of-the-art SDT analyses, we shed light on the intricate and systematic ways that political preferences are linked to the accuracy with which people gauge their own ability to tell truth from falsehood.

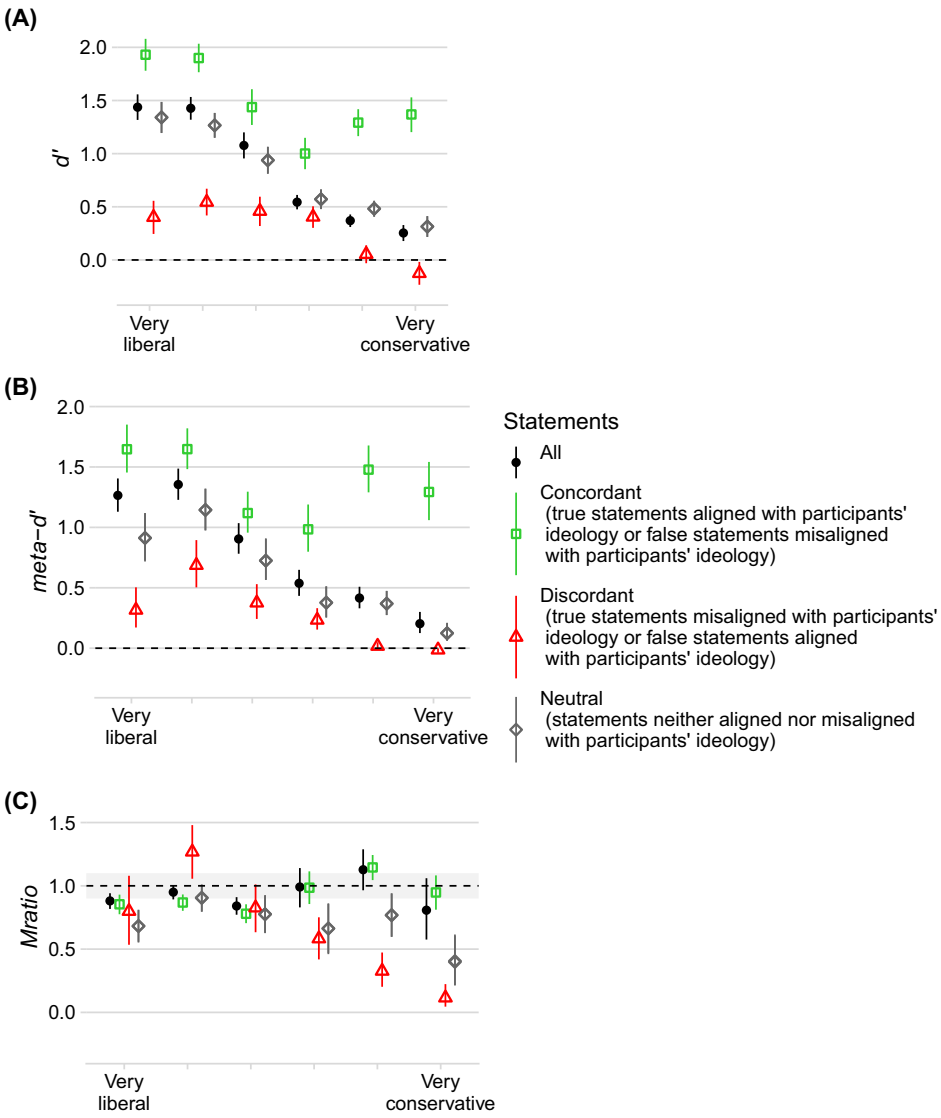
Theoretical Implications

The asymmetry in metacognitive insight for discordant statements may help explain metacognitive blind spots in politicized science (e.g., climate change; Fischer et al., 2019, Thaller & Brudermann, 2020; and COVID-19; Lisi, 2023), where scientific evidence tends to be at odds

[9] The model can produce NAs for M_{ratio}, for instance, if $d' = 0$ or if meta-$d' > 0$ and $d' < 0$, and NAs for M_{diff} if no value for d' or meta-d' can be calculated.

Figure 2

Political Knowledge (d′; Panel A), Metacognitive Sensitivity (meta-d′; Panel B), and Metacognitive Efficiency (M_{ratio}; Panel C) as a Function of Political Ideology



Note. Dots represent the posterior medians of the group-level averages for the parameter (*d*′, meta-*d*′, or M_{ratio}), estimated separately for each of the six ideological subgroups and for different sets of statements. Error bars represent the 95% credible interval of the respective posterior distribution; horizontal dashed lines denote sensitivity at chance level (*d*′ and meta-*d*′) and theoretically optimal metacognitive efficiency (M_{ratio}); the gray band for M_{ratio} marks the region of practical equivalence (ROPE; i.e., $M_{ratio} = 0.9–1.1$). Moderates were omitted from this analysis as no statement concordance score could be assigned. See the online article for the color version of this figure.

with conservative worldviews (Lewandowsky & Oberauer, 2021). The finding that conservatives systematically exhibit lower metacognitive efficiency for discordant political statements suggests that overall metacognitive efficiency in politicized domains may be similarly impaired due to a more general metacognitive blind spot among conservatives for judging discordant (mis)information. In our preregistration, we predicted that overall metacognitive efficiency would be lower than the metacognitive ideal (i.e., $M_{ratio} = 1$) and particularly diminished in individuals from the political right (vs. left). This prediction was informed by the observation that false and biased information on political issues is rife, with those on the political right being exposed to a disproportionate amount of political misinformation. However, our results suggest that suboptimal metacognitive efficiency is less a function of the low-quality information environments surrounding politically contentious issues, and more a function of a generally lower level of metacognitive insight among people on the political right when confronted with discordant statements. This may explain why our hypotheses for overall metacognitive blind spots

Table 1
Concordance Coding

Statement congruency (Statement's Slant × Participant's Political Views)	True (statement truth)	False (statement truth)
Congruent (politically aligned; e.g., Liberal Participant × Pro-Liberal Statement or Conservative Participant × Pro-Conservative Statement)	Concordant	Discordant
Incongruent (politically misaligned; e.g., Liberal Participant × Pro-Conservative Statement or Conservative Participant × Pro-Liberal Statement)	Discordant	Concordant
Neutral (e.g., Liberal/Conservative Participant × Neutral Statement)	Neutral	

Note. We applied the statement coding only for participants who identified as liberal (Democrat) or conservative (Republican). For all other participants, no statement concordance score could be assigned.

(Hypothesis 1.1 and Hypothesis 1.2) and lowered metacognitive efficiency among the politically (extreme) right (Hypothesis 2.1–Hypothesis 2.3) were not confirmed or confirmed only for conservatives judging discordant statements. Consistent with our results, a recent study (Dobbs et al., 2023) found no notable differences in metacognitive efficiency along U.S. party lines across all statements. However, the study did not find lower metacognitive efficiency among conservatives judging discordant statements. This discrepancy may be due to different experimental and analysis decisions (e.g., use of different statements and different coding of statement concordance).[10]

Our main finding—a political asymmetry for both object-level sensitivity (d') and metacognitive sensitivity (meta-d')—seems, at first glance, indicative of a Dunning–Kruger effect (Kruger & Dunning, 1999; aka the unskilled–unaware phenomenon). This effect posits that people with low ability at a task tend to overestimate their ability, whereas people with high ability may underestimate their ability. In our study, people from the political right, whose ability to distinguish true from false news was relatively low, were also less able to judge whether their decision was correct or incorrect, as reflected in lower metacognitive sensitivity (meta-d'). However, our findings are based on a fundamentally different operationalization of the accuracy–confidence relationship (Fleming & Lau, 2014) than are those of Kruger and Dunning (1999), rendering a comparison problematic. While the Dunning–Kruger effect relies on a global estimate of self-performance (e.g., a one-shot rating of one's percentile within a study population; but see also Hartwig & Dunlosky, 2014), our study examines local confidence within stimuli (i.e., low or high confidence that a single decision is correct); that is, our respondents never assessed their overall performance. Furthermore, since metacognitive sensitivity (meta-d') is confounded with object-level performance (d'), only metacognitive efficiency (e.g., M_{ratio}) is an appropriate measure of people's insight into their performance (Fleming & Lau, 2014). Following this reasoning, one could conclude that we do not observe a Dunning–Kruger effect because M_{ratio} is not clearly associated with political ideology in our study (except for discordant statements). However, because assessing one's overall performance and one's confidence in a particular decision are conceptually and empirically distinct (Rouault et al., 2019), it seems doubtful that this study really assesses the Dunning–Kruger effect in its original conceptualization.

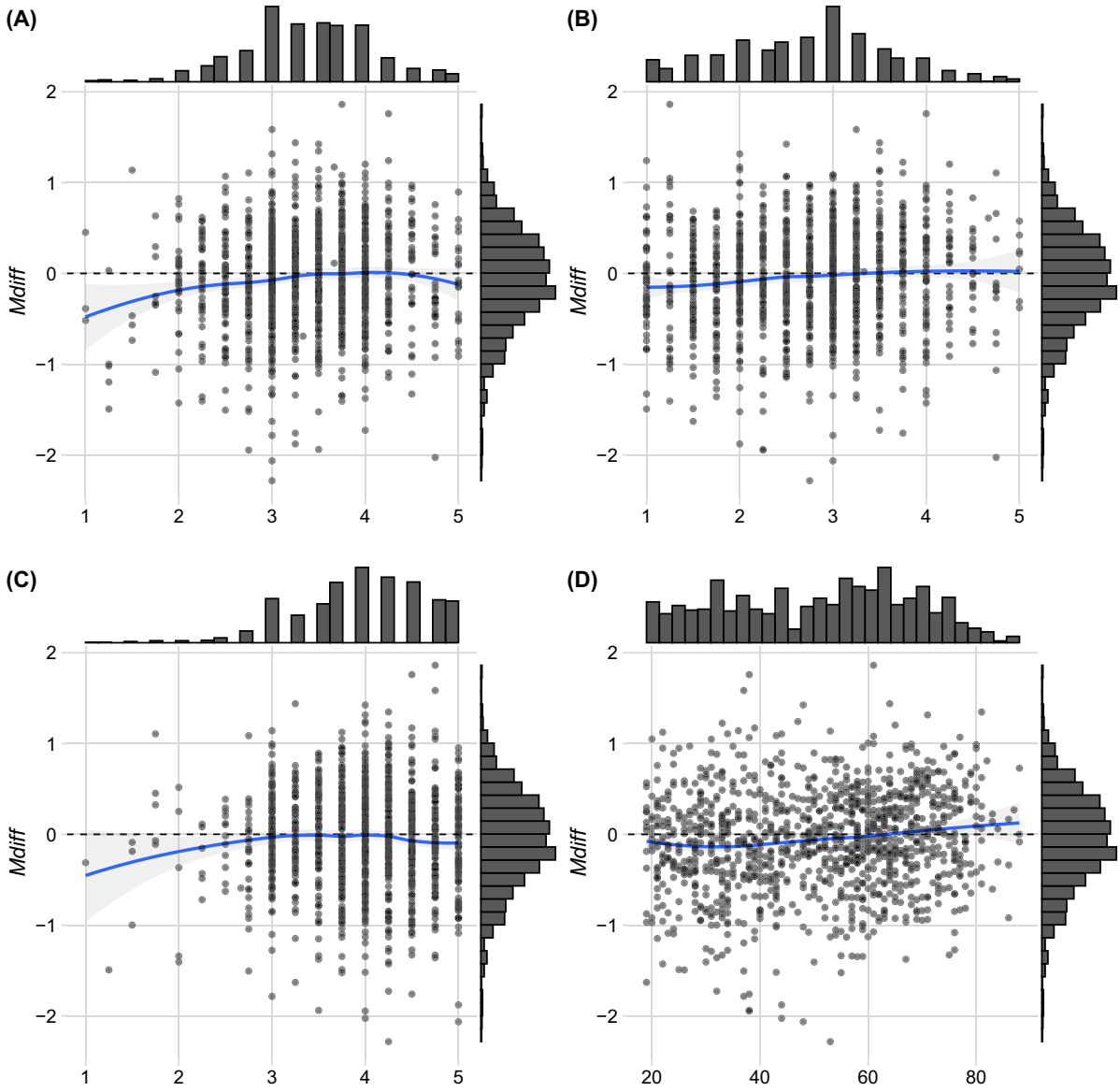
Practical Implications

Our results suggest that conservatives may suffer a triple burden: First, they are more susceptible to the most viral misinformation (d'; see also Garrett & Bond, 2021). Conservatives are thus more likely to be misinformed, posing a threat to democracy which relies on objective truths to find common ground (Lewandowsky et al., 2020; Porpora & Sekalala, 2019). Second, conservatives' reported confidence is less informative about when they are right or wrong, both overall and especially for discordant statements (meta-d'). Such lowered metacognitive sensitivity suggests that conservatives' confidence is not a reliable indicator for the accuracy of their truth judgments for political statements. Yet, the level of confidence that people display is key for information propagation (see, e.g., the confidence heuristic mentioned earlier; Price & Stone, 2004). Thus, generally lower metacognitive sensitivity for detecting political misinformation among the political right is alarming, as they are not only exposed to more low-quality articles (Grinberg et al., 2019) but also (confidently) share them at higher rates (Guess et al., 2019). Third, conservatives are markedly less efficient in using their metacognition—above and beyond what is to be expected based on their knowledge—to judge discordant statements (M_{ratio}). In other words, conservatives struggle to use internal evidence to inform their metacognition when the information in question is at odds with their political views. This finding may help explain broader societal trends such as political polarization (Jost et al., 2022). A rich history of research has demonstrated the importance of metacognition for learning (Paris & Winograd, 1990) and belief-updating (Fischer et al., 2022). If people are unaware that they are wrong, they may not seek further information, thereby remaining misinformed and believing that the other side is wrong. Accurate metacognition has an important belief-correcting function and as such it can help to afford the common ground of facts that is vital for a healthy democratic discourse. Importantly, interventions at the object level, such as pre- or debunking, may not suffice to improve conservatives' metacognition (Kozyreva et al., 2024). Instead, targeted metacognitive interventions may be needed, such as encouraging conservatives to reassess their truth judgments when confronted with uncomfortable information that challenges their ideological commitments (Lorenz-Spreen et al., 2021; Salovich & Rapp, 2021). Finally, the finding that older adults have higher metacognitive insight (M_{ratio}) when it comes to detecting political misinformation than younger adults suggests that the disproportionate sharing of misinformation by older (vs. younger) adults (Grinberg et al., 2019; Guess et al., 2019) is driven by mechanisms

[10] Note that we obtained qualitatively similar—albeit less pronounced—results for reduced metacognitive efficiency among conservatives judging incongruent statements when we employed the two-way congruency coding used by Dobbs et al. (2023), that is, considering only a statement's slant and a participant's political views, irrespective of the truth of the statement, see Supplemental Figures S3 and S5.

Figure 3

Metacognitive Efficiency as a Function of Epistemic Beliefs and Age



Note. Dots represent individual-level estimates of metacognitive efficiency (operationalized as a difference score, i.e., M_{diff} = meta-d' − d') as a function of (A) faith in one's intuition for facts, (B) belief that truth is political, (C) need for evidence, and (D) age. Curves are robust LOESS (locally estimated scatterplot smoothing) smooths with 95% confidence intervals (shaded); horizontal dashed lines denote theoretically optimal metacognitive efficiency; horizontal and vertical marginal histograms represent the distributions for epistemic beliefs/age and Mdiff, respectively. See the online article for the color version of this figure.

other than poor insight into their own misperceptions (for a comprehensive review, see Brashier & Schacter, 2020).

Future Directions

A key open question is the cognitive mechanism underlying conservatives' lower metacognitive efficiency for discordant statements. Future research should also investigate metacognition in knowledge domains where the evidence tends to be at odds with liberal (vs. conservative) worldviews. To date, metacognition studies have tended to focus on domains that challenge conservative worldviews (e.g., climate change, COVID-19, or politics) or are relatively politically neutral (e.g., biology or physics). Another promising endeavor for future work is to explore whether metacognitive insight translates into real-world online behaviors (e.g., sharing misinformation) in hybrid lab–field studies (Geers, 2023; Lyons et al., 2021; Mosleh et al., 2022). Investigating people's metacognition with respect to other ways of engaging with political misinformation online, such as distinguishing between low-quality and high-quality partisan websites, may also be

beneficial (Geers et al., 2024). A final open question is to what extent people from the political right are misinformed or simply uninformed about political (mis)information (Li & Wagner, 2020).

Constraints on Generality

Given the nature of our sample, we expect our results to generalize to the broader U.S. public. Yet, it is unclear to what extent they generalize to other knowledge domains (e.g., artificial intelligence) or time frames (e.g., after Elon Musk's 2022 purchase of X, formerly known as Twitter). Moreover, our results may not apply to countries with different languages, cultures, or media diets. We have no reason to believe that the results depend on other characteristics of the participants, materials, or context.

Conclusion

Addressing the question of whether metacognitive insight into political misperceptions is ideologically symmetrical can not only help to better understand the psychology of politics, but is also fundamental to the functioning of democratic societies more generally. Overall, we found that people from both the political right (Republicans and conservatives) and the political left (Democrats and liberals) were well aware of how well they distinguished political truth from falsehood. However, results revealed a striking asymmetry for ideologically discordant statements: Republicans and conservatives—but not Democrats and liberals—exhibited metacognitive blind spots for statements that challenged their ideological commitments, which may fuel broader societal trends such as political polarization.

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