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Partisan Selective Sharing: The Biased Diffusion of Fact-Checking Messages on Social Media

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Using large Twitter datasets collected during the 2012 U.S. presidential election, we examined how partisanship shapes patterns of sharing and commenting on candidate fact-check rulings. Our results indicate that partisans selectively share fact-checking messages that cheerlead their own candidate and denigrate the opposing party's candidate, resulting in an ideologically narrow flow of fact checks to their followers. We also find evidence of hostile media perception in users' public accusations of bias on the part of fact-checking organizations. Additionally, Republicans showed stronger outgroup negativity and hostility toward fact checkers than Democrats. These findings help us understand "selective sharing" as a complementary process to selective exposure, as well as identifying asymmetries between partisans in their sharing practices.

Political fact-checking, which focuses on verifying political actors' claims, has grown into an explosive phenomenon over the last half-decade. Unlike traditional journalism, which emphasizes detached objectivity and adheres to the "he said, she said" style of reporting, contemporary fact-checking directly engages in adjudicating factual disputes by publicly deciding whose claim is correct or incorrect (Graves, 2016). Due to its unique format and contribution to the political sphere, the popularity of fact-checking has been on the rise, generating a 300% increase in fact-checking stories from 2008 to 2012 (Graves & Glaisyer, 2012). Today, nearly every national news outlet incorporates fact-checking features into their political coverage (Graves, Nyhan, & Reifler, 2016).

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Despite the upsurge of interest, our understanding of the broader impact of the fact-checking phenomenon is still limited. Recent studies have evaluated fact-checking as an effective intervention in improving political knowledge and reducing belief in misinformation (Fridkin, Kenney, & Wintersieck, 2015; Nyhan & Reifler, 2015; Weeks, 2015; Wood & Porter, 2016). However, most of these studies are experiments that require participants to read fact-checking messages that they may not normally choose to consume. The literature on political polarization and selective exposure casts doubt on the assumption that partisans seek out content that challenges their views (Iyengar & Hahn, 2009; Stroud, 2008; Sunstein, 2001). In addition, given the current media environment where exposure to news depends significantly on what your friends share on social media (Bakshy, Messing, & Adamic, 2015; Gottfried & Shearer, 2016), the visibility of fact-checking messages may be affected by the phenomenon of *selective sharing*: the extent to which individuals share primarily attitude-consistent content with their social networks. If the selective sharing tendency is strong, the objective of fact-checking messages—providing the public with accurate information on both sides of the political spectrum—becomes less realistic in practice.

Moreover, examining fact-check recipients' responses in their usual social settings is critical to understanding the role of norms and perceptions shared among partisan group members. In the United States, there is a significant gap between members of Republican and Democratic parties in their perceptions of the mainstream media and fact checkers (Glynn & Huge, 2014; Nyhan & Reifler, 2015). Although declining trust in the media is a common concern across groups, Republicans have historically shown much lower levels of confidence in the media than Democrats (Swift, 2016). The sentiment toward fact checkers is no exception: Although Democratic politicians have embraced the fact-checking movement and asked for more fact-checking in debates, their Republican counterparts—including presidential candidate Donald Trump in 2016 and Mitt Romney in 2012—condemned fact checkers as biased. Such different views of media between Democrats and Republicans could potentially produce asymmetries in partisans' responses to fact-checking messages.

To investigate this possibility, we turn to social media to observe "naturally occurring" responses to fact-checking messages. We use a large set of data collected from Twitter during the 2012 U.S. presidential election to look at how social media users shared and responded to fact-checking messages about presidential candidates from two rival parties. We draw on social identity theory (SIT; Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) as well as accounts of partisan media perceptions to theorize the role of users' partisanship in their reaction to fact-check messages on social media. We show that partisans selectively share fact-checking messages that "cheerlead" their own group and demoralize the opposing group. Further, we examine public comments in response to fact-checking messages on Twitter and find similar patterns at work: Partisans are more likely to publicly accuse fact-checking organizations of bias, even when the fact-check rulings themselves are "neutral" toward the Twitter user's own candidate.

We argue for the importance of *selective sharing* as a complementary process to selective exposure. We also propose that asymmetries between partisans in their sharing practices affect the extent to which fact-checking messages—and perhaps other political messages—are made visible to wider audiences. Our findings contribute to a growing body of literature connecting media behaviors grounded in group identification to broader societal effects on polarization, public opinion, and misperceptions (Feldman, Myers, Hmielowski, & Leiserowitz, 2014; Garrett, Weeks, & Neo, 2016; Slater, 2007).

Literature review

Partisan selective sharing

The majority of research on fact-checking has focused on the effects of exposure to fact checking messages in experimental settings. Although some (e.g., Thorson, 2016) found that fact checks have only limited effects on changing the recipients' attitude toward a candidate, in general, fact-checking messages have been shown to create positive effects on the public such as increasing accurate understanding of political issues (Fridkin et al., 2015; Nyhan & Reifler, 2015; Wood & Porter, 2016). These experimental studies found no evidence that individuals' prior political attitudes moderated the effects of fact-check exposure on democratic outcomes. That is, exposure to fact-checking messages had a positive outcome on political knowledge even for those who saw attitude-challenging messages.

Largely missing from this body of work is analysis of what shapes the likelihood that individuals will encounter and disseminate fact-checking messages in their daily lives. The few existing studies concerned with fact-checking on social media showed that corrective messages often fail to reach the target audience vulnerable to misinformation and fall short of affecting the overall dynamics of rumor spreading (Shin, Jian, Driscoll, & Bar, 2016; Friggeri, Adamic, Eckles, & Cheng, 2014; Hannak, Margolin, Keegan, & Weber, 2014). Social media users—both elites and everyday citizens—now have increased power to set news agenda and control flow of information (Meraz & Papacharissi, 2013; Nahon & Hemsley, 2013; Singer, 2014). Therefore, it is important to examine how these users make judgments about what messages to share or not to share with their own audience.

Partisan selective exposure—which has received a great deal of empirical study (Garrett, 2009; Iyengar & Hahn, 2009; Knobloch-Westerwick & Meng, 2009; Stroud, 2008)—serves as a good reference point for theorizing partisan selective sharing. Just as the selective exposure thesis argues, selective sharing may also be motivated by partisan goals: People selectively share ideologically congenial information. Previous research on information sharing suggests this will be the case. Political bloggers mainly share hyperlinks aligned with their own political spectrum rather than with the opposing side (Adamic & Glance, 2005; Jacobson, Myung, & Johnson, 2015). Twitter users are more likely to retweet messages from those sharing similar political attitudes (Barbera, Jost, Nagler, Tucker, & Bonneau, 2015; Boutet, Kim, & Yoneki, 2012; Colleoni, Rozza, & Arvidsson, 2014; Conover et al., 2011).

Yet, despite the strong connection between exposure and sharing (Weeks & Holbert, 2013), partisan selective sharing seems to be more robust and consistent than selective exposure. Previous research on selective exposure shows occasional circumstances in which people expose themselves to opinion-challenging information due to the desire to gain useful information (Knobloch-Westerwick & Kleinman, 2012; Valentino, Banks, Hutchings, & Davis, 2009). However, existing research suggests that sharing opinion-challenging information is much more rare. One reason for this difference could be that the act of sharing is more visible to social others than is exposure. To use Goffman (1959), while sharing often takes place on a frontstage where sharers are conscious of their audience and their action, many forms of media consumption occur in a backstage setting where an audience is not present.

In sum, sharing is fundamentally a social activity intended for or motivated by the imagined audience (Marwick & Boyd, 2011). Therefore, we pay attention to media users' social identity (i.e., partisanship) to understand various aspects of their sharing behavior. In this paper, we draw on SIT (Tajfel & Turner, 1979; Turner & Oaks, 1986; Turner et al., 1987) to develop hypotheses and research questions. SIT proposes that, when individuals are prompted by cues indicating one's important social group (e.g., race, religion, or political party), they categorize themselves and others into either ingroup or outgroup based on shared similarities. As a result they exhibit ingroup favoritism or outgroup discriminating behaviors to enhance their self-esteem and reduce uncertainty about their world. For instance, political scientists found that identification with political party can lead to a feeling of "us against them" and produce social stereotyping that maximally differentiates between the two parties (Green, Palmquist, & Schickler, 2002; Iyengar, Sood, & Lelkes, 2012).

This process of intergroup bias activation requires some type of stimuli to trigger group identification, and contexts that define the ingroup in relation to other groups (Oaks, 1987; Slater, 2007; Turner et al., 1987). In this sense, media messages play an important role not only in linking members of the same group by increasing the salience of a certain identity (e.g., political party) over alternative other identities (e.g., gender), but also in priming prototypes, a set of perceived attributes that represent each group. Slater (2007) argues that strong identifiers tend to gravitate toward media outlets or content that communicates positive prototypes of their own group, and in turn, selective consumption of media can have reinforcing effects on group identification and group-oriented behavior.

As such, SIT is particularly relevant to examining social media users' reaction to political fact-checking messages, which are designed to adjudicate presidential candidates' statements. We theorize that rulings on political candidates' statements such as "False," "True," and "Pants on Fire" serve as cues to invoke partisan identity by increasing salience of group boundaries and priming certain prototypes. In this sense, sharing fact-checking messages that elevate the status of an in-group is a way for partisans to support their own group. Additionally, partisan social media users may use fact-checking messages—or other political content—to display loyalty to their group and gain trust from group members (Hogg, 2001; Hogg & Reid, 2006). In particular,

central group members tend to behave in a more group-serving manner than others because they are expected to enhance group solidarity (Hogg & Reid, 2006).

Informed by SIT, we view retweeting as a function of partisanship. We hypothesize that fact-checking messages that give a positive distinctiveness of a certain group would be retweeted by the members of that group significantly more than by the members of the other group. That is, messages favorable to the Democratic Party are more likely to be retweeted by Democrats than Republicans, whereas messages favorable to the Republican Party are more likely to be shared by Republicans than Democrats.

> **H1:** Fact-checking messages that are relatively advantageous to the ingroup are more likely to be retweeted by the ingroup members than the outgroup members.

We further investigate whether Democrats and Republicans differ in their sharing behavior. Some studies on social identity suggest that relative status of a group can affect intergroup dynamics (Branscombe & Wann, 1994; Voci, 2006). For instance, perceived threat to group status can lead to increased outgroup derogation in an attempt to restore damaged self-esteem among those who strongly identify with the group. Branscombe and Wann (1994) showed that those whose collective identity was threatened tended to display strong derogation toward a competing outgroup as a means of defending their social identity. Brewer (1999) argued that asymmetry of ingroup favoritism and outgroup antagonism are to be expected across different groups.

In exploring partisan group differences in the fact-checking context, we start with the assumption that Republicans perceived their group to be disadvantaged in comparison to Democrats, for several reasons. First, Republicans have long claimed that media are biased against their side (Swift, 2016). In 2012, Republican presidential candidate Romney indicated that he "didn't expect a fair fight in the media" (Murray, 2012), a sentiment echoed by Republican candidate Trump in 2016. Previous research has found that Republicans, especially those embedded in homogeneous social networks or who consume conservative media, are more likely to perceive media as biased (Eveland & Shah, 2003). Second, Republican politicians fared worse in the fact-checking arena compared to Democratic politicians in recent election cycles. According to the Center for Media and Public Affairs at George Mason University (2013), *Politifact* rated Republican claims to be false three times more often than it rated Democratic claims during Obama's second term. Ostermeier (2011) also showed similar patterns. Such a consistently low performance of the Republican Party in fact-checking led Romney's chief pollster (Neil Newhouse) to publicly state in 2012 that "we are not going to let our campaign be dictated by fact-checkers." Finally, the Republican Party was the challenger's party, out of power, in 2012. Incumbent candidates (e.g., Obama in 2012) are known to enjoy advantages in terms of their name recognition, funding, and government resources (Mayhew, 2008).

Given the foregoing, we investigate the possibility of asymmetric responses to fact-checking of the candidates from Republican versus Democrat social media users. If Republicans felt that their group was disadvantaged for the reasons above,

Republicans may be more alert to and find more value in sharing fact-checking messages that derogate the outgroup leader (Obama) than messages that compliment the ingroup leader (Romney) in comparison to the Democrats. Hence, we explore asymmetric patterns in intergroup bias in selective sharing between the Republican users and the Democratic users:

> **RQ1:** Is outgroup negativity (a desire to derogate the outgroup leader) a more important predictor of retweeting for Republicans than for Democrats?

Hostile media perception in user comments

Our data allow us to look at Twitter users' reactions to fact-checking messages not only in terms of sharing behaviors, but also through analysis of comments posted in response to fact-checking messages. We use the framework of hostile media perception (HMP; Gunther & Schmitt, 2004; Vallone, Ross, & Lepper, 1985) to predict that hostile responses to fact-checking messages on Twitter will also be a function of partisanship. HMP refers to a phenomenon in which partisans perceive neutral media reports to be biased against their own view. Although HMP focuses on partisans' biased reactions to objectively "neutral" media coverage, it also includes actually slanted media coverage (Gunther & Chia, 2001). For instance, liberals perceive more bias in *Fox News* (conservative-leaning channel), whereas conservatives perceive more bias in Comedy Central's *The Daily Show* (liberal-leaning program) (Coe et al., 2008).

Previous research (Rojas, 2010) found that HMP leads to reactive political behavior termed "corrective action." Rojas found that people who perceive media bias were more likely to engage in correcting public opinions through actions such as posting comments in online discussion forums and commenting on news stories. These actions not only indicate individuals' attempt to correct media bias, but also reveal group-based anger and underlying political struggle for power between groups (van Zomeren, Postmes, & Spears, 2008).

We theorize that posting hostile comments toward fact checkers is a way for partisans to deal with a potential threat to the legitimacy of their group. As a result, when partisans read a fact-checking message that does not depict their group positively, they may discredit the source as a means of elevating the status of their ingroup—undertaking an expressive form of corrective action. We have two relevant hypotheses. First, we expect that fact-checking messages containing relatively neutral rulings will receive comments expressing media bias from both partisan groups. Second, we expect that fact-checking messages that give favorable rulings to one party's candidate will receive hostile comments mainly from outgroup members.

H2: Neutral fact-checking messages are more likely to receive hostile comments from both Republicans and Democrats than nonpartisan users.

H3: Fact-checking messages that are relatively advantageous to one party are more likely to receive hostile comments from the outgroup members than the ingroup members and nonpartisans.

We further investigate whether Republicans were more likely to take expressive corrective action than Democrats due to the perceived disadvantages mentioned earlier. Previous studies (Hartmann & Tanis, 2013; Huge & Glynn, 2010) found evidence that perceived group status played a role in activating HMP among partisans. For instance, Huge and Glynn (2010) found that, during a gubernatorial election campaign where the Democratic Party was projected to win the election, Republicans exhibited more HMP than Democrats. Based on this reasoning, we examine the following research question.

RQ2: Is the extent to which partisans express HMP through comments greater among Republicans than among Democrats?

Methods

Data collection

We investigate how Twitter users shared and commented on fact-checking messages posted to three major fact-checking Twitter accounts—The *Tampa Bay Times'* Politifact, Factcheck.org, and *The Washington Post's* Fact Checker—in October 2012. October was chosen because three presidential debates and one vice presidential debate led to the highest fact-checking activity that year (Graves & Glaisyer, 2012), and the time prior to an election usually garners the greatest public attention across the nation (Knobloch-Westerwick & Kleinman, 2012). Each of the three fact-checking sites had an account on Twitter and published their fact checks about the presidential candidates during this month. Because this project draws on SIT, the scope of the study is limited to messages pertaining to each party's leader (Barack Obama and Mitt Romney), who is the most prototypical member of the group.

Data analysis centered on a large collection of political tweets (N = 298,894,327) collected during the 2012 presidential election in the United States (October 2011 to December 2012). This dataset (hereafter *larger political dataset*) provides a comprehensive picture of the political Twittersphere in 2012, as it includes all the publicly available tweets containing at least one political keyword from the master list of 427 keywords often found in political Twitter conversations (e.g., the names of candidates, political parties, and issue-specific terminology).[1] The data were collected in real-time using the Gnip PowerTrack service, which provides access to "the Twitter firehose." Unlike other streaming services, the firehose provides 100% of the publicly available tweets, along with metadata about the tweet.

Using each fact checker's username, the study retrieved 194 original fact checks (tweets)[2] posted by Politifact ($n = 126$), Factcheck.org ($n = 48$), and Factchecker ($n = 20$) that mentioned Obama or/and Romney during October 2012 from the larger political dataset. These messages were retweeted or commented on 93,578 times, by 55,869 unique Twitter users.

Measurement

Fact-check ruling

In order to determine whether or not a fact-check ruling was favorable to one party or the other, we conducted a content analysis of all the fact-check rulings in the dataset.

The three fact-checking websites used slightly different styles in assessing political statements. Politifact's scale[3] was comprised of "True," "Mostly True," "Half True," "Mostly False," "False," and "Pants on Fire." Fact checker rated political statements on a range of one to four Pinocchios, with one Pinocchio for statements containing slight omissions or exaggerations and four Pinocchios for complete lies. On the other hand, Factcheck.org did not utilize a standardized rating scale and instead used various linguistic markers such as "False," "Not possible," "Accurate," and "Yes" to indicate their rulings.

To obtain comparable rulings, this study recoded each fact check for three variables: (1) the political party that gained a relative advantage from the fact check, (2a) the valence of the fact check toward Obama, and (2b) the valence of the fact check toward Romney. The first variable indicated the extent to which a fact check was explicitly adjudicating the claim regarding the candidates and eventually gave an advantage to one party over the other. This variable had three categories of values: "advantageous to the Democratic Party," "advantageous to the Republican Party," and "Neutral." If a fact check indicated that the statement under investigation was clearly inaccurate or accurate, then it was coded either "advantageous to the Democratic Party" or "advantageous to the Republican Party." For instance, the fact check of "Obama ad says Romney hiked nursing home fees eight times in Mass. Mostly False. http://t.co/b17McNST" was coded as "advantageous to the Republican Party." The fact check of "Obama said Romney refused to say if he'd sign Ledbetter equal pay act. Mostly True. http://t.co/PjG1PG2y #debate" was coded as "advantageous to the Democratic Party." All other fact checks that did not clearly indicate whether the statement was false or true were coded as "Neutral."

Second, each fact-checking tweet was coded for its valence toward each candidate: positive, negative, or neutral for the target candidate. These variables were necessary to directly assess a valence of the fact check toward Obama and Romney rather than measuring a relative advantage of the fact check. Some fact checks pitted one candidate's statement against another and thus were relevant to both candidates. However, other fact checks were only concerned about one candidate without referencing the other. For example, a fact check of "Obama said he would cut taxes for small business, middle class. Mostly True. Details: http://t.co/BCIzQnqs #debate" is positive to Obama without containing negative mention of Romney.

Three undergraduate coders coded every message in the data set. Krippendorff's α was .87 for the relative-advantage variable, and .90 and .92 for the Obama valence and the Romney valence variables ($n = 194$). Any remaining disagreements among the three coders were discussed and resolved by consensus.

User's party preference

In order to test our hypotheses, we needed to identify the partisanship of each Twitter user who commented on or retweeted a fact-checking message. Classifying the partisanship of social media users on a large scale is a major challenge for political communication research using these kinds of data sets because users do

not consistently self-identify as partisans. Our measure builds on the work of Vargo, Guo, McCombs, and Shaw (2014). We combined three computational approaches to develop an accurate measure of users'[4] party identification, each of which relied on inferring partisanship by classifying the partisan sentiment of users' other tweets in the larger political dataset. To determine the sentiment of those tweets, we (a) used a preexisting sentiment analysis lexicon, (b) extracted relevant sentiment terms from the larger political dataset to extend the original lexicon, and (c) used information about the partisan nature of users' Twitter network.

Our starting point was to use SentiStrength, a sentiment analysis tool, which draws on a lexicon of 2,310 sentiment words for assigning positive or negative scores to detect the valence of a given text. Although this tool has been shown to produce near-human-level accuracy, it performs less well for political content or controversial topics where sarcasm or jokes are prevalent (Thelwall, 2013). Therefore, we supplemented this dictionary-based approach to identifying partisan sentiment in tweets by including partisan network measures: that is, whether a given tweet is a retweet of Twitter accounts that Democrats and Republicans tend to follow (Barbera et al., 2015; Vargo et al., 2014), and an additional dictionary of partisan keywords for Democrats and Republicans relevant to the 2012 election extracted from the current data set. We used these new dictionaries to classify the sentiment of Twitter users' previous tweets that mentioned either the Democratic or Republican Party. Users whose sentiments toward the Democrats were significantly more positive than toward Republicans were classified as Democrats, and vice versa. Users who did not have sufficient data (at least two previous tweets that mentioned Democrats and two tweets that mentioned Republicans), as well as those whose sentiments toward the two parties were not significantly different, were labeled as "nonpartisan users" as they lacked a strong party preference on Twitter[5] (see Appendix S1, Supporting Information for additional details about how we developed this method).

The accuracy of the final data (i.e., political preference of each Twitter user) was assessed with a random sample of 380 users (0.68%)—a sample size recommended by McIntire and Miller (2007)—drawn from the entire population of those who had commented on or retweeted a fact-checking message ($n = 55,869$). Two undergraduate coders independently coded each user's party preference in the sample, informed by the user's entire tweets posted during the data collection period. The human-coded political preference (i.e., single value derived by consensus coding) agreed with the final model 92% of the time.

Replies expressing media bias

To identify replies containing the user's concerns about media bias, this study developed a codebook based on previous studies measuring HMP (Gunther & Leibhart, 2006; Gunther & Schmitt, 2004). The coding procedure involved three undergraduate coders independently coding the same messages, a total of 1,591 replies for 194 fact checks. The coders categorized each reply as 1 if the user mentioned bias of the fact check (content) or the fact checker (journalist). If not, the reply was coded as 0.

The codebook specified that the reply should be coded as 1 when it complained about the fact checker's analysis of political statements, even if a reply did not use a specific term such as "bias." For example, a reply of "@politifact you are lying. Who fact checks politifact???" was also coded as 1. On the other hand, expressions of resentment or anger toward the target (e.g., Obama or Romney) as opposed to the fact checker were not considered "media bias." Intercoder reliability, measured by Krippendorff's α coefficient, was .79.

Results

Preliminary analysis
Fact-checking tweets
42.3% of the 194 fact-check ($n = 82$) tweets posted by the three accounts in October 2012 contained rulings that were advantageous to the Democratic Party (i.e., either positive to Obama or negative to Romney), while 23.7% of them ($n = 46$) were advantageous to the Republican Party (i.e., either positive to Romney or negative to Obama). The remaining 34% ($n = 66$) were neutral, as their statements contained either a contextualized analysis or a neutral anchor.

In addition to the relative advantage of the fact checks, the valence of the fact-checking tweet toward each candidate was also analyzed. Of the 194 fact checks, 34.5% ($n = 67$) were positive toward Obama, 46.9% ($n = 91$) were neutral toward Obama, and 18.6% ($n = 36$) were negative toward Obama. On the other hand, 14.9% ($n = 29$) of the 194 fact checks contained positive valence toward Romney, 53.6% ($n = 104$) were neutral toward Romney, and 31.4% ($n = 61$) were negative valence toward Romney.

Fact-checking users
Among the users—that is, those who retweeted or replied to a fact-checking message in October 2012—we identified 73.79% ($n = 41,225$) as Democrats, 9.79% (5,472) as Republicans, and 16.42% (9,172) as nonpartisan users. The number of Democrat users was 7.5 times larger than Republican users. These users are a mix of regular and elite users, which included the Obama campaign account (but not Romney's), media organizations (e.g., *Chicago Tribune*), journalists (e.g., Terry Moran), celebrities (e.g., Pitbull), and political pundits (e.g., Ana Marie Cox).

When these fact-check users ($n = 55,869$) are compared with all the other Twitter users in the political dataset who have retweeted or made a comment at least once during October 2012 ($n = 6,487,356$), we found the following characteristics. The fact-check users followed more accounts ($Mdn = 216$), started using Twitter much earlier (median tenure = 139 weeks), and posted more tweets during October ($Mdn = 28$) than other political users (median number of followees = 182, median tenure = 76 weeks, median number of tweets in October = 4). Yet, fact-check users did not have more followers ($Mdn = 116$) than other users ($Mdn = 128$). In sum, fact-check users tend to be more active and engaged in Twitter than other political users.

Table 1 Results of Chi-Square Tests and Distributions of Three Political Groups Among Retweeters of Obama Favorable and Romney Favorable Fact-Checking Messages

	Democrats	Republicans	Nonpartisans	χ^2
Fact checks advantageous to the Democratic Party	32,701 (83.06%)	591 (1.50%)	6,076 (15.43%)	22,402.0***
Fact checks advantageous to the Republican Party	2,501 (32.13%)	3,602 (46.27%)	1,682 (21.61%)	360.27***

Note: Numbers in parentheses indicate row percentages.
***$p < .001$.

Hypothesis testing

Retweeting as an intergroup phenomenon

H1 stated that fact checks advantageous to the ingroup are more likely to be retweeted by ingroup members than outgroup members. To test this hypothesis, we first identified unique retweeters within each of three fact checks categories in terms of relative advantage. For instance, even if a Democrat retweeted multiple fact checks that were advantageous to the Democratic Party, we counted this person as one Democrat. This approach makes our analysis conservative. Our data show that fact checks advantageous to the Democratic Party were retweeted mainly by Democrats (83.06%, $n = 32,701$), followed by nonpartisans (15.43%, $n = 6,076$), and Republicans (1.50%, $n = 591$). In contrast, fact checks advantageous to the Republican Party were retweeted the most by Republicans (46.27%, $n = 3,602$), followed by Democrats (32.13%, $n = 2,501$), and nonpartisans (21.61%, 1,682). The neutral fact checks were retweeted by 74.04% Democrats ($n = 3,399$), 9.89% Republicans ($n = 454$), and 16.07% nonpartisans ($n = 738$).

Using the distribution of Democrats, Republicans, and nonpartisan users for each type of fact check, we ran a series of χ^2 tests. For the fact checks that were advantageous to the Democratic Party, the analysis revealed that the three political groups of retweeters were not equally distributed, indicating the effect of partisanship on selective sharing, χ^2 (2, $N = 39,368$) $= 22,402$, $p < .01$. Post hoc comparisons further confirmed that the proportion of Democrats was significantly higher than that of Republicans, χ^2 (1, $N = 33,292$) $= 19,249$, $p < .01$. Similarly, the fact checks advantageous to the Republican Party also showed a significant effect of partisan group, χ^2 (2, $N = 7,785$) $= 360.27$, $p < .01$, with the proportion of Republicans significantly higher than that of Democrats, χ^2 (1, $N = 6,103$) $= 91.80$, $p < .01$ (Table 1).[6]

Group differences in retweeting

To examine whether discrediting the outgroup member is more important than cheering their ingroup member for Republicans than for Democrats (R1), the study compared the strength of outgroup negativity relative to ingroup positivity on attracting retweets from Democrats and Republicans. The regression results (Table 2) revealed that fact checks containing *positive* valence toward the ingroup leader

Table 2 Regression Models Investigating Whether Valence Toward a Certain Candidate Predicts Partisanship of Retweeters of Each Fact-Check

	Proportion of Democrats B (SE) Sig.	Proportion of Republicans B (SE) Sig.
Ingroup positivity (ref. neutral)	14.17 (2.49)***	12.96 (2.45)***
Ingroup negativity (ref. neutral)	−30.57 (2.67)***	−3.43 (2.32)
Outgroup positivity (ref. neutral)	−13.75 (2.61)***	−6.68 (2.21)**
Outgroup negativity (ref. neutral)	2.87 (2.61)	28.89 (2.37)***
A url (ref. none)	0.06 (4.67)	2.45 (4.15)
A hashtag (ref. none)	−0.56 (2.13)	0.63 (1.90)
A mention (ref. none)	−4.07 (5.74)	−3.16 (5.10)
A live-tweet (ref. none)	1.25 (2.22)	−1.26 (1.98)
Number of retweets	2.86 (0.99)**	−0.77 (0.89)
Factcheck.org (ref. politifact)	4.11 (2.15)	−2.15 (1.91)
Fact-checker (ref. politifact)	33.08 (7.75)***	−7.25 (6.90)
Observations	$N = 174$	$N = 174$
Adjusted R^2	0.78	0.73

Note: All variables are dummy coded except for the number of retweets, which was log-transformed in the model. This analysis excluded fact-checking messages retweeted by less than 10 unique retweeters.
**$p < .01$, *** $p < .001$.

was a statistically significant predictor for both Democrat ($B = 14.17$, $p < .01$) and Republican retweeters ($B = 12.96$, $p < .01$). However, the effect of *outgroup negativity* was only significant for predicting Republican retweeters ($B = 28.89$, $p < .01$), not Democrat retweeters ($B = 2.87$, $p > .5$).

As a robustness check, we also examined the relative importance of two variables—negative valence toward the outgroup leader and positive valence toward the ingroup leader—in explaining variance within each model. To accomplish this goal, we used a measure proposed by Silber, Rosenbaum, and Ross (1995) to estimate the relative contributions of two variables. The results confirmed the stronger effect of outgroup negativity than ingroup positivity for Republicans. More precisely, the study found that negative valence toward the outgroup leader (Obama) explained more variation ($\omega = 2.40$, 95% CI [1.53–3.77]) in predicting the proportion of Republican retweeters than positive valence toward the ingroup leader (Romney). On the contrary, negative valence toward the outgroup leader (Romney) contributed less ($\omega = 0.34$, 95% confidence interval [CI] [0.12–0.98]) to predicting the proportion of Democrat retweeters for fact checks than positive valence toward the ingroup leader (Obama).

Hostile comments as an intergroup phenomenon
The fact checks had a relatively small number of replies ($n = 1,591$)—just a fraction (1.73%) of the total number of retweets ($n = 91,987$). Of these 1,591 replies, 32.4%

Table 3 Results of Chi-Square Tests and Distributions of Three Political Groups Among Hostile Commenters of Obama Favorable and Romney Favorable Fact-Checking Messages

	Democrats	Republicans	Nonpartisans	χ^2
Fact checks advantageous to the Democratic Party	31 (10.99%)	237 (84.04%)	14 (4.96%)	152.79***
Fact checks advantageous to the Republican Party	99 (81.15%)	7 (5.74%)	16 (13.11%)	59.07***

Note: Numbers in parentheses indicate row percentages.
***$p < .001$.

($n = 515$) contained concerns about the bias of the fact check or the fact checker. These include replies directly using the words "bias" or "unfair" in their comment such as "@politifact Horrible, biased interpretation. No proof Obama said he would 'create daylight.' Your interpretation is NOT a FACT check." Additionally, these include remarks that complained about the ruling of the fact check and suggest their own evidence such as "http://t.co/MVhnM7Q1 If I may bring this up. Thanks for reading and educating yourself. @politifact."

We identified unique hostile media commenters within each category of fact checks in terms of relative advantage (see Tables 3 and 4 for more information). H2 and H3 were concerned with the extent to which fact checks received comments expressing concern about media bias. A series of χ^2 tests were performed to determine whether the hostile responses from Republicans, Democrats, and nonpartisans were significantly different. H2 predicted that neutral fact checks would be more likely to receive comments containing accusations of media bias from both Republicans and Democrats than nonpartisans. Of those who replied to neutral fact checks mentioning bias, 49.38% were Democrat ($n = 40$), 41.98% were Republicans ($n = 34$), and 8.64% were nonpartisan users ($n = 7$). A chi-square test showed that hostile commenters were not equally distributed among the three political groups, χ^2 (2, $N = 81$) = 15.09, $p < .001$. Post hoc comparisons revealed that both the proportions of Democrats and Republicans were significantly higher than that of nonpartisan users, yielding χ^2 (1, $N = 47$) = 12.34, $p < .01$ and χ^2 (1, $N = 41$) = 9.61, $p < .05$. Yet, the proportions of Democrats and Republicans were not significantly different, χ^2 (1, $N = 74$) = 0.08, $p > .05$.

H3 stated that fact-checking messages that are relatively advantageous to one political party are more likely to receive hostile comments from the outgroup members than the ingroup members and nonpartisans. For the Democratic Party favorable fact checks, the proportions of hostile commenters among three groups were significantly different, χ^2 (2, $N = 282$) = 52.79, $p < .001$. The post hoc analyses showed that the proportion of Republicans was significantly higher than that of Democrats and nonpartisans for the fact checks that were advantageous to the Democratic Party, χ^2 (1, $N = 268$) = 81.10, $p < .01$ and X^2 (1, $N = 251$) = 111.97, $p < .01$. Similarly, for the

Table 4 Distributions of Three Political Groups Among Hostile Commenters of Neutral Fact-Checking Messages in Comparison to Retweeters

	Hostile Commenters of Neutral Fact Checks Versus Retweeters		
	Democrats	Republicans	Nonpartisans
Hostile commenters	40 (49.38%)	34 (41.98%)	7 (8.64%)
Retweeters (base line)	34,339 (74.42%)	4,145 (8.98%)	7,656 (16.59%)

Note: Numbers in parentheses indicate row percentages.

Republican Party favorable fact checks, the distribution of the three groups of hostile commenters was again significantly different, χ^2 (2, $N = 122$) $= 59.07$, $p < .001$. Post hoc tests revealed that the proportion of Democrats were significantly higher than that of Republicans and nonpartisans, χ^2 (1, $N = 106$) $= 43.54$, $p < .01$ and χ^2 (1, $N = 115$) $= 28.59$, $p < .01$.

Group differences in hostile comments

RQ2 examined whether hostile media comment toward fact checkers was stronger among Republicans than Democrats. The post hoc tests of H2 already indicated that there was no significant difference between the proportions of Democrats (49.38%) and Republicans (41.98%) in terms of posting hostile comments to neutral fact checks. In other words, these neutral fact-checking messages were accused of "being partial" by the approximately same number of Democrats and Republicans.

Yet, this analysis assumed the equal distribution of the three groups (33% Democrat, 33% Republican, and 33% nonpartisan) and examined whether hostile commenters deviated from such distribution. A more realistic comparison should be based off the distribution of retweeters, which was disproportionally dominated by Democrats. As such, when we examined the observed distribution of corrective commenters against the distribution of retweeters of the 194 fact checks, the results painted a different picture. The tests revealed that the proportion of Republican hostile commenters was significantly higher than that of Democrats and nonpartisans, χ^2 (1, $N = 74$) $= 90.96$ $p < .01$ and χ^2 (1, $N = 41$) $= 38.82$, $p < .01$. This means that the extent to which Republicans perceived neutral fact checks as hostile (41.98%) considering their retweeting participation (8.98%) is greater than the extent to which Democrats engaged in HMP (49.38%) given their retweeting participation (74.42%). Results are presented in Table 4. We also found fewer overlaps between fact check retweeters and hostile commenters among Republicans (15.6% of Republican hostile commenters also retweeted fact checkers) than Democrats (47.3% of Democratic hostile commenters also retweeted fact checkers).

Additionally, to examine the extent to which power users (e.g., political pundits, journalists) influenced the results, we ran supplementary analyses excluding the top

1% users based on the number of followers ($n = 1,170$). We found that the results were not substantially different from the main analysis.

Discussion

This study examined two types of reactions among social media users to political fact-checking messages. Unlike previous studies focused on the effects of consuming fact checks on political knowledge (Fridkin et al., 2015; Nyhan & Reifler, 2015; Wood & Porter, 2016), the current study emphasized fact-check consumers' voluntary sharing and commenting behavior in a public forum. This is an important task, because while only a small number of Internet users regularly visit fact-checking sites, those who publicly share fact-checking messages can influence others by increasing visibility of these messages, as well as affecting interpretations of the original fact checks (Cappella, Kim, & Albarracín, 2015).

We drew on SIT as a route to theorize the role of partisanship in selective sharing and the expression of bias perceptions. Based on this framework, we found that the fact-checking messages served as a tool for partisans to celebrate their own group and denigrate the opposing group. Fact checks that were advantageous to a candidate from the ingroup party were shared significantly more by the ingroup members than the outgroup members, a process of partisan selective sharing. This finding has implications for the extant literature on political polarization in the contemporary media environment. Studies of selective exposure and political polarization have mainly focused on partisan media outlets such as Fox or MSNBC, rather than mainstream media outlets that emphasize balance and fairness (Iyengar & Hahn, 2009; Levendusky, 2013; Sunstein, 2001). Our study of selective sharing on social media adds another dimension, showing that partisans cherry-pick favorable media content from relatively balanced media outlets when they are deciding what content to make visible to their personal social networks. In this scenario, media consumers themselves play the role of partisan sources in social media by selectively feeding information to their followers.

Further analysis of the users in our data revealed that these individuals (both retweeters and repliers of fact checks) are also more active and engaged than other users who tweeted about politics during the 2012 election cycle. This finding suggests that the visibility of fact-checking messages may heavily depend on a small number of active users. These users can control the flow of fact-checking information by reassessing the initial editorial decisions and filtering what is newsworthy for their followers (Singer, 2014). In our dataset, the original fact checkers' messages potentially reached an audience 354 times larger because of retweeting and commenting. Users who commented on or shared these fact-checking messages had a total of 78,726,217 followers, whereas the three fact checkers had 222,513 followers. This means that many of those who do not directly follow fact checkers may consume one-sided fact-checking information selectively disseminated by their Twitter contacts.

Our findings also highlight fascinating asymmetries between Democrats and Republicans in their use of fact-checking messages. Overall, there were many more Democrats than Republicans in our fact check user dataset, which suggests that more Democrats than Republicans follow fact check organizations on Twitter. Further, we found that Democrats and Republicans differed in the extent to which they shared fact checks that were negative toward the outgroup party. Fact checks that were negative toward Obama were more likely to attract Republican retweeters, whereas fact checks negative toward Romney did not attract Democrat retweeters. In addition, there was a relatively larger effect of outgroup negativity than ingroup positivity for Republicans, but not for Democrats.

Although we drew on SIT to predict selective sharing behavior, we believe the implications of our findings go beyond confirming predictions of SIT. A growing body of literature in communication has theorized connections between patterns of media behavior grounded in social identity and long-term, society-level effects on political polarization, political knowledge, and misperceptions (e.g., Feldman et al., 2014; Garrett et al., 2016; Slater, 2007). Slater's (2007) reinforcing spirals model proposed that media behavior consistent with a particular social identity is involved in a mutually reinforcing relationship with that identity: Identity-relevant media use increases identity salience and identity salience motivates further use of identity-relevant media, producing a spiral of effects. Through this process of reinforcing spirals, the media behavior of particular individuals is translated into broad influence over the culture of social groups. Slater points out that reinforcing spirals are particularly likely among social groups that are more closed or suspicious of influences outside their social group, such as from the mainstream media.

Our data do not allow us to test a longitudinal chain of influence, but we suspect that selective sharing, affective polarization, and conservative perceptions of media bias are related to each other in just such a reinforcing spiral. Selective sharing of fact-check messages is motivated by social identity, which itself has been shaped by exposure to media messages that emphasize polarization between parties, and negativity (Iyengar et al., 2012). In the case of conservatives, social identity has been shaped by immersion in an ideological media environment that promotes a "culture of mistrust toward other viewpoints" (Feldman et al., 2014). That the Republicans in our data engaged in greater negativity in their retweets and responses to fact checkers is evidence both of this longstanding culture of mistrust and the social psychological processes that we believe contribute to the development—and reinforcement—of this culture over time.

Consistent with the SIT framework and previous research on HMP, we observed that expressing hostility toward the fact checkers was also a function of the Twitter user's partisanship. Neutral fact-checking messages received hostile comments both from Democrats and Republicans more than nonpartisans. In addition, fact checks that were advantageous to one party received significantly more hostile comments from the outgroup members than ingroup members. These findings suggest that bias perceptions are in the eye of the beholder. For example, in response to fact-checking

messages rendering a "half true," "mixed," or "complicated" ruling to Obama or Romney, both Democrats and Republicans posted similar hostile comments, such as "@politifact No, Your fact check as a fact is a lie. Obama is correct, period! Rachel Maddow is right about your organization!" (from a Democrat user) and "@politifact your choices of who and what to fact check clearly demonstrate your left winged bias" (from a Republican user). Such a mirroring pattern was aptly recognized by one nonpartisan user who commented, "This is why no one likes you."

We also observed some evidence that Republicans expressed concerns about media bias in fact checks more than Democrats did. Although there was no significant difference in the number of hostile commenters between the two groups, considering a disproportionately large number of Democratic retweeters in the current dataset, the level of engagement of Republicans in posting hostile comments reflects their greater resentment toward the fact checkers. This finding is consistent with previous studies (Hartmann & Tanis, 2013; Huge & Glynn, 2010), which observed a stronger hostile media effect for those whose group had a relatively lower standing, as well the "culture of mistrust" of media among conservatives.

These findings have critical implications for fact-checking practitioners. Readers' comments about media content—especially negative opinions—can influence other viewers' evaluation of a news story (Thorson, Vraga, & Ekdale, 2010; Lee & Jang, 2010). Therefore, users' comments depicting fact checkers as biased sources may not only hinder the fact-checking organization's ability to effectively challenge misinformation by damaging their reputation, but also can lead to avoidance of reading messages produced by that source. Writ large—and as fact-checking expands as a media practice—hostile responses to fact-check messages may further contribute to public perceptions of media bias through the very mechanisms we identify in this paper (we thank an anonymous reviewer for this suggestion).

Our study has a number of limitations. First, we only focused on the manifest behaviors of social media users such as retweeting and commenting, rather than their exposure to fact checks. We recommend that future research examine a potential discrepancy between selective exposure and selective sharing of fact checks. Second, we focused on partisans' responses to fact-checking messages as opposed to those of nonpartisans. Although a majority of fact-checking users in the current dataset (83.58%) were identified as either Democrats or Republicans, examining how nonpartisans consume fact-checking messages would provide useful insights for practitioners. Third, this study categorized a number of different rulings (e.g., False and Pants on Fire) into the same category. Future research differentiating linguistic markers would help us better understand the effects of message framing on partisanship activation. In addition, we acknowledge that users may have retweeted fact checks without actually reading the full content, and our dataset may contain automated bots set up by political or commercial entities.

Conclusion

Previous research has generally evaluated the effects of fact-checking on recipients' political knowledge through experiments and concluded that exposure to fact-checking is effective regardless of the recipient's prior partisan belief. Our study demonstrates that real-world exposure to fact checks may not be as random as in the experimental setting. We found that partisan fact-check users shared fact-checking messages selectively on Twitter such that they retweeted only messages that were favorable to a candidate from their own political party and filtered fact checks that supported the opposing party. This partisan selective sharing—undertaken by a small but highly active partisan group of Twitter users—served to bias the visibility of fact-check messages to a much wider audience.

Partisan selective sharing is a process whereby partisan groups reassess the initial editorial decisions of the media and define the organization's content for their followers. We propose that partisan selective sharing is a phenomenon that is ripe for further study within political communication and journalism studies, particularly as social media platforms grow in importance as sites for exposure to news and political information. The phenomenon of partisan selective sharing may serve to further polarize audiences as well as undercut trust in the process of fact-checking.

We observed that while Democrats make up the majority of fact-check sharers, Republicans exhibit stronger hostility toward fact checkers. Such asymmetry between partisan groups in their media behavior and perception raises concerns over a reinforcing spiral: A partisan individual's group identity affects his or her use of identity-relevant media and such media use increases identity salience for themselves and their social contacts. As such, partisan selective sharing proposes a fruitful approach to examine political polarization in social networking sites by emphasizing relationships among media, active partisan users, and broader audiences.

Acknowledgments

Notes

1 The list of keywords can be provided upon request.
2 This method excludes retweets or promotional messages (e.g., A tweet from Politifact: "If you hear something during the debate that you'd like us to fact-check, tweet it with #PolitiFactThis").
3 They also use "Promise Kept," "Compromise," "Promise Broken," "No Flip," "Half Flip," and "Full flop."

4 Users are defined as those who have retweeted or posted a comment to one of the 194 fact-checking messages at least once. A total of 55,869 such users posted 25,983,635 tweets between January and December 2012.

5 This label did not mean that they were truly independent users; rather, it indicated at the very least that these users did not use Twitter as a platform to publicly express their political party preference.

6 These results hold when tested in a multivariate context as well, controlling for the originating fact-check organization as well as message variables such as whether it contained a hashtag (#) or a url, whether it mentioned someone using "@username" convention, and whether it was a live-tweet posted during the presidential and vice presidential debates. Analysis available upon request.

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Supporting Information

Additional supporting information may be found in the online version of this article:
Appendix S1. Measuring user's party preference.