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## Miscellaneous

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### Carlos Brenes Peralta

<https://orcid.org/0000-0003-0578-3908>

brenesc@gmail.com

Universiteit van Amsterdam

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### Magdalena Wojcieszak

<https://orcid.org/0000-0001-5456-4483>

mwojcieszak@ucdavis.edu

University of California, Davis

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### Yphtach Lelkes

<https://orcid.org/0000-0003-1805-056X>

yphtach.lelkes@asc.upenn.edu

University of Pennsylvania

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### Submitted

June 20th, 2019

### Approved

December 22nd, 2020

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Communication & Society

ISSN 0214-0039

E ISSN 2386-7876

doi: 10.15581/003.34.2.49-66

[www.communication-society.com](http://www.communication-society.com)

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2021 – Vol. 34(2)

pp. 49-66

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### How to cite this article:

Brenes Peralta, C., Wojcieszak, M. & Lelkes, Y. (2021). Can I Stick to My Guns? Motivated Reasoning and Biased Processing of Balanced Political Information.

*Communication & Society*, 34(2), 49-

66.

## Can I Stick to My Guns? Motivated Reasoning and Biased Processing of Balanced Political Information

### Abstract

News media offer balanced political messages and many citizens also seek content that presents two sides of a political issue. Despite this supply and demand, most work on information processing tests exposure to one-sided content, i.e., either pro- or counter-attitudinal. We advance this work by studying (1) how balanced and one-sided messages affect information processing; (2) whether the processing of balanced information is moderated by individual motivations; and (3) the impact of balanced exposure on attitude polarization. Using an online experiment ( $N = 677$ ), we primed either accuracy or defensive motivation and examined how participants processed information about two distinct issues (i.e., climate change and Syrian refugees). On both issues, participants were less biased in response to balanced content, compared to one-sided content. In addition, defensive and accuracy motivated people processed balanced content in a similar manner. Furthermore, pro-attitudinal content polarized individual attitudes, but not balanced content, and this effect was not moderated by motivation.

### Keywords

**Attitude congruency bias, disconfirmation bias, motivated reasoning, balanced information, attitude polarization.**

### 1. Introduction

The current media environment offers unprecedented content about politics and public affairs. Studying individual choices, their effects on information processing, and various attitudinal outcomes, political communication scholars have mostly focused on one-sided political content, pro- or counter-attitudinal (e.g., Arceneaux & Johnson, 2013; Garret & Stroud, 2014). That work has shown that people prefer pro- over counter-attitudinal content (e.g., Taber & Lodge, 2006), that they

uncritically accept pro-attitudinal arguments and refute counter-attitudinal ones (e.g., Druckman & Bolsen, 2011), and that this biased information processing is the main reason why people's attitudes become more extreme after exposure to either pro- or counter-attitudinal content (e.g., Garret & Stroud, 2014).

In this paper, we shift this dominant focus away from pro- and counter-attitudinal messages and toward exposure to balanced media messages, those that present both pro- and counter-attitudinal arguments side by side. Examining balanced news content is crucial because –despite that partisan news have become more available (van Aelst *et al.*, 2017)– balanced news reporting is relevant in several democracies (Prior, 2013; Umbricht & Esser,

2014; see also All Sides Media Bias Ratings, 2020). In addition to this “supply side,” growing evidence shows high demand for balanced news and political content (e.g., Reuters Digital News Report, 2020).

Despite the continued supply and the popularity of balanced news, evidence on how people interpret and react to such news is limited and inconsistent. Compared to one-sided information, some work has suggested that people respond to balanced information more open-mindedly (e.g., Metzger, Hartsell & Flanagin, 2020), which could reduce attitude polarization (e.g., Sunstein, 2009). However, other studies have indicated that individuals interpret balanced content in the same biased fashion as one-sided messages, which could exacerbate attitude polarization (see Arceneaux & Johnson, 2015).

One possible explanation for these inconsistencies is that these effects are contingent on individual motivations to process political content. Motivated reasoning theory posits that people driven by defensive motivation process information in biased ways to reinforce their priors, whereas individuals motivated by accuracy are more objective because they seek a correct conclusion (Kunda, 1990). We integrate and extend this work by studying whether defensive and accuracy motivations shape individual processing of balanced political information, compared to one-sided information and –in addition– whether the relationship between balanced exposure and attitude polarization depends on these motivations.

We use data from an online experiment on a Mechanical Turk sample of Americans. First, we randomly assigned participants to a control group or one of two motivation conditions: defensive or accuracy, and later to three message exposure conditions: pro-attitudinal, counter-attitudinal or balanced. Then, we collected data on how participants processed messages about two political issues, refugees and climate change, and –lastly– measured attitude polarization.

## 2. Balanced news in the media environment

Although traditionally, political communication research has focused on how people seek and react to one-sided political news –those that support or oppose an individual’s attitudes towards political issues– we argue that scholars should give equal attention to balanced news content, which is not only continually supplied by news media organizations but also frequently demanded by many citizens.

Despite partisan news has become more available over time (van Aelst *et al.*, 2017) – numerous news media across several countries provide balanced reporting (Prior, 2013; Umbricht & Esser, 2014; All Sides Media Bias Ratings, 2020). Also, algorithmic online news recommendations offer users diverse information –as is characteristic of balanced news (Moller, Trilling, Helberger & van Es, 2018).

This supply of balanced news coverage is complemented by a strong demand for balanced news among news audiences. Extant research has shown that most Americans visit news websites from across the political spectrum (Flaxman, Goel & Rao, 2016), that many users select balanced news as frequently as pro-attitudinal news (e.g., Brenes Peralta, Wojcieszak, Lelkes & de Vreese, 2017; for review see Wojcieszak, Winter & Yu, 2020). Surveys further have showed that the majority of news consumers in Europe, the U.S., and several other nations show strong interest in public-service television (see Reuters Digital News Report, 2020), which prioritize balanced news coverage (van Aelst *et al.*, 2017).

## 3. Biased processing of political arguments

Numerous studies have demonstrated that people process one-sided political messages (i.e., pro- or counter-attitudinal) in a biased manner. Specifically, individuals exhibit two types of cognitive biases: *attitude congruency bias*, such that congenial messages are evaluated as stronger than attitude-discrepant messages, and *disconfirmation bias*, such that people spend cognitive resources bolstering pro-attitudinal messages and denigrating counter-attitudinal

ones (e.g., Heiss, von Sikorski & Matthes, 2019; Taber *et al.*, 2009). It is not clear, however, whether these well-established biases also emerge when people process balanced messages.

Evidence on the subject is limited and inconsistent. One perspective has suggested that people do not perceive balanced messages as neutral, but instead treat them as either supporting or opposing their prior views (e.g., Druckman & Bolsen, 2011). As a result, balanced content is processed in the same biased manner as one-sided messages (e.g., Arceneaux & Johnson, 2015), with people perceiving pro-attitudinal arguments in balanced messages as stronger than counter-attitudinal arguments and uncritically accepting the former while dismissing the latter (Taber *et al.*, 2009). This perspective is reflected in the well-documented hostile media effect (e.g., Gunther, 2017).

However, an alternative perspective has indicated that attitude congruency and disconfirmation biases should be weaker in response to balanced compared to one-sided messages. For instance, research on attitude congruency bias has shown that individuals grant little credibility to counter-attitudinal messages, but they perceive balanced information as more credible than pro-attitudinal messages (Metzger *et al.*, 2020), possibly because people see a balanced message as objective and useful –as it provides diverse perspectives.

Additional research has argued that disconfirmation bias should also be weaker in response to balanced exposure. Although people generally accept pro-attitudinal arguments, this tendency is stronger if information is one-sided, but weaker if a message also contains a competing perspective –as is typical in balanced messages (e.g., Lodge & Taber, 2000). Also, individuals are less likely to refute counter-attitudinal views in balanced, compared to one-sided messages. This may be because individuals must generate their own counter-arguments in response to counter-attitudinal messages, but not to balanced messages, as the latter already include arguments that refute the opposing side (see Lodge & Taber, 2000). Overall people should be less likely to have supporting thoughts about pro-attitudinal arguments and to dismiss counter-attitudinal arguments, when both views are embedded in a balanced message. Given the mixed evidence in the literature, we examine the following research question:

RQ1. How does exposure to balanced messages affect biased information processing (attitude congruency and disconfirmation biases), compared to one-sided message exposure?

In addition to our research question, it is possible that some individuals are more biased in response to balanced information, while others are more open-minded. In other words, we argue that different motivations shape people's reactions to balanced versus one-sided messages.

#### **4. Motivated reasoning and balanced information processing**

Historically, theories such as cognitive dissonance (see Festinger, 1957) and self-reinforcement (e.g., Luthans & Stajovic, 1999) have argued that individuals prefer pro-attitudinal information to reinforce their opinions, and do not attend to information that challenges their prior beliefs. However, both theories do not explain why citizens intentionally seek diverse information diets and how they react to and are affected by them. Motivated reasoning theory, which has been considered a central theory to study the diverse motivations driving the selection and processing of political information, especially in the context of high-choice media environments, attends to these gaps (e.g., Druckman, 2012; Winter, Metzger & Flanagan, 2016).

Motivated reasoning theory posits that motivations determine the cognitive strategies people use to process information (Chaiken, Giner-Sorolla & Chen, 1996; Kunda, 1990). Motivation is defined as “as any wish, desire, or preference to achieve desired outcomes”

(Kunda, 1990, p. 480), and human reasoning is said to rely on two major motivations that guide information processing: a defensive motivation and an accuracy motivation.

A defensive motivation drives people to use cognitive strategies that help them reinforce and protect their existing beliefs, attitudes, and behaviors (Kunda, 1990). Extensive research has shown that attitude congruency and disconfirmation biases are the prevailing strategies used by defensive motivated people to process one-sided information about politics (e.g., Bolsen, Druckman & Cook, 2014; Taber & Lodge, 2006).

In contrast, accuracy motivated individuals use cognitive strategies that are optimal to reach a correct conclusion about a certain issue (Kunda, 1990). These individuals are less likely to rely on attitude congruency and disconfirmation biases to process political messages (Bolsen *et al.*, 2014; Druckman, 2012). Instead, they process information in a more open-minded and unbiased fashion, regardless of whether or not this information is pro-attitudinal (Kunda, 1990).

Conceptually, we view defensive and accuracy motivations as two ends of a continuum because of two reasons. First, drawing on most theories of motivation, one perspective would suggest that defensive and accuracy motivations are part of an underlying continuum, as they both serve higher-order motivations (see Hart, Shaver & Goldberg, 2005). Second, individuals are incapable of pursuing conflicting motivations in the same context – they either protect desired conclusions or reach accurate conclusions. Instead, the strength of defensive and accuracy motivations will vary across individuals (Lodge & Taber, 2000) and situations (Leeper & Slothuus, 2014). This perspective suggests that the strength of each motivation determines whether an individual in a certain context is situated in one or the other end of the motivation continuum, or if both motivations are strong, individuals must compromise between their wish to reach a desired conclusion and the plausibility of that conclusion being true (see Kunda, 1990).

To the best of our knowledge, no extant work has shown how defensive and accuracy motivated individuals respond to the same balanced messages. Nevertheless, previous research provides some insights to expect that individual motivation may influence how balanced information is processed. Specifically, we expect individual motivation (i.e., defensive or accuracy) to moderate the effect of the type of information exposure (i.e., balanced, pro- or counter-attitudinal) on the two mechanisms of biased processing (i.e., attitude congruency bias and disconfirmation bias).

With respect to attitude congruency bias, we argue that a desire among defensive motivated people to reinforce their priors should strongly color their evaluations of balanced messages, and as such, these messages should be processed in the same biased fashion as one-sided information. We propose then that a defensive motivation will drive people to judge balanced and counter-attitudinal messages as weaker, compared to pro-attitudinal messages. On the contrary, we expect accuracy motivated individuals to evaluate the strength of a message based on whether it offers an opportunity to reach a correct conclusion about a certain issue. As such, accuracy motivated people should judge balanced messages as stronger, relative to pro and counter-attitudinal messages.

Therefore, we expect that:

H1a. Defensive motivated people will exhibit stronger attitude congruency bias, such that they will evaluate pro-attitudinal messages as stronger than balanced and counter-attitudinal messages (Hypothesis 1a).

H1b. Accuracy motivated people will exhibit weaker attitude congruency bias, such that they will evaluate balanced messages as stronger than pro- and counter-attitudinal messages (i.e., weaker attitude congruency bias) (Hypothesis 1b).

With respect to the second mechanism of biased reasoning, disconfirmation bias, we argue that defensive motivated people will bolster attitude-reinforcing opinions and denigrate counter-attitudinal arguments when exposed to both one-sided and balanced

messages. Conversely, we expect accuracy motivated individuals to be more open-minded and objective when they must weigh evidence in support and against a certain issue, compared to when the evidence is one-sided. We thus predict that:

H2a. Defensive motivated people will exhibit stronger disconfirmation bias, such that they will be equally likely to bolster pro-attitudinal arguments and denigrate counter-attitudinal arguments in a one-sided message (i.e., pro- or counter-attitudinal), as in balanced messages (Hypothesis 2a).

H2b. Accuracy motivated individuals will exhibit weaker disconfirmation bias, such that they will be less likely to bolster pro-attitudinal arguments and to denigrate counter-attitudinal arguments in balanced messages, compared to one-sided messages (Hypothesis 2b).

## **5. Balanced exposure and Polarization**

Next, we examine how the motivated selection of balanced messages influences attitude polarization, a socially consequential outcome of information exposure. When it comes to one-sided content, extensive research suggests that exposure to pro-attitudinal and counter-attitudinal messages can polarize citizens (e.g., Garret & Stroud, 2014), especially those who already hold extreme political views (Levendusky, 2013). Conversely, other research has shown that counter-attitudinal exposure in social media promotes more moderate views (see Beam, Hutchens & Hmielowski, 2018).

Although exposure to balanced content is seen as a remedy to polarization, in that it could promote mutual understanding between citizens on divisive issues (e.g., Slater, 2007), evidence on its depolarizing effects is inconsistent. Some studies have shown that exposure to political messages can polarize attitudes, regardless of whether people are exposed to one-sided or balanced messages (e.g., Arceneaux & Johnson, 2015); other research has suggested that balanced exposure may constrain polarization, more so than one-sided messages (Levendusky, 2013).

We argue that the extent to which information exposure leads to polarization depends on the interaction between message slant and motivated reasoning, in that people's reactions to balanced messages are influenced by their motivations. On the one hand, we expect that defensive motivated people will polarize in response to balanced exposure because these individuals will process these messages in biased fashion.

H3a. Defensive motivated people will be equally likely to polarize in reaction to balanced messages, compared to one-sided messages (Hypothesis 3a).

On the other hand, if individuals succeed in prioritizing accuracy over the validation of their prior opinions, they are more likely to consider diverse perspectives in an objective and open-minded manner, and therefore, polarization could be constrained.

H3b. Accuracy motivated people will be less likely to polarize in reaction to balanced or counter-attitudinal messages, compared to pro-attitudinal messages (Hypothesis 3b).

## **6. Method**

### **6.1. Study Design**

To examine our research question and hypotheses, we conducted an online experiment with a 3 between-subjects (control, defensive motivation, accuracy motivation) x 3 between-subjects (pro-attitudinal, counter-attitudinal, or balanced messages) x 2 within-subjects (climate change, Syrian refugees) design that examined participants' information processing and attitude polarization. To guard against the possibility that our results are due to idiosyncrasies of a single socio-political topic, we chose two distinct issues that were salient at the time of the project (May 2016): climate change, a scientific and complex issue, and admitting Syrian refugees to the U.S., an issue that is more affective and can be interpreted at

the “gut” level. We used the same stimuli for the climate change issue as we did in our prior work to study the selection of balanced content (Brenes Peralta *et. al.*, 2017).

## 6.2. Participants

We recruited a sample of U.S. participants via *Amazon Mechanical Turk*. Initially, 1020 participants gave their consent to be part of the experiment. Then, only *MTurkers* who expressed attitudes in support or against toward the two issues participated in the experiment (i.e., by design we excluded 331 participants without a directional attitude on both issues). Next, we excluded 12 participants from the experiment because they failed a question that measured whether they paid attention to instructions. Thus, our final sample consisted of 677 participants. The sample was 55% female and 45% male, with an average age of 36.5 years ( $SD = 11.84$ ). Across education attainment, 9% had a high school degree or less, 24% some college but no degree, 14% an Associate degree, 37% a Bachelor’s degree, 12% a Master’s degree, and 4% a Doctorate or professional degree<sup>1</sup>.

## 6.3. Manipulations motivated reasoning

To manipulate accuracy motivation, we developed a priming text based on prior experiments (e.g., Druckman, 2012). In turn, to prime defensive motivation, we designed our own text given that this motivation is rarely manipulated in extant studies. Furthermore, unlike most prior work, we included a control group in which neither defensive nor accuracy motivations were primed. This was necessary to discern whether primed motivations were different from the motivational baseline that control participants pursued in the experimental situation (i.e., to address the contention that people are naturally driven by defensive goals, see Taber & Lodge, 2006).

Participants in the control condition read only the following text:

In this section, we will ask you to read a set of arguments about (Syrian refugees coming to the U.S. or climate change) and you will tell us how WEAK or STRONG you believe each argument is.

In addition to the control text, participants in defensive goal condition were told:

Imagine you will be participating in a debate that will decide whether or not to approve a policy about admitting Syrian refugees into the country / climate change. When rating each argument, consider how useful this argument would be to defend your own position on the issue. As a reminder, you said you (supported/opposed the issue in the pre-questionnaire). Think that you would like to win the debate and the arguments should help you make the best case for your own position.

Those in the accuracy condition read the following text:

Imagine you will be participating in a debate as an unbiased judge that will decide whether or not to approve a policy about (admitting Syrian refugees or climate change). When rating each argument, consider how useful it would be to come to an objective decision. It is important that the decision carefully consider all sides in a neutral way. Think that you would like to thoroughly understand the policy and the arguments should help you come to an evenhanded decision.

## 6.4. Manipulation Checks

In general, most studies on motivated reasoning do not have or do not report manipulation checks. We developed four self-report items as manipulation checks of motivation for

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<sup>1</sup> Compared with the data of the U.S. Census Bureau (2010a, 2010b), our sample is similar in terms of gender and age. However, our sample was more educated than the general population. We computed a weighting variable that we used in all analyses to conform to the distribution of education in the U.S. population. The results of all analyses were the same as those of the unweighted original sample.

information processing on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*), which were presented in a random order: “When I was rating these arguments, I was able to set aside my own prior beliefs,” “I was able to be objective,” “I was able to be evenhanded” and “I was thinking about my own opinion” (reverse coded). An exploratory factor analysis with a maximum likelihood extraction loaded the four items in a single factor, with an eigenvalue of 2.6 and explaining 65.3% of the variance. The resulting manipulation check index had good reliability (Cronbach’s Alpha = .84). Based on our conceptual view of defensive and accuracy motivation as two ends of a motivation continuum, higher scores in the manipulation check indicate movement in the continuum towards an accuracy motivation, whereas lower scores indicate movement towards a defensive motivation.

A one-way ANOVA showed a significant effect of the motivation factor on the manipulation check for the three motivation conditions,  $F_{(2, 674)} = 22.57, p < .001, \eta^2 = .04$ . Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the accuracy motivation condition ( $M = 4.59, SD = 1.22$ ) was significantly higher than the control ( $M = 4.25, SD = .88; \Delta M = .34, p < .01$ ) and defensive motivation conditions ( $M = 4.03, SD = 1.28; \Delta M = .56, p < .001$ ). In addition, control participants scored significantly higher than the defensive motivated ( $\Delta M = .22, p < .05$ ). In short, our manipulations were effective.

### 6.5. Stimulus material

Relying on factual information from existing news articles and issue-specific websites, we developed 18 short messages about climate change and Syrian refugees coming to the U.S. The messages were directly comparable in terms of length (between 75 and 86 words). For each issue, some messages supported the issue (pro-issue messages), some opposed the issue (con-issue messages), and some presented both pro- and con-issue arguments in an even-handed manner (balanced messages).

Each pro and con-issue message contained a lead statement that expressed support or opposition—for example in relation to a U.S. plan to mitigate carbon emissions—followed by three arguments supported by numerical evidence. The lead statement in balanced messages mentioned that some people agree and others disagree with the issue. Then it presented the same pro and con-issue arguments from the one-sided messages. The order of the pro- and con-issue arguments was counter-balanced in the balanced messages. This means that in some balanced messages, pro-issue arguments were mentioned first and con-issue arguments second, whereas this order was reversed in other balanced messages.

In our past work (Brenes Peralta *et al.*, 2017), we pretested the climate change messages on an independent sample of 711 U.S. participants via *MTurk*, to ensure the messages were perceived as intended (i.e., balanced, pro- or con-issue)<sup>2</sup>. We developed the messages about admitting Syrian refugees to the U.S. to mirror the structure of the climate change messages and—given the direct parallels between the messages on the two issues—did not pilot the refugees’ messages.

### 6.6. Procedure

First, a pre-test questionnaire measured participants’ attitudes about climate change mitigation policy and Syrian refugees coming to the U.S., as well as the demographic characteristics. The pre-test also included an attention check question, telling participants they would be presented with a list of emotions to report how they felt, but then instructing

<sup>2</sup> ANOVA results from the pretest showed that the message types only differed on the manipulations of the issue stance,  $F_{(6, 704)} = 2114.40, p < .001$ . Pro-issue messages were rated more as having supporting arguments, compared to balanced and con-issue messages. Con-issue messages were perceived more as having opposing arguments, and balanced messages were perceived more as containing both pro- and con-issue arguments (all  $p < .001$ ). Additionally, all the messages were perceived as equally interesting, understandable, convincing, believable and coherent (all  $p > .05$ ).

them to select the option “none of the emotions above.” Second, participants were randomly assigned to one of three motivated reasoning conditions: control, defensive motivation, or accuracy motivation. Third, within each motivation condition, participants were randomly assigned to one of three message exposure conditions: 1) three pro-attitudinal, 2) three counter-attitudinal or 3) three balanced. We chose three messages per condition to obtain more precise measurements and also to assure that the effects are not due to any particular message alone. If participants were exposed to either pro- or counter-attitudinal messages, the message they read depended on their previously reported issues attitudes (whether pro- or anti-issue; for instance, a pro-refugee participant in the pro-attitudinal message condition read a message supportive of refugees). Within each message condition, participants read three messages about climate change and three about refugees (six messages in total; either balanced, pro- or counter-attitudinal). We randomized the order of issue exposure, which means that participants were randomly exposed to climate change messages, followed by messages about refugees, or vice versa. Immediately after reading each message, participants rated the strength of its argument and listed their thoughts. Finally, participants again reported their attitudes about both issues and answered the manipulation check items.

## 6.7. Measures

### 6.7.1. Climate change attitudes

Participants reported how strongly they opposed or supported a U.S. governmental policy that mitigates climate change by reducing carbon emissions on a 7-point scale (1 = strongly oppose, 7 = strongly support;  $M = 5.63$ ,  $SD = 1.6$ ).

### 6.7.2. Refugees attitudes

Participants reported how strongly they opposed or supported that Syrian refugees came to the U.S., on a 7-point scale (1 = strongly oppose, 7 = strongly support;  $M = 4.39$ ,  $SD = 2.06$ ).

### 6.7.3. Biased processing

We operationalized biased information processing as done in prior research (see Taber *et al.*, 2009). First, we used an *argument-rating task* to test *attitude congruency bias*. After reading a message, participants reported how strong they believed the argument was on a 7-point scale (1 = not at all strong 7 = very strong). Mean scores for climate change messages were 4.47 ( $SD = 1.45$ ) and 4.52 ( $SD = 1.60$ ) for messages about refugees. Second, we used a *thought-listing task* to test *disconfirmation bias*. Participants listed up to five thoughts strictly about each message they read – up to 15 thoughts for a set of three messages. On average, participants reported 7.16 thoughts ( $SD = 4.35$ ) about climate change and 7.8 about refugees ( $SD = 4.39$ ). The content of all listed thoughts was coded by three trained coders (Krippendorff's Alpha = 0.75). For pro- and counter-attitudinal messages, each thought was coded for whether it opposed the argument in the message (e.g., *I do not want refugees here*; in a pro-refugee message) or supported the argument (e.g., *I agree they pose a threat to the country*; in a con-refugee message). Because balanced messages contained pro- and con-issue arguments, we coded each thought as 1) supports pro-issue argument, 2) supports con-issue argument, 3) opposes pro-issue argument, or 4) opposes con-issue argument. Finally, we used the coded data for balanced, pro- and counter-attitudinal messages, to compute two indexes of disconfirmation bias for the entire sample: bolstering thoughts about pro-attitudinal arguments ( $M_{\text{refugees}} = 4.26$ ,  $SD = 4.65$ ;  $M_{\text{climate change}} = 3.42$ ,  $SD = 4.18$ ) and denigrating thoughts about counter-attitudinal arguments ( $M_{\text{refugees}} = 2.73$ ,  $SD = 4.05$ ;  $M_{\text{climate change}} = 2.53$ ,  $SD = 3.86$ ).

### 6.7.4. Polarization

Participants reported again their issue attitudes about climate change ( $M = 5.42$ ,  $SD = 1.7$ ) and refugees ( $M = 4.26$ ,  $SD = 2.04$ ) at the end of the experiment. Polarization is typically defined

and operationalized as the increasing extremity in individual issue attitudes (i.e., whether issue attitudes became more extreme in the posttest, relative to the pretest; see Levendusky, 2013). Following this standard operationalization, we first determined the closest endpoint on the 7-point attitude scale. For example, if a participant's pretest attitude score was between 1 and 3, the closest endpoint was 1. For those with values of 5 and 7, the endpoint was 7. Second, we calculated the difference between pre- and post-test attitudes. Third, we estimated the direction and degree of polarization by looking at attitude change away or towards the closest scale endpoint. This resulted in an index in which a positive difference between pre- and post-test attitude scores indicated polarization, a negative difference depolarization, and zero for those participants who did not change their attitudes between the pretest and posttest measurements.

### 6.8. Randomization check

To ensure that random assignment to the motivation conditions (i.e., accuracy, defensive, control) was successful, we compared these groups on several measures of our baseline questionnaire. Randomization was successful; participants across motivation conditions did not differ significantly on *climate change attitudes*,  $F(2, 674) = 1.03$ ,  $p = .36$ , *attitudes towards refugees*,  $F(2, 674) = 2.8$ ,  $p = .06$ , *age*,  $F(2, 674) = .05$ ,  $p = .95$ , *gender*,  $\chi^2(2, N = 677) = 3.65$ ,  $p = .16$ , and *education*,  $\chi^2(14, N = 677) = 9.92$ ,  $p = .77$ .

### 6.9. Data Analysis

We conducted several factorial ANOVAS with Tukey HSD test for post-hoc comparisons to examine Research Question 1 and Hypotheses 1 through 3. First, we examined the effects of message type (i.e., pro-, counter-attitudinal or balanced) on each of the information processing variables (i.e., argument strength, bolstering thoughts about pro-attitudinal arguments, and denigrating thoughts about counter-attitudinal arguments) (Research Question 1). Second, we estimated the interaction effects of message type and the three motivation conditions on information processing (Hypotheses 1 thru 2). Finally, we tested the extent to which message type and motivation predicted polarization (Hypotheses 3a, 3b).

## 7. Results

### 7.1. Effects of message type on attitude congruency and disconfirmation biases

We start by answering Research Question 1, which examined how exposure to balanced messages affect biased information processing (attitude congruency and disconfirmation biases), compared to one-sided message exposure (see Table 1). Participants rated pro-attitudinal messages as stronger than balanced and counter-attitudinal messages about climate change,  $F(3, 677) = 148.05$ ,  $p < .001$ ,  $\eta_p^2 = .31$ , and refugees,  $F(3, 677) = 178.38$ ,  $p < .001$ ,  $\eta_p^2 = .35$ . These results indicate that people exhibit attitude congruency bias when evaluating information: pro-attitudinal messages are perceived as having stronger arguments than those presented in balanced and counter-attitudinal messages.

Next, we tested the impact of message type on disconfirmation bias (bolstering pro-attitudinal arguments and denigrating counter-attitudinal arguments). We found that participants wrote down fewer thoughts that supported pro-attitudinal arguments about climate change,  $F(2, 674) = 326.39$ ,  $p < .001$ ,  $\eta_p^2 = .49$ , and refugees,  $F(2, 674) = 354.72$ ,  $p < .001$ ,  $\eta_p^2 = .52$ , when the arguments were presented in balanced messages, compared to the number of supportive thoughts written in response to the arguments in pro-attitudinal messages. Second, participants were less likely to refute counter-attitudinal arguments about climate change,  $F(2, 674) = 340.47$ ,  $p < .001$ ,  $\eta_p^2 = .51$ , and refugees,  $F(2, 674) = 354.72$ ,  $p < .001$ ,  $\eta_p^2 = .52$ , when these were presented in balanced messages, compared to the same arguments presented in counter-attitudinal messages. Taken together, we found that a disconfirmation bias is weaker when people process balanced messages, compared to one-sided messages. Individuals are

less likely to think positively of pro-attitudinal arguments and less likely to refute counter-attitudinal arguments when these are embedded in balanced messages.

**Table 1:** Means and standard deviations of biased processing across message type exposure.

Message type	Attitude congruency bias		Disconfirmation bias			
			Bolstering thoughts pro-attitudinal arguments		Denigrating thoughts counter-attitudinal arguments	
	Climate change	Refugees	Climate change	Refugees	Climate change	Refugees
Pro-attitudinal	5.49 ( <i>SD</i> = .99)	5.75 ( <i>SD</i> = 1.0)	7.13 ( <i>SD</i> = 4.45)	8.38 ( <i>SD</i> = 4.30)	-	-
Balanced	4.40 ( <i>SD</i> = 1.17)	4.39 ( <i>SD</i> = 1.08)	3.13 ( <i>SD</i> = 2.63)	4.48 ( <i>SD</i> = 3.38)	1.21 ( <i>SD</i> = 1.63)	1.38 ( <i>SD</i> = 1.63)
Counter-attitudinal	3.54 ( <i>SD</i> = 1.44)	3.47 ( <i>SD</i> = 1.68)	-	-	6.21 ( <i>SD</i> = 4.39)	6.74 ( <i>SD</i> = 4.57)

Note. In each column, differences in mean scores among the three message types were all significant at  $p < .001$ .

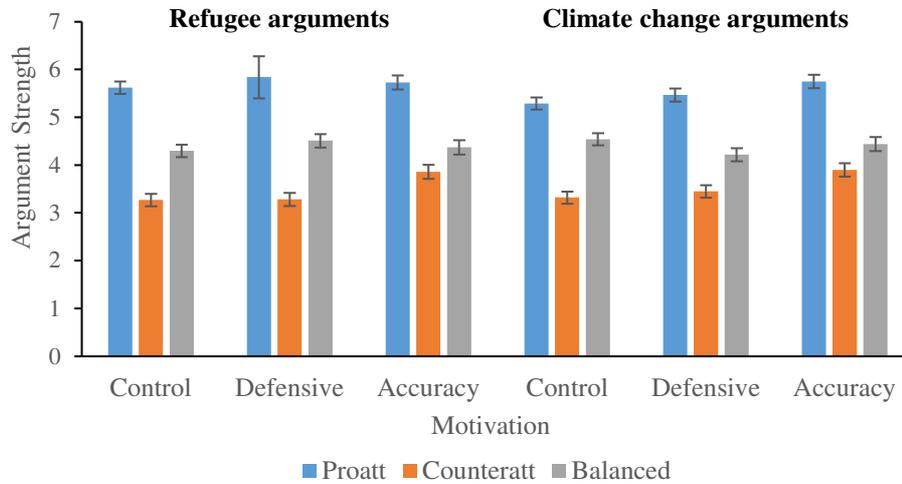
Source: Own elaboration.

### 7.2. The moderating role of motivation on information processing

The second goal of our study was to test whether people with different motivations process balanced information in similar or less biased ways, compared to one-sided messages. We start by testing hypothesis 1a, which stated that defensive motivated people would exhibit stronger attitude congruency bias by evaluating pro-attitudinal messages as stronger than balanced and counter-attitudinal messages. We then expected that accuracy driven individuals would show weaker attitude congruency bias by judging balanced messages as stronger than pro- and counter-attitudinal messages (hypothesis 1b). Both hypotheses were rejected according to our findings.

The interaction effect of motivation and message type on how strongly participants perceived different messages was non-significant for both issues (refugees  $F(4, 668) = 1.73, p = .14$ ; climate change  $F(4, 668) = 1.91, p = .11$ ), indicating that motivation did not moderate the effect of message exposure on attitude congruency bias. Instead, accuracy and defensive motivated participants and those in the control group exhibited similar levels of attitude congruency bias –in all three groups, pro-attitudinal messages were evaluated as stronger than balanced and counter-attitudinal messages (see Figure 1).

**Figure 1:** Average scores of the argument strength of message types across motivation groups.

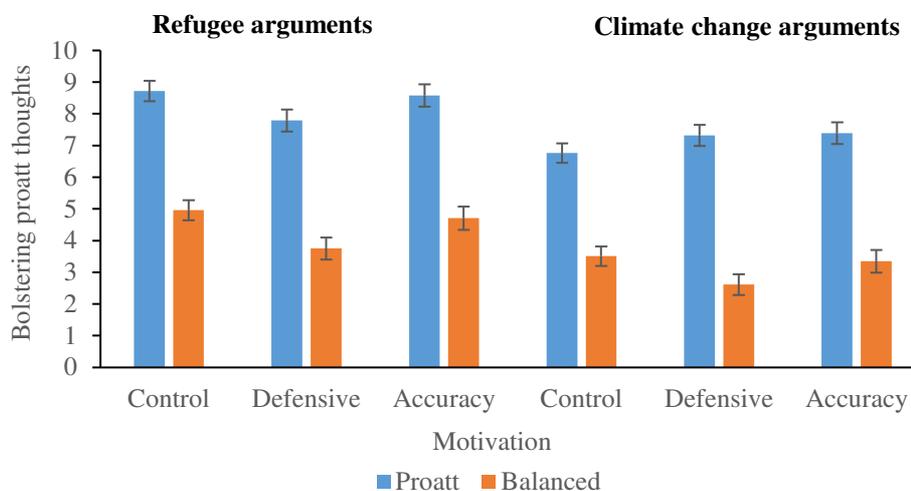


Source: Own elaboration.

Next, we tested hypothesis 2a, which posited that defensive motivated people would exhibit stronger disconfirmation bias (bolstering pro-attitudinal arguments and refuting counter-attitudinal arguments), such that they would be equally likely to bolster pro-attitudinal arguments and denigrate counter-attitudinal arguments in one-sided messages, as in balanced messages. And we tested hypothesis 2b, according to which accuracy motivated people would show a weaker disconfirmation bias, such that they would be less likely to bolster pro-attitudinal arguments and to denigrate counter-attitudinal arguments in balanced messages, compared to one-sided messages.

Our results reject hypothesis 2a. Motivation did not moderate the effect of message type on bolstering thoughts about pro-attitudinal arguments (refugees  $F(4, 668) = .90, p = .47$ ; climate change  $F(4, 668) = 1.28, p = .28$ ). Instead, the number of bolstering thoughts in response to pro-attitudinal and balanced messages did not differ between individuals motivated by accuracy and those driven by a defensive motivation (see Figure 2).

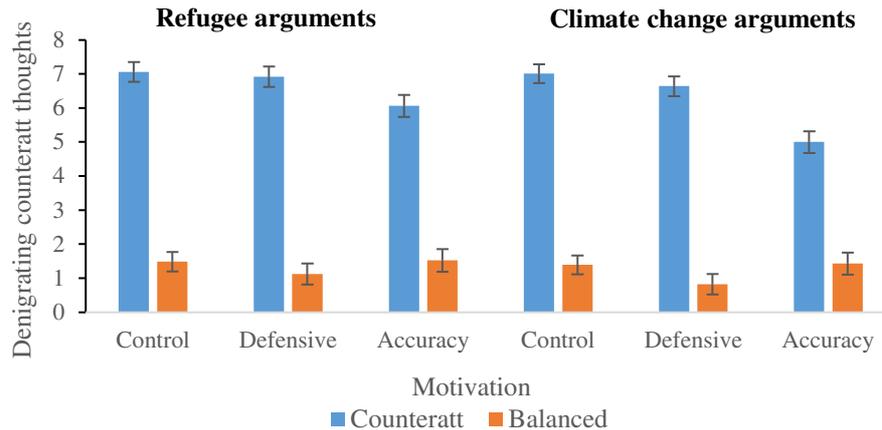
**Figure 2:** Average number of bolstering thoughts about pro-attitudinal arguments across motivation groups.



Source: Own elaboration.

Hypothesis 2b was mostly rejected. For the refugees issue, the relation between message type and refuting counter-attitudinal arguments was not moderated by motivation,  $F(4, 668) = .122$ ,  $p = .30$ . On climate change, accuracy motivated participants refuted counter-attitudinal messages less ( $M = 5.0$ ;  $SD = 3.64$ ), than defensive motivated participants ( $M = 6.64$ ;  $SD = 4.29$ ) and those in the control group ( $M = 7.01$ ;  $SD = 4.84$ ,  $p < .001$ ),  $F(4, 668) = 4.60$ ,  $p < .01$ ,  $\eta^2 = .03$  (see Figure 3).

**Figure 3:** Average number of denigrating thoughts about counter-attitudinal arguments across motivation groups.



In sum, the results indicate that attitude congruency bias emerges similarly across defensive and accuracy motivated people, as both groups judged pro-attitudinal messages as stronger than balanced and counter-attitudinal. Furthermore, both motivation groups showed a weaker disconfirmation bias in response to balanced messages, relative to one-sided ones. Given the similarities in the processing of different political messages between individuals driven by defensive and accuracy motivations, hypotheses 1 thru 2 were not supported.

### 7.3. Effects of message exposure on polarization

The last objective of this project was to examine attitude polarization as a result of exposure to balanced versus one-sided messages, and also test whether the potential resulting polarization varies with individual motivations (hypotheses 3a, 3b).

We do find a significant effect of message type on polarization for climate change,  $F(2, 674) = 3.34$ ,  $p < .05$ ,  $\eta^2 = .01$ , and a marginally significant effect for refugees,  $F(2, 674) = 2.59$ ,  $p = .07$ ,  $\eta^2 = .01$ . On climate change, participants polarized less in response to balanced exposure ( $M = -.62$ ,  $SD = 1.42$ ), compared to pro-attitudinal exposure ( $M = -.31$ ,  $SD = 1.20$ ,  $p < .05$ ). However, the results for the refugees issue differ. Not balanced, but counter-attitudinal messages ( $M = -.84$ ,  $SD = 1.63$ ) lead to lower polarization relative to pro-attitudinal exposure ( $M = -.56$ ,  $SD = 1.71$ ,  $p < .05$ ).

Next, we tested hypotheses 3a and 3b, according to which defensive motivated people would be equally likely to polarize in reaction to balanced messages, compared to one-sided messages (H3a); whereas people motivated by accuracy would be less likely to polarize in reaction to balanced or counter-attitudinal messages, compared to pro-attitudinal messages (H3b). The interaction effect of motivation and message type on polarization was non-significant for climate change,  $F(4, 668) = 1.50$ ,  $p = .20$ , and refugees,  $F(4, 668) = 1.60$ ,  $p = .17$ . Thus, we reject both hypotheses as motivations did not moderate the effect of message exposure on polarization.

### 7.3.1. Additional analyses on polarization

We conducted a multivariate regression analysis to test whether biased information processing and individual motivations predicted attitude polarization. The first model included as predictors the three biased processing variables (attitude congruency bias, bolstering thoughts about pro-attitudinal arguments and denigrating thoughts about counter-attitudinal arguments) and individual motivation (accuracy, defensive and the control group as the reference category). The second model included interaction terms between the three biased processing variables and our motivation groups.

Overall, the results showed little evidence that attitude polarization was influenced by biased information processing and individual motivations. The first model found that an attitude congruency bias lead to more extreme attitudes, but this effect was small and only for climate change ( $b = .10, p < .05$ ). Furthermore, results for both issues showed that the two disconfirmation bias variables had null effects on polarization. Looking at the second model, motivation did not moderate the relationship between the three biased processing variables and polarization.

Because these null results contradict previous research (e.g., Taber & Lodge, 2006), we tested several different regression models to guard against the possibility that our results are due to the way we operationalized polarization. Around 25% of our sample reported extreme attitudes in the pretest, i.e., at the very end of the attitude scales. It is difficult to detect polarization among these extreme cases because attitude change is constricted by the upper and lower bounds of the scale and regression to the mean (see Taber & Lodge, 2006). Therefore, we retested the multivariate regression models without the extreme cases.

Furthermore, we also conducted a logistic regression to test the effects of processing and its interaction with motivation on attitude polarization, using the less nuanced, but more powerful, binary polarization index, which assigns a value of 1 to those who –at the posttest– reported an attitude that was more extreme than their pretest attitude as well as to those at the extremes of the scales, and value 0 to those who did not change their attitudes or depolarized (see Wojcieszak, 2011). Using a multinomial logistic regression, we also tested a trinary polarization index, which assigns value -1 to those who depolarized, value 0 to those who did not move their attitudes, including those at the extreme ends of the scales, and value 1 to those who moved toward their initial attitude.

In all these cases, we find consistently that attitude polarization was not predicted by information processing or its interaction with motivation. Testing our predictions across these different models and operationalizations assures that the way we measured polarization is not responsible for these effects.

## 8. Discussion

In this article, we examined how people process balanced and one-sided messages about two contested sociopolitical issues, climate change and Syrian refugees. In addition, we tested whether information processing differs between people motivated to defend their existing opinions versus those motivated to reach an accurate conclusion. Finally, we studied how exposure to one-sided and balanced messages influences attitudinal polarization, and whether such outcomes varied across people with different motivations.

Our first finding concerns the processing of balanced messages, relative to one-sided messages. We found that the extent to which people rely on attitude congruency and disconfirmation biases to process information depends on the type of information they encounter. For one, consistent with most prior research (e.g., Gunther, 2017), we show that people perceive pro-attitudinal messages as stronger than balanced and counter-attitudinal messages. In other words, individuals exhibit attitude congruency bias. In contrast, our findings on disconfirmation bias show that balanced exposure forces people to think about

conflicting political perspectives in a more even-handed way. Thus, compared to one-sided messages, individuals rely less on a disconfirmation bias to interpret balanced information.

Our second key finding regards how individual motivations affect the processing of balanced and one-sided messages. In line with motivated reasoning theory (Kunda, 1990) and extant research on the processing of one-sided messages (e.g., Bolsen, Druckman & Cook, 2014), we found that people in search of accurate conclusions about climate change are more open-minded towards counter-attitudinal messages, whereas individuals driven by a defensive motivation and those assigned to the control group are more likely to use their cognitive resources to refute this type of messages.

Most notably we find that both people driven by defensive and accuracy motivations evaluate and think about balanced messages in the same way. To explain these similar processing patterns, we can draw on motivated reasoning theory, and speculate that exposure to balanced messages imposes *reality constraints* that limit the influence of defensive and accuracy motivations on information processing (see Chaiken *et al.*, 1996; Kunda, 1990). Typically, defensive motivated individuals rely on biased processing mechanisms to justify their desired conclusions. However, the extent to which these individuals are capable of being biased is limited by their need to also appear objective, a limit that could be triggered by exposure to balanced information. In contrast, accuracy motivated individuals desire to reach correct conclusions, but they may fall short of this goal if pro-attitudinal views in balanced messages reminds them of their prior opinions, which in turn limits their capacity to be unbiased.

Our third set of findings regards attitude polarization. Consistent with prior work (e.g., Arceneaux & Johnson, 2015), we find that people exposed to pro-attitudinal messages polarized more than those presented with balanced information about climate change or counter-attitudinal content about refugees. Mostly importantly, our findings indicate that exposure to balanced content prevents people's attitudes from becoming more extreme (e.g., Levendusky, 2013). However, we do not find a depolarizing effect of balanced messages, which contradicts the argument of some scholars that exposure to counter-attitudinal arguments, be it in one-sided (Garret *et al.*, 2014) or balanced messages (Matthes & Valenzuela, 2012), can counter political polarization.

Our results also show that motivation did not moderate the effects of balanced exposure on attitude polarization. This may be because we looked for evidence on a wrong outcome variable. Some work suggests that message exposure among motivated reasoners does not lead to attitude change, but instead to increased certainty in prior opinions (see Leeper, 2014). Other work indicates that exposure to two-sided messages increases attitude certainty more than one-sided messages (Rucker, Petty & Briñol, 2008). Therefore, it is plausible that we would have detected some differences between the conditions had we tested attitude certainty or importance as an outcome of message exposure and information processing. Alternatively, our treatments of motivated reasoning may have made participants aware of their initial attitudes, and as a result, made the participants more committed to these attitudes and increased their resistance to persuasion. Perhaps, had we used an implicit measure of issue attitudes, or had we used a stronger measurement consisting of multiple items, we would have observed more attitude change.

Finally, we did not find evidence to support the notion that biased processing and motivations explain the effects of exposure on attitude polarization. This consistent pattern of null effects emerged across different models (e.g., with and without extreme attitude cases) and using several different ways of computing attitude polarization, for example, whether a difference score or a binary or trinary index. These null effects were also parallel for the two very distinct sociopolitical issues tested, indicating that it is not the case that biased processing and one's motivation fail to polarize attitudes on some issues (e.g., the more complex scientific ones like the climate change) but lead to strong polarizing effects on others

(e.g., more value laden and hot-button issues, such as the refugees). It may be the case that information processing does not lead to polarization, and instead, future research should systematically test other mechanisms that can better explain the relationship between exposure and polarization. However, before accepting such an overarching and arguably controversial conclusion, other studies should replicate our findings with different convenience or representative samples, on different issues, and with different polarization measures (see Wojcieszak, 2011).

Relatedly, another limitation of our study is that our reliance on the Mechanical Turk sample restricts the generalizability of our findings. That said, in comparison with other convenience samples, *MTurk* samples are demographically more representative and diverse (e.g., Berinsky, Huber & Lenz, 2012). Furthermore, compared to nationally representative samples, the same results on identical studies have been found with *MTurk* samples (Mullinix, Leeper, Druckman & Freese, 2015). Also, because our project aimed to pinpoint specific psychological mechanisms and causal effects, instead of making population estimates, the lack of a generalizable sample is not crucial.

Aside from these limitations, our findings suggest several avenues for future research. For example, the stimulus material we designed presented statistical evidence to argue a certain position. However, most news stories also contain other forms of evidence, such as personal stories. Research finds that exposure to such stories makes people more receptive to and less likely to argue against counter-attitudinal arguments (e.g., Wojcieszak & Kim, 2016). It is thus possible that the observed processing patterns do not generalize to other types of messages available in the media. Future studies should test whether different characteristics of political content, such as types of evidence or visuals moderate the processing and the effects of balanced exposure.

In addition, we encourage scholars to explore whether the effects would be different with news stories that additionally contained some partisanship cues. We focused on the perspective through which a news story described the two political issues, whether supportive or oppositional. This approach aligns with some prior work (e.g., Knobloch-Westerwick & Meng, 2009) and is more suitable for multi-party systems, in which certain issues are not “owned” by one specific party, or for media systems, in which certain media outlets are not automatically categorized as being from the left or the right. However, in the U.S. context, which we studied, including mentions of political parties or logos of new media organizations might have strengthened motivated reasoning (see Druckman, 2012) and affected processing patterns, for example, by increasing the likelihood that defensive motivated people would be more biased in response to balanced information.

As another suggestion for future research, we focused on the often studied defensive and accuracy goals, finding that they did not shape the processing of balanced messages. However, we did not study the influence of other motivations, such as impression motivation, which can be important given that online news contain diverse social cues that can be used by audiences to inform or endorse their own interpretations about a message (see Winter *et al.*, 2016). Because our messages did not contain any social cues, this motivation was less relevant for our purposes. Yet future research should design experiments that test how impression motivation interacts with balanced exposure in general, and especially in the context of news exposure on social media.

What implications do our findings have for research on information processing, motivated reasoning, and attitude polarization? First, our results support the argument that people are biased reasoners when interpreting political information. But we also offer an important caveat to this argument, showing that individual reasoning is also shaped by the information environment, and that balanced messages can promote more even-handed processing (e.g., weaker disconfirmation bias). Second, we show that individuals with different motivations respond to balanced political messages in the same way, which matters

because exposure to balanced information promotes more even-handed thinking –even among those who typically rely on cognitive biases to protect and reinforce their attitudes towards contested political issues.

Third, although exposure to balanced political views may not promote more moderate views, it prevents an increase in attitude polarization among different groups of citizens, compared to exposure to pro-attitudinal information. This is an important outcome of this study because polarization can cause individuals to develop different conceptions of reality and factual truth (Manjoo, 2008), be less tolerant to opposing political views (Sunstein, 2009), and be more willing to abandon democratic principles for partisan interests (Svolik, 2019). Therefore, countering political polarization is crucial to protect and preserve democratic systems.

Our findings reinforce the argument that political communication research should expand their traditional focus on studying exposure to one-sided messages, and devote more attention to balanced exposure, which is not only present in the current media environment, but also valued by many citizens (see, e.g., Wojcieszak *et al.*, 2020).

Balanced political information has important value in democratic systems. It encourages citizens to be more open-minded about divisive political issues of the day and has the power to do so even among individuals motivated to protect their prior opinions. Because of this, balanced news coverage can help citizens develop better-informed opinions, which is ultimately indispensable for the proper functioning of any democracy.

We wish to acknowledge the great support of Prof. Dr. Claes de Vreese (University of Amsterdam) in all the stages of this original research.

## References

- All Sides (2020). Media Bias Ratings. Retrieved from [https://www.allsides.com/media-bias/media-bias-ratings?field\\_featured\\_bias\\_rating\\_value=All&field\\_news\\_source\\_type\\_tid%5B2%5D=2&field\\_news\\_bias\\_nid\\_1%5B2%5D=2&title=](https://www.allsides.com/media-bias/media-bias-ratings?field_featured_bias_rating_value=All&field_news_source_type_tid%5B2%5D=2&field_news_bias_nid_1%5B2%5D=2&title=)
- Arceneaux, K. & Johnson, M. (2013). *Changing Minds Or Changing Channels? Partisan News in an Age of Choice*. Chicago, IL: University of Chicago Press.
- Arceneaux, K. & Johnson, M. (2015, April 16–19). *How Mainstream News Can Polarize America, Too*. Paper presented at the annual meeting of the Midwest Political Science Association, Chicago, IL, USA.
- Beam, M. A., Hutchens, M. J. & Hmielowski, J. D. (2018). Facebook news and (de) polarization: reinforcing spirals in the 2016 US election. *Information, Communication & Society*, 21(7), 940–958. <https://www.doi.org/10.1080/1369118X.2018.1444783>
- Berinsky, A. J., Huber, G. A. & Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon.com's Mechanical Turk. *Political Analysis*, 20, 351–368. <https://www.doi.org/10.1093/pan/mpro57>
- Bolsen, T., Druckman, J. N. & Cook, F. L. (2014). The influence of partisan motivated reasoning on public opinion. *Political Behavior*, 36, 235–262. <https://www.doi.org/10.1007/s11109-013-9238-0>
- Brenes Peralta, C., Wojcieszak, M., Lelkes, Y. & de Vreese, C. (2017). Selective exposure to balanced content and evidence type: The case of issue and non-issue publics about climate change and health care. *Journalism & Mass Communication Quarterly*, 94(3), 833–861. <https://www.doi.org/10.1177/1077699016654681>
- Chaiken, S., Giner-Sorolla, R. & Chen, S. (1996). Beyond accuracy: Defense and impression motives in heuristic and systematic information processing. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 553–578). New York, NY: Guilford Press.

- Druckman, J. N. (2012). The politics of motivation. *Critical Review*, 24, 199–216.  
<https://www.doi.org/10.1080/08913811.2012.711022>
- Druckman, J. N. & Bolsen, T. (2011). Framing, motivated reasoning, and opinions about emergent technologies. *Journal of Communication*, 61, 659–688.  
<https://www.doi.org/10.1111/j.1460-2466.2011.01562.x>
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Flaxman, S., Goel, S. & Rao, J. M. (2016). Filter bubbles, echo chambers, and online news consumption. *Public opinion quarterly*, 80(S1), 298–320.  
<https://www.doi.org/10.1093/poq/nfwo06>
- Garrett, R. K., Gvirsman, S. D., Johnson, B. K., Tsifti, Y., Neo, R. & Dal, A. (2014). Implications of Pro-and Counterattitudinal Information Exposure for Affective Polarization. *Human Communication Research*, 40, 309–332. <https://www.doi.org/10.1111/hcre.12028>
- Garrett, R. K. & Stroud, N. J. (2014). Partisan Paths to Exposure Diversity: Differences in Pro and Counter attitudinal News Consumption. *Journal of Communication*, 64, 680–701.  
<https://www.doi.org/10.1111/jcom.12105>
- Gunther, A. C. (2017). Hostile media effect. *The International Encyclopedia of Media Effects*, 1–10. <https://www.doi.org/10.1002/9781118783764.wbieme0068>
- Hart, J., Shaver, P. R. & Goldenberg, J. L. (2005). Attachment, self-esteem, worldviews, and terror management: Evidence for a tripartite security system. *Journal of Personality and Social Psychology*, 88, 999–1013. <https://www.doi.org/10.1037/0022-3514.88.6.999>
- Heiss, R., von Sikorski, C. & Matthes, J. (2019). Populist Twitter Posts in News Stories: Statement Recognition and the Polarizing Effects on Candidate Evaluation and Anti-Immigrant Attitudes. *Journalism Practice*, 13(6), 742–758.  
<https://www.doi.org/10.1080/17512786.2018.1564883>
- Knobloch-Westerwick, S. & Meng, J. (2009). Looking the Other Way Selective Exposure to Attitude-Consistent and Counter attitudinal Political Information. *Communication Research*, 36, 426–448. <https://www.doi.org/10.1177/0093650209333030>
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, 108, 480–498.  
<https://www.doi.org/10.1037/0033-2909.108.3.480>
- Leeper, T. J. (2014). The informational basis for mass polarization. *Public Opinion Quarterly*, 78, 27–46. <https://www.doi.org/10.1093/poq/nft045>
- Leeper, T. J. & Slothuus, R. (2014). Political parties, motivated reasoning, and public opinion formation. *Political Psychology*, 35, 129–156. <https://www.doi.org/10.1111/pops.12164>
- Levendusky, M. S. (2013). Why do partisan media polarize viewers? *American Journal of Political Science*, 57, 611–623. <https://www.doi.org/10.1111/ajps.12008>
- Lodge, M. & Taber, C. (2000). Three steps toward a theory of motivated political reasoning. In A. Lupia, M. McCubbins & S. Popkin (Eds.), *Elements of reason: Cognition, choice, and the bounds of rationality* (pp. 183–213). Cambridge, UK: Cambridge University Press.
- Luthans, F. & Stajkovic, A. (1999). Reinforce for performance: The need to go beyond pay and even rewards. *Academy of Management Perspectives*, 13(2), 49–57.  
<https://www.doi.org/10.5465/AME.1999.1899548>
- Manjoo, F. (2008). *True Enough: Learning to Live in a Post-Fact Society*. New York, NY: Wiley.
- Matthes, J. & Valenzuela, S. (2012, May). Who learns from cross-cutting exposure? Motivated reasoning, counterattitudinal news coverage, and awareness of oppositional views. In *Manuscript presented at the annual conference of International Communication Association*. Phoenix, US.
- Metzger, M. J., Hartsell, E. H. & Flanagin, A. J. (2020). Cognitive dissonance or credibility? A comparison of two theoretical explanations for selective exposure to partisan news. *Communication Research*, 47(1), 3–28. <https://www.doi.org/10.1093/comres/cvz013>
- Möller, J., Trilling, D., Helberger, N. & van Es, B. (2018). Do not blame it on the algorithm: an empirical assessment of multiple recommender systems and their impact on content

- diversity. *Information, Communication & Society*, 21(7), 959-977.  
<https://www.doi.org/10.1080/1369118X.2018.1444076>
- Mullinix, K., Leeper, T., Druckman, J. & Freese, J. (2015). *The Generalizability of Survey Experiments*. *Journal of Experimental Political Science*, 2, 109-138.  
<https://www.doi.org/10.1017/xps.2015.19>
- Newman, N., Fletcher, R., Schulz, S. & Nielsen, R. (2020) Reuters Institute Digital News Report 2020. [online] Reuters Institute for the Study of Journalism. Retrieved from [https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2020-06/DNR\\_2020\\_FINAL.pdf](https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2020-06/DNR_2020_FINAL.pdf)
- Prior, M. (2013). Media and political polarization. *Annual Review of Political Science*, 16, 101-127.  
<https://www.doi.org/10.1146/annurev-polisci-100711-135242>
- Rucker, D. D., Petty, R. E. & Briñol, P. (2008). What's in a frame anyway? A meta-cognitive analysis of the impact of one versus two-sided message framing on attitude certainty. *Journal of Consumer Psychology*, 18, 137-149.  
<https://www.doi.org/10.1016/j.jcps.2008.01.008>
- Slater, M. D. (2007). Reinforcing Spirals: The Mutual Influence of Media Selectivity and Media Effects and Their Impact on Individual Behavior and Social Identity. *Communication Theory*, 17, 281-303. <https://www.doi.org/10.1111/j.1468-2885.2007.00296.x>
- Svolik, M. W. (2019). Polarization versus democracy. *Journal of Democracy*, 30(3), 20-32.
- Sunstein, C. (2009). *Going to Extremes: How Like Minds Unite and Divide*. New York: Oxford University Press.
- Taber, C. S. & Lodge, M. (2006). Motivated skepticism in the evaluation of political beliefs. *American Journal of Political Science*, 50, 755-769. <https://www.doi.org/10.1111/j.1540-5907.2006.00214.x>
- Umbricht, A. & Esser, F. (2014). Changing Political News? Long-Term Trends in American, British, French, Italian, German, and Swiss Print Media Reporting. *Political Journalism in Transition: Western Europe in a Comparative Perspective*, 195-217.
- U. S. Census Bureau. (2010a). *Age and Composition: 2010*. Retrieved November 25, 2014, from <http://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf>
- U. S. Census Bureau. (2010b). *Educational Attainment in the United States: 2010*. Retrieved November 25, 2014, from <https://www.census.gov/hhes/socdemo/education/data/cps/2010/tables.html>
- Van Aelst, P., Strömbäck, J., Aelberg, T., Esser, F., de Vreese, C., Matthes, J., Hopmann, D., Salgado, S., Hubé, N., Stepinska, A., Papathanassopoulos, S., Berganza, R., Legnante, G., Reinemann, C., Sheafer, T. & Stanyer, J. (2017). Political communication in a high-choice media environment: a challenge for democracy? *Annals of the International Communication Association*, 41, 3-27. <https://www.doi.org/10.1080/23808985.2017.1288551>
- Winter, S., Metzger, M.J. & Flanagin, A.J. (2016). Selective Use of News Cues: A Multiple-Motive Perspective on Information Selection in Social Media Environments. *Journal of Communication*, 66, 669-693. <https://www.doi.org/10.1111/jcom.12241>
- Wojcieszak, M. (2011). Deliberation and attitude polarization. *Journal of Communication*, 61(4), 596-617. <https://www.doi.org/10.1111/j.1460-2466.2011.01568.x>
- Wojcieszak, M. & Kim, N. (2016). How to improve attitudes toward disliked groups: The effects of narrative versus numerical evidence on political persuasion. *Communication Research*, 43(6), 785-809. <https://www.doi.org/10.1177/0093650215618480>
- Wojcieszak, M., Winter, S. & Yu, X. (2020). Social norms and selectivity: Effects of norms of open-mindedness on content selection and affective polarization. *Mass Communication and Society*, 1-29. <https://www.doi.org/10.1080/15205436.2020.1714663>