Effects of Message-Sidedness on Perceived Source Bias: When Presenting Two Sides Does Versus Does Not Alleviate Concerns About Bias

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Abstract

Communicators commonly present two-sided messages to avoid being perceived as biased. This approach equates bias with one-sidedness rather than divergence from the position supported by available data. Messages often concern topics with mixed qualities: a product is exceptional but expensive; a politician is inexperienced but ethical. For these topics, providing a two-sided message should reduce perceived bias according to both views of bias as one-sidedness and divergence from available data. However, if perceived bias follows divergence from available data, for topics viewed as one-sided (univalent), a two-sided message should not reduce perceived bias. Across five studies, acknowledging two sides reduced perceived bias for novel topics. In two of the studies, two-sidedness no longer reduced perceived bias for topics viewed as univalent. This work clarifies that people conceptualize bias as a divergence from available data, not simply one-sidedness. It also clarifies when and how to leverage message-sidedness to reduce perceived bias.

Introduction

In 2017, *The New York Times* issued a new policy: journalists posting about an issue on social media needed to link to multiple sides of an issue, not just one ("The Times Issues Social Media Guidelines for the Newsroom," 2017). This policy was fueled by concerns that if journalists linked to only one side of an issue, they would be perceived as biased. *The New York Times* was concerned that this perceived bias could undercut the credibility of their newsroom. Indeed, recent research supported these concerns: perceived bias can undermine the credibility of sources and the persuasiveness of both an initial message on which a source is viewed as biased (Wallace et al., 2020c), and on future persuasion attempts from that source even on new topics (Wallace et al., 2021). So yes, *The New York Times*' concerns that perceived bias could have negative consequences for their newsroom were valid. Left unclear in the empirical literature is whether their strategy for reducing perceived bias is effective: can presenting two- versus one-sided messages reduce perceived bias? In this article, we examine whether and when people infer that sources who provide one- versus two-sided messages are biased, independent of other potentially related perceptions.

This work provides not only practical insight into how to employ message-sidedness effectively to reduce perceived bias but also insight into how people conceptualize bias—as one-sidedness per se or as divergence from available information about the topic.

Perceived Source Bias

The study of source bias as an independent perception in persuasion is relatively new. Until recently, persuasion researchers had primarily focused on perceived expertise (knowledgeability) and trustworthiness (honesty), which were considered important because they each contributed to overall source credibility (Hovland et al., 1953). In this context, perceived bias was either overlooked or considered

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part of untrustworthiness. However, recent work has separated perceived bias from perceived untrustworthiness (Wallace et al., 2020a, 2020c, 2021), defining perceived bias as the perception that a source has a *skewed view* of the topic but perceived untrustworthiness as a perception that the source is willing to be dishonest. Bias (a skewed view) could stem from slanted knowledge exposure or from a motivation to hold a particular position. This definition, and its separation from perceived untrustworthiness, have been supported by both qualitative studies in which participants generate descriptions of biased or untrustworthy sources (Wallace et al., 2020a) and experiments in which descriptions of a source's motivation to take a particular position have a larger influence on perceived bias than perceived untrustworthiness (Wallace et al., 2020c). Furthermore, in a factor analysis, items measuring perceived bias loaded separately from items intended to capture perceived trustworthiness, expertise, likeability, and intelligence (Wallace et al., 2021).

Consequences of Perceived Bias. Beyond being conceptually distinct from other source perceptions, perceived bias also has independent consequences on persuasion, both negative and relatively positive. That is, beyond any effects of perceived untrustworthiness and inexpertise, perceived bias can undermine perceived source credibility and, therefore, persuasion (Wallace et al., 2020c). Furthermore, perceived bias can carry over from an initial message to future topics (Wallace et al., 2021), making the consequences of perceived bias potentially far reaching. At times, perceived bias can have completely different effects than perceived untrustworthiness (Wallace et al., 2020b). People expect biased (vs. unbiased) sources to be more consistent in their position taking. They assume that biased sources would only switch positions if they had a particularly good reason to do so. People do not expect those different levels of position consistency from untrustworthy versus trustworthy sources. As a result, people are particularly surprised when biased sources switch positions, but they are not surprised when untrustworthy sources switch from one position to another. This surprise is then associated with inferences that the source must have good reasons for the new position and increased persuasion. Thus, perceived source bias can have a positive indirect influence on persuasion when the source switches positions, an advantage not afforded to untrustworthy sources. In sum, across most typical persuasion situations, perceived bias undermines persuasion, but it can also have an indirect positive effect on persuasion when the source switches positions.

Inferring Perceived Bias. Given the consequences of perceived bias, it is important to understand how people infer that others are biased. However, most research on source characteristics, including source bias, has used third-party reports based on researcher-generated exemplars to manipulate source characteristics. For example, in Study 3 of Wallace et al. (2020c), participants read about a citizen campaigning against a political candidate. They read that she had the reputation of being biased or objective about the candidate. Although these source descriptions reflect everyday episodes when people learn about a source from a third-party, people must often infer source characteristics from the source's message or behavior.

Some research has begun to elucidate how people infer source bias from message characteristics by demonstrating that when sources provide weak versus strong arguments, they are viewed as more biased (Wallace et al., 2021). Beyond argument quality, researchers have repeatedly demonstrated that agreement can exert a powerful influence on perceived bias (Cheek et al., 2021; Hovland & Sherif, 1961; Kennedy & Pronin, 2008; Wallace et al., 2021). Early on, social judgment theory (Hovland & Sherif, 1961) argued that people would view disagreeable positions as more biased than agreeable positions. Similarly, the theory of naïve realism (Ross & Ward, 1996) argued that people view themselves as objective, and therefore view anyone who disagrees with them as biased. Finally, people expect sources to take positions consistent with their previous experiences and personal or group interests (Eagly et al., 1978; Wallace et al., 2023). For example, people expect that women will be more likely than men to support women's rights. When sources confirm these expectations, they are perceived as biased. However, violating these expectations by taking a position inconsistent with their previous experiences can decrease perceived bias (Eagly et al., 1978).

In sum, there is a growing literature on how people infer source bias. Sources are viewed as more biased when they provide weak arguments, disagree with their audience, and have experiences or interests consistent with the position taken. The current research addresses a novel potential determinant of perceived bias: message-sidedness.

Message-Sidedness

Past Examinations. Researchers have treated message-sidedness as either providing arguments for the advocated position (one-sided) versus also including arguments that support the opposing position (two-sided; Hovland et al., 1953). A small persuasive advantage for two-sided messages is supported meta-analytically, though these effects are nuanced (Allen et al., 1990; Crowley & Hoyer, 1994; Eisend, 2006). Importantly, one mechanism for the advantage of two-sided messages is improved source credibility. A number of studies have demonstrated that sources who acknowledge two sides of a message are viewed as more trustworthy (Alden & Crowley, 1995; Kamins & Assael, 1987; Kamins & Marks, 1987; Pechmann, 1992; Smith & Hunt, 1978; Swinyard, 1981), competent (Allen et al., 1990; Smith & Hunt, 1978), and generally credible (Allen et al., 1990; Kamins et al.,

1989; Kanungo & Johar, 1975), though these studies have not measured perceived bias.

Message-Sidedness Effects on Perceived Bias. It is particularly interesting that perceived bias has been unmeasured in most prior work, as it seems that message-sidedness could influence perceived bias even more than other source characteristics, given that perceived bias is inherently about skewedness. Presenting only one side might suggest that the source is either missing information on the other side of the issue (slanted information exposure), or they are only open to believing information that supports their point of view (motivated reasoning). If there are effects of message-sidedness on perceived bias, it could raise questions about whether the previously observed effects on perceived trustworthiness and credibility might be driven by effects on perceived bias. That is, sidedness effects on perceived trustworthiness might have been due to spillover from perceived bias. Effects on credibility might be driven by perceived bias rather than perceived trustworthiness or expertise. Thus, in the current work, we not only tested whether message-sidedness affects perceived bias but also whether any effects on perceived bias, trustworthiness, or expertise hold when controlling for each other to test for independent effects on these perceptions.

Possible Moderation by Topic Mixedness. Providing a two-sided message should only reduce perceived bias if recipients believe that there are reasonable arguments on both sides. If recipients instead believe that the topic is almost exclusively univalent, rather than mixed, it should not seem like information is missing when the source provides a one-sided message, thereby removing the reputational benefits associated with providing a two-sided message on mixed topics.

Importantly, this test of moderation by topic mixedness could provide insight into how people conceptualize perceived bias. One possibility is that perceived bias refers to deviations from neutrality. In this case, it should not matter whether there is information supporting each position or not: increased deviation from neutrality (complete one-sidedness) should always increase perceived bias. Another possibility is that perceived bias refers to deviations from the position supported by the available information. If there are equal amounts of information that support and oppose a position, then that situation would be identical to neutrality being the objectively correct position. However, there are many topics for which the evidence does not equally favor each position, but slants, sometimes strongly, in one direction or the other. In this case, neutrality is a biased position, and the position that the evidence favors represents the "objective" or "correct" position. For example, most people likely view incest as exclusively or almost exclusively negative. Therefore, a target providing a one-sided message opposing incest would likely be viewed as relatively unbiased because that would be consistent with the perceiver's sense of the correct position. In this case, providing a two-sided message

should not reduce perceived bias and could possibly even increase it.

Some previous work has provided indirect but suggestive evidence for this (Chu, 1967; Jones & Brehm, 1970). In Chu (1967), Taiwanese high school aged boys responded to a message about creating an international free trade zone in a harbor in southern Taiwan. Prior to receiving the target message, they were also randomly assigned to learn that there were arguments for and against the free-trade zone or not. Chu (1967) found that those who received a one-sided message perceived that the source was omitting information that did not support his position. Furthermore, these effects were amplified among participants who had learned that there were arguments for and against creating the free-trade zone. Perceptions that the source omitted information not supportive of his argument could reflect a perceived bias. However, it could also reflect dishonesty (intentionally leaving out information). Thus, this evidence is indirect.

Jones and Brehm (1970) tested similar hypotheses in the context of a bigamy (marrying one person while already married to another) trial. Prior to receiving a message, participants either did or did not learn that there had been competent witnesses for both the prosecution and defense. They then received a summary of the trial. Participants reported their perceptions of the communication's (not the source's) bias. They found a nonsignificant interaction such that the communication was viewed as directionally more biased in the one-sided than in the two-sided condition when participants were aware that there was evidence for and against the defendant. However, this directionally reversed when participants were not aware that there was evidence for both sides. Thus, there is suggestive evidence that people can infer source bias from one-sided messages, and this might be moderated by recipients' beliefs about the mixedness of the information underlying a topic. Yet, because Chu's (1967) indirect measure need not reflect bias per se, Jones and Brehm (1970)'s measure captured perceived communication rather than source bias, and the moderation was nonsignificant in Jones and Brehm (1970), we viewed the prior evidence as weak and incomplete.

Current Work

This research provides a clearer test of whether two-sided messages reduce perceived bias for novel topics. Although previous work provided insight into how people react when they are directly told the distribution of information for and against a position, it left unclear how sidedness might play a role for novel objects. Considering the rarity of absolutely positive or negative attitude objects in the real world, people likely infer that most objects possess, to varying degrees, both positive and negative qualities. Therefore, if they receive a one-sided message for a novel attitude object, they likely infer that there was some contradictory information missing (Priester et al., 2007). Thus, we predicted that for

novel topics, people should view sources who provide a two-sided message as less biased than sources who provide a one-sided message.

This work also provides a more robust test of potential moderation by topic mixedness using a direct measure of perceived source bias and including measures of perceived trustworthiness and expertise to examine whether the effects on bias are independent, and perhaps unique. In addition, this work examines how sidedness plays a role when people have previously formed beliefs about the distribution of information on the topic, rather than being directly told. That is, we examine whether sidedness is moderated by topics that are normatively considered to be mixed or univalent.

Overview of Studies. We begin by examining effects of message-sidedness on perceived bias when the message concerns a novel topic, a situation in which a one-sided message should increase perceived bias (Studies 1 and 2). In Studies 3 and 4, we manipulate message-sidedness with a sidedness frame, in which the content of the message is constant, but is framed to seem more one- or two-sided. In Studies 4 and 5, we also examine whether the effect of sidedness on perceived bias depends on whether people view the topic as having mixed or univalent evidence, with Study 5 returning to an actual message-sidedness manipulation. There are two additional studies in the Online Supplement: Study S1 is a conceptual replication of Study 4 and Study S2 is a direct replication of Study 5.

Sample Size and Exclusion Criteria. Given the absence of previously published data examining the effect of message-sidedness on perceived bias that could be used to estimate an effect size a priori, we used a rule of thumb to determine sample size. We set a target *N* of 40 participants per cell, though we sometimes deviated from this, depending on the availability of data collection resources. A sensitivity analysis in G*Power suggested that this *N* would provide 80% power across an infinite number of samples to detect an effect of Cohen's $d = .63$ and 60% power to detect an effect of Cohen's $d = .50$. All studies except Study 5 employed the same exclusion criterion: at the end of each study, participants responded to the item, "How seriously did you take this experiment?" (1 = *not at all seriously*, 7 = *very seriously*). Participants were excluded who reported a "1" on this scale. Study 5 was combined university and online samples, so used in addition to the "seriousness" exclusion criteria, two others that were preregistered and are explained in the methods section of Study 5. Critically, we report all the data that we have to test the hypotheses in this manuscript, resulting in estimates that are unbiased and do not reflect selective reporting. As discussed in recent work, the overall amount of data addressing each hypothesis is of greater import than the level of power assumed to relate to the design of each individual study in the set (Wegener et al., 2022)

Study 1

In Study 1, we examined whether a source who provided a two-sided message would be viewed as less biased than a source who provided a one-sided message. We hypothesized that, for novel attitude objects, participants would anticipate the presence of both positive and negative qualities and therefore perceive the source as more biased when they present a one- versus two-sided message. We started with a novel attitude object to reduce any role for participants' previous knowledge or attitudes toward the object. We used a scenario in which participants were discussing a bike with a salesperson.

Method

Participants. One hundred thirty-one Ohio State University undergraduate students enrolled in an Introduction to Psychology course completed the study for course credit. No participants met the exclusion criterion, so data from every participant were retained for analyses.

Design and Procedure. After consenting to participate, participants were told that they would read a hypothetical conversation and imagine they were having it with a salesperson at a bike store. Joe, a salesperson, provided either a one- or two-sided message for the DaVinci Bike, depending on participants' random assignment to condition. After reading about the bike, participants reported their perception of Joe as biased, trustworthy, and expert. We also included several exploratory measures, which are available in the Stimulus File, along with the exact measures and manipulations for every study in this paper: https://osf.io/xezn4/?view_only=e1fb429a978f444688bf18f6ae2ae81a.

Independent Variable: One- Versus Two-Sided Message. In the one-sided condition, Joe listed six positive features of the bike, including that it had a lightweight titanium frame and a 21-gear easy shift mechanism. In the two-sided condition, Joe listed four of the same positive features of the bike as in the one-sided condition, but then listed two negative features of the bike, that it had a heavy steel frame and only a 6-month warranty.

Dependent Variables. All source perception measures were based on previous research (e.g., Wallace et al., 2020c) and measured with four items on 7-point scales anchored with, 1 = *not at all*, 7 = *very much*.

   Perceived Bias. An example perceived bias item was, "To what extent do you feel Joe's opinion of the DaVinci bicycle is a product of bias?." The four responses were averaged to form a composite, $\alpha = .93$.

Perceived Trustworthiness. An example perceived trustworthiness item was, "To what extent does it seem like Joe is trustworthy?" The four responses were averaged to form a composite, $\alpha = .87$.

Perceived Expertise. An example perceived expertise item was, "How qualified did you think Joe was to speak about the DaVinci Bicycle?" The four responses were averaged to form a composite, $\alpha = .89$.

Results and Discussion

Consistent with expectations, when the source presented a one-sided message, he was perceived as more biased ($M = 4.66$, $SD = 1.28$) than when he presented a two-sided message ($M = 3.80$, $SD = 1.51$), $t(129) = 3.50$, $p < .001$, 95% CI of mean difference [0.37, 1.34], $d = .61$. There were no effects of the sidedness manipulation on perceived trustworthiness, $t(129) = -.94$, $p = .35$, 95% CI of mean difference [−0.54, 0.19], $d = -.17$, or perceived expertise, $t(129) = 1.10$, $p = .28$, 95% CI of mean difference [−0.16, 0.55], $d = .19$. In addition, we regressed perceived bias on the sidedness manipulation, as well as perceived trustworthiness and expertise to examine whether this effect would hold controlling for other perceptions. The sidedness of the message influenced perceived bias above and beyond any effects of trustworthiness and expertise, suggesting that message-sidedness can have an independent effect on perceived bias, $b = .39$, 95% CI [0.15, 0.63], $t(127) = 3.20$, $p = .002$, $r = .27$.

These results provide initial evidence that people are more likely to infer that a source is biased when they provide a one- rather than two-sided message on a novel topic. These effects seem specific to bias, rather than other potentially related perceptions. The independent effect on perceived bias highlights the importance of separating perceived bias from perceived trustworthiness. Because of previous research demonstrating an effect of message-sidedness on perceived trustworthiness, the lack of effect on trustworthiness was unexpected. We return to this issue in the "General Discussion," where we can provide an assessment based on all the data.

Study 2

Study 2 replicated Study 1 with a different novel topic to increase generalizability. Participants read a vignette about interacting with someone endorsing a political candidate.

Method

Participants. Seventy-eight Ohio State University undergraduate students enrolled in an Introduction to Psychology course completed the study for course credit. Three participants reported taking the study "not at all seriously" and were excluded from analyses.

Design and Procedure. After consenting, participants were told that they would read a hypothetical conversation with an acquaintance, Joe, who was endorsing a local political candidate for mayor. Joe had previously interned for the candidate and had been promised a position with the candidate if elected. Joe provided either a one- or two-sided message for the political candidate, depending on participants' random assignment to condition. After participants read about the candidate, they reported their perceptions of Joe as biased, trustworthy, and expert.

Independent Variable: One- Versus Two-Sided Message. In the one-sided condition, Joe listed six positive qualities of the candidate, including that he had experience holding public office and had graduated from prestigious institutions. In the two-sided condition, Joe listed four positive qualities of the candidate, and two qualities that were framed as downsides, including that he rarely volunteers or fundraises for local charities.

Dependent Variables. Perceived bias ($\alpha = .91$), trustworthiness ($\alpha = .80$), and expertise ($\alpha = .90$) were measured the same as in Study 1, but the items referred to the candidate rather than the bike.

Results and Discussion

Consistent with expectations, when the source presented a one-sided message ($M = 5.24$, $SD = 1.28$), he was perceived as more biased than when he presented a two-sided message ($M = 4.57$, $SD = 1.39$), $t(73) = 2.15$, $p = .04$, 95% CI of mean difference [0.05, 1.28], $d = .50$. Replicating the previous study, there were no effects of the sidedness manipulation on either perceived trustworthiness, $t(73) = -.45$, $p = .66$, 95% CI of mean difference [−.48, .31], $d = -.11$, or perceived expertise, $t(73) = -.74$, $p = .47$, 95% CI of mean difference [−.73, .34], $d = -.17$. When we regressed perceived bias on the sidedness manipulation, perceived trustworthiness and expertise, message-sidedness influenced perceived bias above and beyond any effects of trustworthiness and expertise, suggesting that message-sidedness can have an independent effect on perceived bias, $b = .34$, 95% CI [0.04, 0.65], $t(71) = 2.24$, $p = .03$, $r = .26$.

Thus, Study 2 provided additional evidence that people can infer that a source is biased when they provide a one-sided message about a novel topic. Once again, message-sidedness did not have an effect on any of the other perceptions in this study, suggesting that message-sidedness might be a relatively unique antecedent to perceived bias.

Study 3

Although Studies 1 and 2 provided evidence that participants can infer bias from one-sided messages, the two

messages differed in two of the arguments that were provided in each condition, leaving the possibility that something about the arguments was responsible for the different effects, rather than message-sidedness per se. In addition, it is possible that the source in the two-sided condition was viewed as having a less extreme view of the attitude object because he presented a view that was more moderate (four positive and two negative) than the one-sided source (six positive). Therefore, the results observed in the previous studies could have occurred because of a confound with extremity or differences in content. To address this, in Study 3, we used a sidedness *frame* manipulation (Rucker et al., 2008) that avoids these confounds.

Method

Participants. Ninety-three Ohio State University undergraduate students enrolled in an Introduction to Psychology course completed the study for course credit. No participants reported not taking the study seriously, so all data were retained.

Design and Procedure. After consenting to participate, participants were told that they would read a brief description of an author's position, randomly selected from a larger pool that included descriptions of products predicted to enter the Columbus market, biographies of individuals, or letters to the editor about social and political issues. In fact, every participant read the same information about the DaVinci Bicycle, which was framed as one- or two-sided. After participants read about the bike, they reported their perceptions of the author as biased, trustworthy, and expert.

Independent Variable: One- Versus Two-Sided Frame. Across both frame conditions, the information about the bicycle was identical. It included six positive pieces of information about the bicycle, including that it had a lightweight titanium frame and 2-inch studded tires for maximum traction and shock absorption. It also included one piece of negative information: the bike does not come with a water bottle holder. These pieces of information were presented in bullet points in two columns with the positive information listed on the left side of the screen and the negative information presented on the right. To manipulate whether this message was framed as one- or two-sided, in the two-sided frame condition, we labeled the respective columns with "pros" and "cons" and in the one-sided frame condition, we put "considerations," centered at the top of the information, consistent with previous work (Rucker et al., 2008).

Dependent Variables. Perceived bias ($r = .87$), trustworthiness ($r = .77$), and expertise ($r = .75$) were each measured with two of the items from each scale in Study 1. In this study, they were measured on nine-point scales.

Results and Discussion

Consistent with our hypothesis, when the source presented a message that was framed as one-sided ($M = 4.94$, $SD = 1.52$), they were perceived as more biased than a source who presented a message framed as two-sided ($M = 3.89$, $SD = 1.78$), $t(91) = 3.05$, $p = .003$, 95% CI for mean difference [0.36, 1.73], $d = .64$. This sidedness frame manipulation had a nonsignificant effect on perceived expertise, $t(91) = -1.71$, $p = .09$, 95% CI for mean difference [-.98, .07], $d = -.36$, and trustworthiness, $t(91) = -1.30$, $p = .20$, 95% CI for mean difference [$-.72$, .15], $d = -.27$, with the source providing the message framed as two-sided being viewed as directionally more expert and trustworthy. We regressed perceived bias on the sidedness frame manipulation, as well as perceived trustworthiness and expertise. Sidedness frame influenced perceived bias above and beyond any effects of trustworthiness and expertise, suggesting that sidedness frames can have an independent effect on perceived bias, $b = .46$, 95% CI [0.14, 0.77], $t(89) = 2.86$, $p = .005$, $r = .29$.

Using a sidedness frame in this study, we were able to address content and extremity confounds in the previous two studies. That this study also supported the unique effect of sidedness on perceived bias suggests that the potential confounds in the previous studies were likely not responsible for the effects.

Study 4

Studies 1 to 3 provided evidence that sources are perceived as more biased when they provide messages about novel topics that are, or are framed as, one- versus two-sided. To our knowledge this is the first demonstration of the effects of message-sidedness on perceived bias without participants being directly told about the distribution of information for the relevant topics ahead of time. Thus, these studies provide insight into how message-sidedness influences perceived bias for situations in which recipients have to make assumptions about the potential distribution of information for a topic.

Recall, however, that whether participants view topics as relatively mixed or univalent might moderate these effects. That is, results from Chu (1967) and Jones and Brehm (1970) suggested that one-sided messages might be most likely to increase perceived bias when people know there is evidence for both sides of an issue. When they believe that the evidence is more one-sided, a one-sided message should not increase perceived bias. In this previous research, participants were directly told the distribution of information. However, there are some topics that people normatively consider to be (almost) exclusively of one valence. For example, many people likely view incest as almost exclusively negative. As such, we wanted to examine whether the effects of sidedness framing would be moderated by whether the topic

was viewed as having only one side. We view this as an opportunity to provide a more stringent test of the hypotheses proposed by Chu (1967) and Jones and Brehm (1970), as well as to extend their findings to situations in which participants are not directly told about the distribution of information for a particular topic.

Testing moderation of the sidedness effects would also test what it means to perceive another as biased: Is bias a deviation from neutrality or from the distribution of evidence favoring one side versus another? If the former, participants should always view the source who presents a one-sided message as more biased. If the latter, perceivers should not always view sources who provide one-sided messages as biased. When perceivers view the relevant evidence as one-sided, they could view the source who takes a two-sided position as more biased. Of course, if participants view the issue as mostly but not entirely one-sided (or most, but not all participants view the issue as one-sided), perhaps there would not be substantial differences in perceptions of sources who provide one- versus two-sided messages.

Method

Participants. Three hundred forty-four Ohio State University undergraduate students enrolled in an Introduction to Psychology course participated in this study for course credit.[1] Six participants who reported that they did not take the study seriously were excluded.

Design and Procedure. This study included the same DaVinci bicycle condition as in Study 3 representing a topic likely viewed as mixed. In addition, we included a condition in which a source opposed incest, an issue likely viewed as one-sided. Thus, this study employed a 2 (Sidedness Frame: One-versus Two-sided) × 2 (Topic: Bike versus Incest) design. Following random assignment to condition, a topic was presented in the column format from the previous study, and participants reported the extent to which they viewed the source as biased, trustworthy, and expert. As a manipulation check, we also included a measure of subjective ambivalence (Priester & Petty, 1996) to assess whether participants felt more mixed toward bikes or incest.

Independent Variables. We experimentally manipulated whether participants would think of the topic as having two sides by choosing target topics that would be normatively viewed as two-sided (DaVinci bicycle) or one-sided (anti-incest). The DaVinci bicycle information was the same as in the previous study. When participants read about incest, they read six arguments opposing incest and one argument supporting incest. The arguments against incest included "Can lead to birth defects in resulting babies" and "Violates the natural order of things." The argument for incest was "Neither person would be lonely."
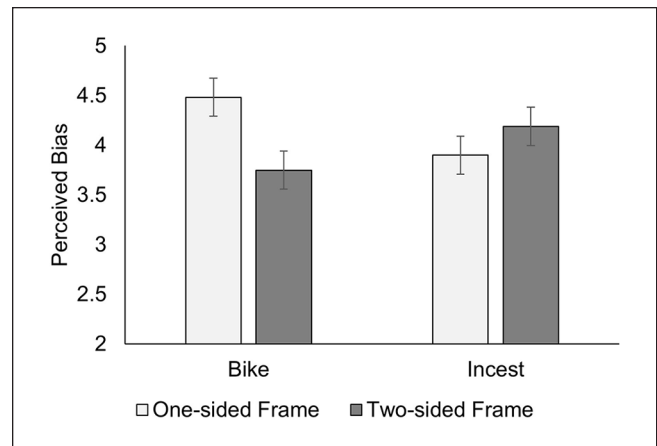

Figure 1. Perceived Bias as a Function of Topic and Sidedness Frame in Study 4.
Note. Error bars refer to standard errors.

Dependent Variables. Perceived bias ($r = .86$), trustworthiness ($r = .71$), expertise ($r = .78$) were measured with the same items from Study 3.

Participants reported their subjective ambivalence on items assessing the extent to which they considered their attitudes to be "conflicted," "mixed," and "undecided" about each attitude object on a seven-point scale with higher numbers indicating more conflict ($\alpha = .86$, Priester & Petty, 1996).

Results and Discussion

Ambivalence Manipulation Check. Participants reported having significantly more subjective ambivalence toward the DaVinci bike ($M = 3.34$, $SD = 1.29$) than incest ($M = 1.68$, $SD = 1.09$), $t(336) = 12.72$, $p < .001$.

Effects of Sidedness and Topic on Perceptions of Bias. To test whether sidedness would interact with the topic, we regressed perceived bias on the topic factor, the sidedness frame factor, and their interaction. There was no main effect of sidedness frame, $b = .11$, 95% CI [−0.08, 0.30], $t(334) = 1.17$, $p = .243$, $r = .06$, and or of topic, $b = −.04$, 95% CI [−.22, .15], $t(334) = −.37$, $p = .710$, $r = −.02$. Of most interest, there was a significant interaction, $b = −.26$, 95% CI [−0.44, −0.07], $t(334) = −2.67$, $p = .008$, $r = −.14$. (Figure 1).

To break down this interaction, we examined the effect of the sidedness frame within each of the topic conditions.[2] There was a significant effect of the sidedness frame in the bike condition, $b = .37$, 95% CI [0.10, 0.63], $t(334) = 2.72$, $p = .007$, $d = .44$, with the source who provided a one-sided message being viewed as more biased. Although not significant, the effect in the incest condition went in the opposite direction, $b = −.14$, 95% CI [−0.41, 0.12], $t(334) = −1.05$, $p = .292$, $d = −.16$.

Similar interaction patterns emerged on perceived trustworthiness, $b = .18$, 95% CI [0.05, 0.31], $t(334) = 2.68$, $p = .008$, $r = .15$, and perceived expertise, $b = .17$, 95% CI [0.03, 0.30], $t(334) = 2.38$, $p = .018$, $r = .13$. However, even when controlling for perceived trustworthiness and expertise, the topic by sidedness frame interaction on perceived bias largely held, $b = −.18$, 95% CI [−0.37, 0.00], $t(334) = −1.94$, $p = .053$, $r = −.11$.

In sum, this study provided initial support for the moderation of sidedness effects on perceived bias by participants' beliefs about the mixedness of the topic. This moderation is also supported by Study S1, reported in the Online Supplement, which is a conceptual replication of this study. This pattern suggests that people might not always view sources who provide one-sided messages as more biased: when recipients view the topic as relatively univalent, presenting a two-sided message no longer reduces perceived bias. Furthermore, these results provide insight into how people think about perceived bias: whereas people could have thought about perceived bias as a deviation from neutrality, the results of Study 4 suggest that they instead think of perceived bias as deviating from the position supported by the evidence.

Study 5

There are two possible alternative explanations for the moderation of sidedness frame by topic. One is that the argument for the second side of the incest topic seemed particularly weak to participants. A second is that presenting a second side for a one-sided topic is so unusual that it diagnostically signals a nonnormative position on the topic. We thought the first explanation to be somewhat unlikely in that the second side for the two-sided topic seemed equally weak to the second side for the one-sided topic.[3] However, to test whether weakness of the second-side argument was necessary to find these effects, in this final study, we manipulated the argument quality of the second side in the two-sided message conditions. Regarding the second explanation, we included a measure of "character diagnosticity" of the message to test for this possibility. Finally, we returned to actual sidedness to examine whether this topic moderation pattern would extend beyond frames to actual sidedness. We also shifted topics, using the politician as the mixed topic and the value of equality as the univalent topic to increase generalizability by generating conceptually the same pattern across different topic content. This study was preregistered (Study 5 at: https://osf.io/xezn4/?view_only=e1fb429a978f444688bf18f6ae2ae81a).

Method

Participants. We ran this study at the end of the semester so preregistered that we would attempt to recruit 300 participants from the Ohio State University subject pool but would supplement from Prolific if fewer than 250 subject pool participants completed the study by the end of the semester. Indeed, 245 subject pool participants completed the study, so we supplemented with 225 participants from Prolific. This slight deviation from the preregistered total *N* (450) evened up samples from each source to enable better tests of moderation by sample.

We excluded participants from analyses as specified in the pre-registration. Eight were excluded for reporting that they did not take the study seriously. Ten were excluded for incorrectly responding to both open-ended Winograd (Bender, 2015) questions or providing an answer to at least one question that did not correspond with a response option. Finally, immediately after receiving the message, participants were asked "Did Joe provide only arguments in support of [topic] or did he also acknowledge a downside of [topic]?" Fifty-two participants were excluded for incorrectly identifying whether they had just seen a one or two-sided message. Importantly, this did not differ by condition, ps > .10.[4]

Design and Procedure. This study employed a 2 (topic: politician vs. equality) × 3 (message-sidedness: one-sided, two-sided with strong second side, two-sided with weak second side) between-subjects experimental design. The procedure was very similar to Studies 1 and 2 except that we also measured character diagnosticity, as well as argument quality of the second side in the two-sided conditions, along with some additional exploratory measures.

Independent Variables

Topic. Participants received a message about a politician (mixed) or the value of equality (univalent). Across sidedness conditions, participants initially viewed a paragraph with five arguments for the topic. The politician arguments were similar to those in Study 2. The arguments for equality included, "Equality leads to a more productive and emotionally healthy population."

Message-Sidedness. After the initial paragraph, participants either saw an additional argument for the position (one-sided) or saw an argument against the position (two-sided). In the two-sided conditions, before the counter argument, the message always said, "However, one downside is . . ." to make it clear that this was a counter-argument. The arguments (in Table 1) were selected based on two rounds of pre-testing of argument quality described in the Online Supplement.

Dependent Variables. Perceived bias ($\alpha = .97$), trustworthiness ($\alpha = .88$), and expertise ($\alpha = .92$) were measured with the same four-item scales from Study 2. Subjective ambivalence was measured the same as in Study 4 ($\alpha = .83$).

Perceived Second-Side Argument Quality. In the two-sided message conditions, participants reported how strong the

Table 1. Final Argument in Message by Sidedness and Topic Condition in Study 5.

Condition	Politician	Equality
One-sided	He's also lived in the area his whole life	Treating others equally can also make you feel better about yourself
Two-sided, strong argument	He only moved to the area 2 months ago	Equality can mean that people who work harder or who are more talented than others would be treated as if they are the same
Two-sided, weak argument	He only moved to the area 20 years ago	Equality can mean that billionaires would lose some of their wealth and have to live more like the rest of us

Table 2. Effects of Message-Sidedness, the Topic, and Their Interaction on Perceived Bias.

Predictors	b	95% CI	t	p	r
One- vs. two-sided	.37	[−0.04, 0.78]	1.80	.073	.09
Two-sided strong vs. weak	−.41	[−0.88, 0.06]	−1.73	.084	−.09
Topic	−.59	[−0.79, −0.40]	−6.08	<.001	−.29
One- vs. two-sided × Topic	−.69	[−1.09, −0.28]	−3.30	.001	−.16
Two-sided strong vs. weak × Topic	.04	[−0.43, 0.51]	0.19	.853	.01

arguments were against the topic on two items, both anchored with 1 = *not at all*, 9 = *very much*. One example item was, "How strong were Joe's reasons against [topic]?" The two items were correlated, $r = .86$, and were averaged.

Character Diagnosticity. Participants responded to three items assessing the diagnosticity of the source's message for his character. An example item is, "To what extent do you feel like Joe's message told you something about who he is as a person?." All items were anchored with 1 = *not at all*, 9 = *very much*, and were averaged to create an index (α = .90).

Results and Discussion

Manipulation Check on Topic Ambivalence. Participants reported having significantly more subjective ambivalence toward the politician ($M = 4.87$, $SD = 1.82$) than equality ($M = 2.88$, $SD = 1.89$), $t(400) = −10.77$, $p < .001$.

Manipulation Check on Perceived Argument Quality in the Two-Sided Conditions. When comparing the "second-side" arguments in the two-sided conditions, the strong arguments ($M = 3.62$, $SD = 1.74$) were seen as significantly stronger compared with the weak arguments ($M = 2.94$, $SD = 1.78$), $t(267) = 3.17$, $p = .002$.

Effects of Sidedness and Topic on Perceptions of Bias. Analyses were conducted consistent with our pre-registration. We created contrast codes to compare the sidedness conditions. The first contrast compared the weak and strong two-sided conditions ("Two-sided strong versus weak": 0 = one-sided, .5 = two-sided strong, −.5 = two-sided weak). The other contrast compared the one-sided condition to both two-sided conditions ("One-versus-two-sided": .666 = one-sided, −.333 = two-sided strong, −.333 = two-sided weak). To test our
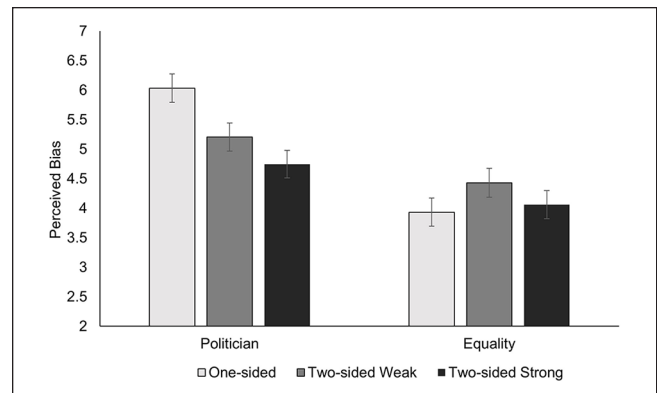
Figure 2. Perceived Bias as a Function of Topic and Message-Sidedness Condition in Study 5.
Note. Error bars refer to standard errors.

hypothesis that sidedness would interact with the topic, we regressed perceived bias on the topic factor, the sidedness contrast variables, and their two-way interactions with the topic factor (complete model in Table 2). There was no hint of an interaction between the topic factor and the quality of the second-side argument, suggesting that any interaction of message-sidedness with topic was not unique to any particular strength of the second-side argument. Consistent with our hypothesis, there was a significant interaction between the topic factor and the one-versus-two-sided contrast.[5] To break down this interaction, we examined the effect of one-versus two- sided arguments within each topic condition. In the politician condition, a one- versus two-sided message increased source bias, $b = 1.05$, 95% CI [0.48, 1.63], $t(396) = 3.61$, $p < .001$, $r = .18$ (Figure 2). Although not significant, the effect in the equality condition was directionally reversed, $b = −.31$, 95% CI [−0.89, 0.27], $t(396) = −1.06$, $p = .290$, $r = −.05$.[6]

Table 3. Meta-Analysis of the Message-Sidedness Effects on Perceived Bias, Trustworthiness, and Expertise Both With and Without Controlling for the Other Perceptions.

Predictors	Meta-analytic effect				Test of heterogeneity	
	r	*z*	*p*	95% CI	*Q*	*p*
Bias, no controls	.22	5.05	<.0001	[0.14, 0.31]	11.28	.08
Bias, with controls	.21	5.06	<.0001	[0.13, 0.29]	9.27	.16
Trust, no controls	−.10	−2.45	.014	[−0.18, −0.02]	8.70	.19
Trust, with controls	.00	−.11	.91	[−0.07, 0.06]	2.18	.90
Expert, no controls	−.08	−1.52	.13	[−.018, 0.02]	10.89	.06
Expert with controls	−.04	−.92	.36	[−0.13, 0.04]	8.08	.15

Similar interactions between topic and the one-versus-two contrast emerged on perceived trustworthiness, $b = .30$, 95% CI [0.03, 0.57], $t(396) = 2.16$, $p = .032$, $r = .11$, and perceived expertise, $b = .43$, 95% CI [0.12, 0.75], $t(396) = 2.70$, $p = .007$, $r = .13$. However, even when controlling for perceived trustworthiness and expertise, there was still a significant topic by message-sidedness interaction on perceived bias, $b = −.48$, 95% CI [−0.86, −0.09], $t(394) = −2.43$, $p = .016$, $r = −.12$.[7]

Inferences About Character Diagnosticity. Presenting two sides for topics that are commonly considered to be one-sided could serve as a diagnostic signal about who that person is (e.g., someone who values hierarchy). To examine whether such perceptions contributed to the effects, we conducted the same analyses as above, but with character diagnosticity rather than perceived bias as the dependent variable. Participants inferred that the message was more diagnostic when they provided a one-sided rather than a two-sided message on average, $b = .40$, 95% CI [0.06, 0.74], $t(396) = 2.32$, $p = .021$, $r = .12$, but this was not moderated by topic, $b = .18$, 95% CI [−0.16, 0.52], $t(396) = 1.02$, $p = .307$, $r = .95$. This speaks against the possibility that providing a two-sided message for a normatively one-sided topic makes the message seem particularly diagnostic of the source's character.[8]

Overall, this study replicated that, although two-sided messages reduce perceived bias for mixed topics, they no longer have this benefit for univalent topics. This pattern supports the idea that people think of perceived bias as deviation from the position that the evidence supports more so than deviation from neutrality.

General Discussion

In this article, five studies (plus two in the Online Supplement) provided insight into the effects of message-sidedness on perceived bias. Providing a two-sided message or a message framed as two-sided decreased perceived source bias for novel topics or topics perceived as relatively mixed. However, two-sided messages no longer had this advantage for topics perceived as relatively univalent. Each of these effects held controlling for perceived trustworthiness and

expertise, suggesting that these are independent effects on perceived bias.

This work built on research in which participants were directly told whether the information about a topic was mixed or univalent (Chu, 1967; Jones & Brehm, 1970) and in which no alternative source perceptions were considered. We used issues that people generally think of having mixed versus univalent support and demonstrated that sidedness effects differ across topics when people make inferences about the evidence. We also demonstrated that novel topics seem to function like topics with mixed information: presenting a one-sided message increased perceived bias. Finally, using a sidedness frame manipulation, the current studies addressed potential content and extremity confounds present in the original studies.

Unique Effects on Perceived Bias

Given previous work demonstrating message-sidedness influences on perceived trustworthiness, one might have expected replication here. Yet, we observed weak effects on perceived trustworthiness. One possibility is that sidedness affects trustworthiness, but to a lesser extent than perceived bias. To shed light on this issue, we conducted a random-effects meta-analysis of the effects of message-sidedness on perceived trustworthiness for only the novel/mixed topics across all the studies in this line of work—both those in the main text and the Online Supplement (Table 3). We did not include the univalent topics because we did not predict or find that two-sidedness reduced perceived bias in that case. Consistent with previous research, there was a small but significant meta-analytic effect where two-sided messages increased perceived trustworthiness. However, when examining the effect of sidedness on trustworthiness controlling for perceived bias and expertise, there was no meta-analytic effect, suggesting that the effects on trustworthiness might consist of a halo effect carried over from perceived bias. For comparison, the meta-analytic effect on perceived bias was robust when controlling and not controlling for perceived trustworthiness and expertise, and there was no effect on perceived expertise either when controlling or not controlling for the other source perceptions. It was uncommon in

previous research to include a measure of perceived bias and to include alternative perceptions as covariates when examining effects of message-sidedness.

This work contributes to a growing literature identifying perceived bias as a previously overlooked, but independent source perception with unique antecedents and consequences (Wallace et al., 2020a, 2020b, 2020c, 2021). The current work demonstrates that for novel topics, message-sidedness uniquely affects perceived bias. Furthermore, it demonstrates how excluding perceived bias can lead to erroneous conclusions regarding other source perceptions. Separating perceived bias from perceived trustworthiness and including measures of both allows for a more accurate understanding of the consequences of message-sidedness, and likely many other variables.

Implications for the Conceptualization of Perceived Bias

The current work also provides insight into what it means to be perceived as biased. Intuitively, people might think of bias as a deviation from neutrality. Another more nuanced possibility is that people think of bias as a deviation from the position the evidence supports. If bias represented a deviation from neutrality, people would have perceived the source who provided a one-sided message as more biased regardless of the topic. However, consistent with the notion that bias represents a deviation from the evidence-backed position, participants only perceived the source who provided a one-sided message as more biased when they expected the information about the topic to be mixed. This pattern is consistent with the notion that perceived bias is a function of perceivers' knowledge and expectations about the evidence for a position.

Implications for False Balance

In the introduction, we noted *The New York Time's* policy requiring reporters to link to multiple sources with different perspectives to avoid being perceived as biased. Policies like these could lead to "false balance" or "bothsidesism," in which the media presents issues as more balanced between opposing viewpoints than the evidence supports. Given that the motivation for false balance is often to avoid being viewed as biased, the current paper provides insight into whether and when such a strategy is effective: it is, but only for novel or mixed topics. When outlets present topics as more mixed than the evidence supports, they present inaccurate information in hopes that the cost of this inaccuracy is countered by a reduction in perceived bias. If there is no benefit by reducing perceived bias, the cost of being inaccurate might not be worth it. Therefore, for topics that have a vast majority of evidence on a single side (e.g., existence of climate change, effectiveness of masks in combating COVID-19), it might be better to be clear about the amount of evidence on either side of an issue, rather than over-representing the evidence for a side that is relatively unsupported in an attempt to maintain perceived objectivity.

Limitations and Future Research

Message-Sidedness Effects When a Source Presents a Counter-Attitudinal Message. All studies in this article employed pro-attitudinal or novel positions. An important open question is how message-sidedness might affect perceived bias when the message is counter-attitudinal. Study 4 contained a condition with a counter-attitudinal message (reported in the Online Supplement). This preliminary evidence suggested that there was no effect of message-sidedness on perceived bias when the topic was counter-attitudinal; instead, perceived bias was high in both sidedness conditions, consistent with prior work demonstrating strong effects of disagreement on perceived bias (Cheek et al., 2021; Kennedy & Pronin, 2008; Wallace et al., 2021). Future research is needed to draw firm conclusions about the effects of message-sidedness on perceived bias with counter-attitudinal messages.

Downstream Consequences of Inferring Perceived Bias Based on Message-Sidedness. Prior work documenting the consequences of perceived bias (Wallace et al., 2020b, 2020c, 2021) motivated this work, as we believe perceived bias could have these consequences once the perception is formed based on the one- or two-sided message. For novel topics or for topics on which recipients agree with the source but have a less-extreme attitude, perceived bias could reduce persuasion (Wallace et al., 2020c). For topics on which the recipient and source have nearly identical attitudes, and therefore attitude change is unlikely, perceived bias might undermine attitude strength (Tormala & Petty, 2004) or influence the amount that people process a message (Clark et al., 2012; Wallace et al., 2021). Finally, even if perceived bias were to have no consequences for reactions to the initial one- or two-sided message, perceived bias might carry over to other topics, as suggested in Study S1, reported in the Online Supplement (see also Wallace et al., 2021).

Refutational Versus Nonrefutational Two-Sided Messages. Previous work on message-sidedness has distinguished refutational from nonrefutational messages (e.g., Allen et al., 1990). In refutational messages, the source acknowledges a different position but then counter-argues it. In the nonrefutational messages, the source simply acknowledges some evidence for the alternative. Refutational two-sided messages tend to be more effective than nonrefutational two-sided messages, though previous work suggests both types of two-sided messages can boost perceived trustworthiness (Alden & Crowley, 1995; Kamins & Assael, 1987; Kamins & Marks, 1987; Pechmann, 1992; Smith & Hunt, 1978; Swinyard, 1981). We started with nonrefutational two-sided messages because it seemed most likely that they would

reduce perceived bias. Acknowledging that some evidence for the alternative position is true indicates that the source is willing to accept evidence against their position. It is possible that refutational two-sided messages would also reduce perceived bias. However, refuting the arguments from the other side might suggest that they are only open to evidence that supports their position, resulting in no or at least less reduction in perceived bias compared with one-sided messages. Future research should examine the effects of refutational two-sided messages on perceived bias.

Support Versus Oppose Stances. We primarily examined situations in which the source supported a position (except when the source opposed incest). Future work could examine whether these same sidedness effects extend across situations in which the source takes an opposition stance.

Cross-Cultural Differences. Finally, it remains an open question whether these message-sidedness effects on perceived bias would occur across cultures. The current studies used samples that are likely more White, Educated, Industrialized, Rich, and Democratic than either the nation as a whole or certainly the broader world (Henrich et al., 2010). Prior research suggests that East Asians are more comfortable holding conflicting thoughts than their Western counterparts (Peng & Nisbett, 1999), which could influence the extent to which they attribute source bias when encountering one- or two-sided messages.

Coda

This work suggests that people perceive bias as deviating from the position the evidence supports. Although providing a two-sided message can reduce perceived bias, this advantage is specific to topics perceived as having mixed evidence. Also, this work suggests that these effects are relatively unique to perceived bias, highlighting the importance of considering perceived bias as an independent source characteristic.

Data Availability

All materials, de-identified data, and code for all studies, as well as the pre-registration for Study 5 are available at this link: https://osf.io/xezn4/?view_only=e1fb429a978f444688bf18f6ae2ae81a.

Declaration of Conflicting Interests

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Supplemental Material

Supplemental material is available online with this article.

Notes

1. This sample reflects the combination of two data collections with identical materials that occurred about 1 month apart. We combined them to efficiently present all the data we have with identical materials. One of these data collections also included an additional, counter-attitudinal topic (all other topics were proattitudinal). Results demonstrated no effect of the sidedness frame manipulation in this condition. Analyses are available in the Online Supplement.

2. Simple slopes comparing the topics within each sidedness condition for Studies 4 and 5 are in the Online Supplement. The Online Supplement also contains analyses comparing the effect of topic within "matching" (univalent topic + one-sidedness, mixed topic + two-sidedness) and mis-matching (univalent topic + two-sidedness, mixed topic + one-sidedness) conditions.

3. Although not specific to the second side argument, Study 4 contained a measure of how much participants agreed that the source had good reasons for their position (1 = *strongly disagree*, 7 = *strongly agree*). The DaVinci Bike message ($M = 4.32$, $SD = 1.53$) and incest messages ($M = 4.18$, $SD = 1.82$) did not differ in perceived argument strength, $t(336) = .760$, $p = .448$.

4. If we use exclusion criteria identical to the other studies, in which we only exclude people who self-reported not taking the study seriously, the key interaction between one- versus two-sided messages and topic on perceived bias is supported using analyses identical to those in text, $b = .60$, 95% CI [0.22, 0.99], $t(457) = 3.12$, $p = .002$.

5. We also examined whether the participants from the university subject pool demonstrated the same effect as the Prolific participants. We unexpectedly found that the key interaction was marginally weaker, though consistent in the university sample, $b = .40$, 95% CI [0.00, 0.80], $t(390) = 1.94$, $p = .053$. See Online Supplement for details.

6. As an alternative way to examine the results, we created dummy codes comparing each of the two-sided message conditions to the one-sided condition. The topic by sidedness interaction was significant both when weak second-side arguments were used, $b = -.66$, 95% CI [−1.14, −.19], $t(396) = 2.75$, $p = .006$, and when strong second-side arguments were used, $b = -.71$, 95% CI [−1.18, −0.24], $t(396) = 2.97$, $p = .003$.

7. We had preregistered to additionally control for source liking, in which case, the key interaction is still significant, $b = -.50$, 95% CI [−0.89, −0.12], $t(393) = 2.56$, $p = .011$, $r = .13$.

8. One may also wonder whether perceived agreement or inferences about the source's attitude could account for these effects.

We do not find support for these possibilities (see the Online Supplement).

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