

# Extremists on the Left and Right Use Angry, Negative Language

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Jeremy A. Frimer<sup>1</sup>, Mark J. Brandt<sup>2</sup>, Zachary Melton<sup>3</sup>,  
and Matt Motyl<sup>3</sup>

## Abstract

We propose that political extremists use more negative language than moderates. Previous research found that conservatives report feeling happier than liberals and yet liberals “display greater happiness” in their language than do conservatives. However, some of the previous studies relied on questionable measures of political orientation and affective language, and no studies have examined whether political orientation and affective language are nonlinearly related. Revisiting the same contexts (Twitter, U.S. Congress), and adding three new ones (political organizations, news media, crowdsourced Americans), we found that the language of liberal *and* conservative extremists was more negative and angry in its emotional tone than that of moderates. Contrary to previous research, we found that liberal extremists’ language was more negative than that of conservative extremists. Additional analyses supported the explanation that extremists feel threatened by the activities of political rivals, and their angry, negative language represents efforts to communicate as much to others.

## Keywords

language, anger, extremism, liberals and conservatives, threat, happiness

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For too many of our citizens, a different reality exists: Mothers and children trapped in poverty in our inner cities; rusted-out factories scattered like tombstones across the landscape of our nation; an education system flush with cash, but which leaves our young and beautiful students deprived of knowledge; and the crime and gangs and drugs that have stolen too many lives and robbed our country of so much unrealized potential. This American carnage stops right here and stops right now.

—Inaugural Address, President Donald J. Trump

The opening epigraph, from U.S. President Donald Trump’s 2017 Inaugural Address, painted a dire picture of the state of the country. Does this negative portrayal reflect a general tendency among people of a conservative<sup>1</sup> or right-wing political persuasion, such as Donald Trump,<sup>2</sup> to use negative language? Recent research suggests that it might: Sylwester and Purver (2015), Turetsky and Riddle (2018), and Wojcik, Hovasapian, Graham, Motyl, and Ditto (2015) reported that liberals “display greater happiness” in their language than conservatives. Noting limitations in the previous studies (described below), we revisit this question and report six new studies. We find that

extremists—on both the political left *and* right—use more negative language than moderates. If anything, liberal extremists use the most negative language of all.

## Definitions

We define extremism, following past research (e.g., Brandt, Evans, & Crawford, 2015; van Prooijen, Krouwel, Boiten, & Eendebak, 2015), as the tendency to identify with, be seen as belonging to, and behave in a manner that strongly supports a liberal or conservative agenda. To study how extremism is associated with the use of negative language, we study how people with different political beliefs have differing levels of positivity (vs. negativity) in spoken or written text, what is

<sup>1</sup>University of Winnipeg, Manitoba, Canada

<sup>2</sup>Tilburg University, The Netherlands

<sup>3</sup>The University of Illinois at Chicago, USA

## Corresponding Author:

Jeremy A. Frimer, Department of Psychology, University of Winnipeg, 515 Portage Avenue, Winnipeg, Manitoba, Canada R3B 2E9.

Email: j.frimer@uwinnipeg.ca

called emotional tone (McAdams, Diamond, de St. Aubin, & Mansfield, 1997).

### Political Orientation and Negative Language: Three Competing Hypotheses

Our primary question is “Which political group—liberals, conservatives, or extremists on both sides—uses the most negative language?” We consider two existing and propose one novel hypothesis.

#### *Negative Liberals Hypothesis*

The first hypothesis is that liberals use the most negative language. Conservatives report feeling happier than liberals (for a meta-analysis, see Onraet, Van Hiel, & Dhont, 2013) in part because conservatives are less troubled by social and economic inequality (Napier & Jost, 2008), are more likely to have personality traits associated with happiness (Schlenker, Chambers, & Le, 2012), or are more likely to deceive themselves when reporting their feelings (Wojcik et al., 2015). Ideological happiness gap researchers have not made explicit claims regarding affective language. However, if happy people adopt language with a similar emotional tone as their feelings, then liberals’ relative unhappiness could surface in their use of more negative language. Alternatively, if the act of using negative language changes how a person feels, then liberals’ relative unhappiness could be a result of their use of more negative language.

*Negative conservatives hypothesis.* The second hypothesis is that conservatives use more negative language than liberals, perhaps because conservatives are particularly sensitive to negativity (Hibbing, Smith, & Alford, 2014), defensive in response to perceived threat (Jost, Glaser, Kruglanski, & Sulloway, 2003), or have a negative view of human nature (Lakoff, 2002). Wojcik et al. (2015) and Sylwester and Purver (2015) reported that conservatives in the U.S. Congress and on Twitter use more negative language than liberals, and Turetsky and Riddle (2018) reported the same trend in news articles covering the 2014 shooting of Michael Brown.

However, these studies may have relied on questionable measures. Three of the four prior studies (Sylwester & Purver, 2015; Turetsky & Riddle, 2018; Wojcik et al., 2015, Study 3) used a measure of political orientation that may have confounded conservatism with extremism. The Twitter studies (Sylwester & Purver, 2015; Wojcik et al., 2015, Study 3) operationalized political orientation as the tendency to “follow” the Republican Party and not the Democratic Party on Twitter. The issue with using whether a participant followed the Republicans or Democrats is that it is not possible to tease apart ideological direction from ideological extremism. Democrats and Republicans are

ideologically different, with the Republicans being the more conservative party. But the two parties also differ on extremism. Currently, members of the Republican Party are more conservative/extreme than members of the Democratic Party are liberal/extreme (Lewis & Poole, 2004). Therefore, these two studies finding that Republican Party followers used more negative language than Democratic Party followers could reflect Republicans being more conservative, or more extreme, than Democrats, or both. The study of the media (Turetsky & Riddle, 2018) suffered from the same basic problem: it operationalized political orientation on a liberal-conservative linear continuum. It remains possible that the finding that liberals used more positive language reflects greater liberalism or less extremism on the part of the liberal news outlets in this sample.

In our Studies 1 and 4, we revisited the same contexts (Twitter, the media) and used validated continuous measures of political orientation, which allowed us to independently quantify political orientation and extremism and thus test whether the potential extremism confound explains away the “liberals display greater happiness” finding. Finally, the analysis of U.S. Congress (Wojcik et al., 2015, Study 2) relied on text analysis dictionaries that did not pass our validity tests (see the Supplemental Material). In Study 3, we revisit U.S. Congress with validated measures and report results that depart from the prior ones.

#### *Negative Extremists Hypothesis*

We propose a third and novel hypothesis that the language of extremists on both the left and the right is more negative than the language of ideological moderates. Our hypothesis draws from realistic group conflict theory (Sherif, Harvey, White, Hood, & Sherif, 1961), which suggests that competition for fixed resources causes intergroup hostility. Political orientation is a salient form of group identity (Huddy, Mason, & Aarøe, 2015; Kinder & Kalmoe, 2017; Mason, 2018), and extremists by definition identify strongly with political causes and compete with extremists on the other side for political power.

Previous research established that extremists on each side feel threatened by the other side (Brandt & Van Tongeren, 2017; Crawford, 2014) and a Pew Research Center (2016) poll found that half of all U.S. Republicans and Democrats see the other party as a “threat to the nation’s well-being.” Compared with moderates, extremists may feel elevated threat from unlike-minded others because extremists’ ideological differences with others are maximized, simply by virtue of them being on the ideological fringe (cf. Byrne, 1969; Wynn, 2016). In addition, extremists tend to feel stronger moral conviction in their beliefs than do moderates (Ryan, 2014).

A common response to others violating one’s morally convicted beliefs is feeling threatened and angry (Mullen

& Skitka, 2006). While anger, anxiety, and sadness are all responses to unpleasant events, anger is distinguished from other negative emotions in that it is especially associated with attributions that other people have done something wrong (Smith & Ellsworth, 1985). This leads to the prediction that extremists perceiving threat will especially give rise to angry language (although, elevated sad and anxious language are also possible). Our proposal is that in response to these perceived threats, extremists on the left and right tend to “sound the alarm” by communicating in an angry, negative tone.

## The Present Studies

Our primary goal is to test whether liberals, conservatives, or extremists of both varieties use the most negative language. We examined all three in five contexts—Twitter users (Study 1), organizations spanning the ideological spectrum (Black Panthers to ISIS; Study 2), U.S. Congress (Study 3), media outlets (Study 4), and online, ideologically diverse samples (Studies S1 and S2), followed by a meta-analysis (Study 5). Together, our studies sampled political and cultural elites and everyday people, and with a wide variety of political views. Our data also span multiple decades and multiple countries, allowing us to test whether extremists’ language was less negative when they enjoyed political power (Studies 3 and 4). We operationalized political orientation in multiple ways, using behavioral measures (inferred from vote counts and Twitter following behavior), informant reports (reputation), and self-reports; and we operationalized language valence using both computerized text analyses and human coding (see the Supplemental Material for an extensive discussion and validation of our operationalizations of emotional tone of language). In all studies, we also tested whether the use of angry language better distinguishes extremists from moderates than other negative emotions like sadness and anxiety.

As will become evident, the number of text documents varied substantially across the four main studies, ranging from 55 to 3,380,140 text documents. We decided to not use text documents as the unit of analysis for three reasons: (a) doing so would have resulted in highly variable statistical power across studies, (b) text documents were not always a “natural” unit of analysis (they sometimes aggregated the texts of multiple authors), and (c) documents varied widely in length. We circumvented these issues by dividing each text document into segments of 1,000 words in length before performing analyses. Although somewhat arbitrary, the decision to create 1,000-word segments strikes a balance between stable estimates of word densities (larger files are more stable) and statistical power (many files of smaller size produce more power). Results were relatively consistent when segmenting and not segmenting (see Table S5).

## Studies 1 and 2

We tested whether political orientation and/or extremism predicted the emotional tone, including anger, sadness, and anxiety, of the language in Twitter tweets (Study 1) and publicity materials produced by organizations, including radical extremists (e.g., ISIS), spanning the ideological spectrum (Study 2). We predicted that extremists on both ends of the political spectrum would use more negative language than moderates, and that angry language would better distinguish extremists from moderates than would sad and anxious language. Study 1 (Twitter) allowed us to test these predictions in a typical sample of relatively moderate individuals, and Study 2 (organizations) allows us to test whether these effects extrapolate to even more radical groups (see McClosky & Chong, 1985).

## Method

**Study 1 (Twitter).** In the first four studies, we collected large samples to accurately estimate the effect sizes. In Study 1, we scraped 3,380,140 tweets, amounting to 40,590,896 words, from the Twitter accounts of 14,480 politically active users (primarily from 2015 to 2016). The average Twitter user produced 2,803 words ( $SD = 4,315$ ). To allow Twitter users who produced more words to have greater empirical influence, we divided each user’s text into 34,809 segments of 1,000 words each before conducting linguistic analyses.

Using computer software (Linguistic Inquiry and Word Count, LIWC; Pennebaker, Booth, Boyd, & Francis, 2015), we content-analyzed the segments for the emotional tone of their language. See the Supplemental Material for details and evidence establishing the validity of this procedure for assessing emotional tone. Emotional tone is derived from analyses using the dictionaries called *positive emotion* and *negative emotion*. LIWC does not offer subdictionaries for positive emotion whereas subdictionaries called *anxiety*, *anger*, and *sadness* comprise the *negative emotion* dictionary. To flesh out the locus of effects that we find with our primary operationalization of emotional tone, we include auxiliary analyses with *positive emotion*, *negative emotion*, *anxiety*, *anger*, and *sadness* dictionaries.

In this and all subsequent studies, political orientation varied from  $-1$  (*extremely liberal*) to  $0$  (*moderate*) to  $+1$  (*extremely conservative*). Extremism was operationalized as the absolute value of the distance from 0. In Study 1, we used the pattern of Twitter accounts that Twitter users followed to estimate the person’s political orientation (Barberá, Jost, Nagler, Tucker, & Bonneau, 2015; see Methods Reporting for details). And we calculated their extremism as their ideological distance from centrism (we used this procedure in all subsequent studies).

**Study 2 (Organizations).** We built a list of 100 organizations that had publicly available information, such as

newsletters and magazines, and spanned the ideological spectrum (see the Supplemental Material for the complete list). We then downloaded the materials (3,569,992 words). Once again, there was considerable variability in how much text each source produced: 35,700 words on average ( $SD = 119,749$ ), with a range of 1,253 to 883,988. Dividing transcripts into 3,621 segments of equal size (1,000 words each) allowed organizations that produced more text to have a greater empirical influence than organizations that produced little text. Finally, we content-analyzed them as we did in Study 1.

To estimate the political orientation and extremism of each organization, we recruited Internet samples to provide ratings (see Methods Reporting for details). The full ideological spectrum was represented in the sample, including extreme liberals like the *Black Panther Party* (political orientation =  $-0.79$ ), moderate liberals like *Greenpeace* ( $-0.42$ ), moderates like the *Red Cross* ( $-0.11$ ), moderate conservatives like the *Minnesota Tea Party Alliance* ( $0.51$ ), and extreme conservatives like *ISIS* ( $0.94$ ).

### Analytical Strategy

With the aim of testing the three hypotheses concerning which ideological group uses the most negative language, we developed the following analytic and interpretational strategy. We regressed the emotional tone of language on political orientation and extremism. Notably, much of the data we report in the article are nested data requiring regression models that take such nesting into account. In Studies 1 and 2, we used multilevel models, including random intercepts, with text segments (i) nested within Twitter users (j) or organizations (j; depending on the study):

$$\text{Tone}_{ij} = \beta_0 + \beta_1 \text{Political orientation}_j + \beta_2 \text{Extremism}_j + u_{0j} + e_{0ij} \quad (1)$$

We operationalized the three hypotheses as follows (see also Figure 1):

- Negative liberals hypothesis: political orientation is positive, extremism is null.
- Negative conservatives hypothesis: political orientation is negative, extremism is null.
- Negative extremists hypothesis: political orientation is null, extremism is negative.

Hybrid outcomes are also possible where effects of both political orientation and extremism reach significance. In these scenarios, we are interested in knowing whether the slope on the liberal side of (and including) political centrism is significant, as well as if the slope on the conservative side of (and including) political centrism is significant. Analytically, we split the data to include just the liberal side

(political orientation  $\leq 0$ ) and reran the analysis, and then did the same on the conservative side (political orientation  $\geq 0$ ). We then used the following interpretational rule:

- Negative liberals hypothesis: extremism on the liberal side is negative whereas extremism on the conservative side is positive
- Negative conservatives hypothesis: extremism on the liberal side is positive whereas extremism on the conservative side is negative
- Negative extremists hypothesis: extremism on both sides is negative.

### Results

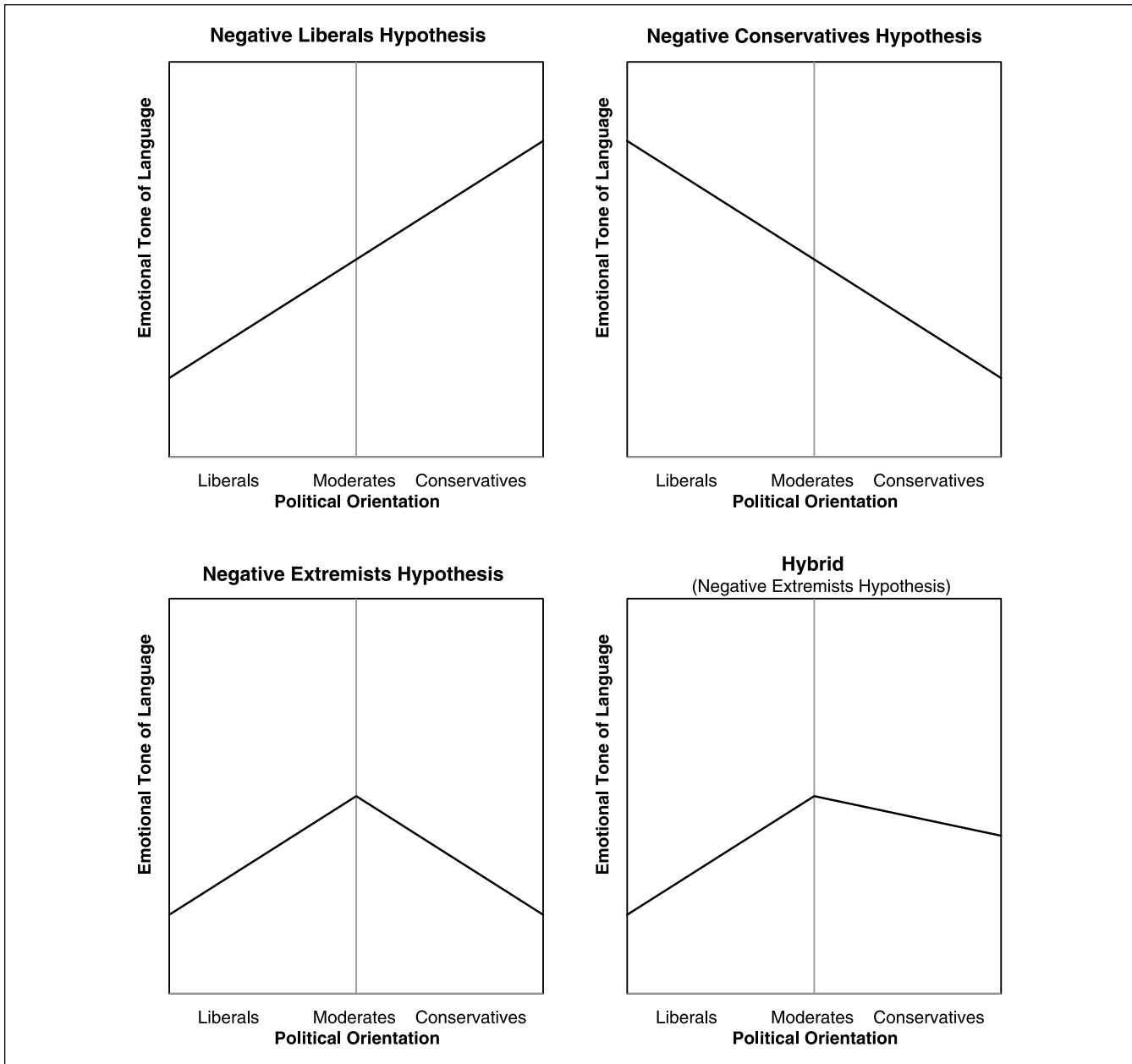
*Extremists' tone is the most negative.* Figure 2 and Table 1 show how increasing extremism was associated with decreasing emotional tone of the language of Twitter users and organizations, whereas political orientation and emotional tone were unrelated. These results unequivocally support the negative extremists hypothesis. These results also suggest that the potential extremism confound in the prior Twitter studies (Sylwester & Purver, 2015; Wojcik et al., 2015, Study 3) could explain away the apparent liberal-conservative differences that were reported therein. In both of our studies, extremists (compared with moderates) used more anger words. In Study 1, but not in Study 2, we also found that extremists used more positive and negative emotion, anxiety, and sadness words. And in Study 1, liberal extremists used more negative emotion, anger, and sadness, and less anxiety words than conservative extremists.

*Illustrations.* To illustrate these trends, the relatively extreme liberal organization, *Anarchist Federation* (political orientation =  $-0.72$ , emotional tone = 30.32 on 1-99 scale), used an angry and negative tone to describe the perception that the powerful exploit the powerless:

For thousands of years hierarchical armed groups have violently taken control of almost the entire world, fighting among themselves for control and enslaving the rest of humanity by denying it access to nature. . . . Why do we not rise up against this injustice? Sometimes we do. But so far our efforts have not been successful. We have not managed to join forces and become strong enough to overthrow all the various hierarchies that exist. And many of us do not even realize we are slaves.

Using a similarly negative and angry tone, the extremely conservative *Ku Klux Klan* (political orientation =  $0.94$ , tone = 44.26) sounded the alarm about the perceived threat of secularism (allegedly organized by Jewish people) to Christianity:

The same satanic forces that brought about the sentencing of our Lord to Calvary's cross are active in the world today. These forces are determined that our Lord shall be crucified anew and



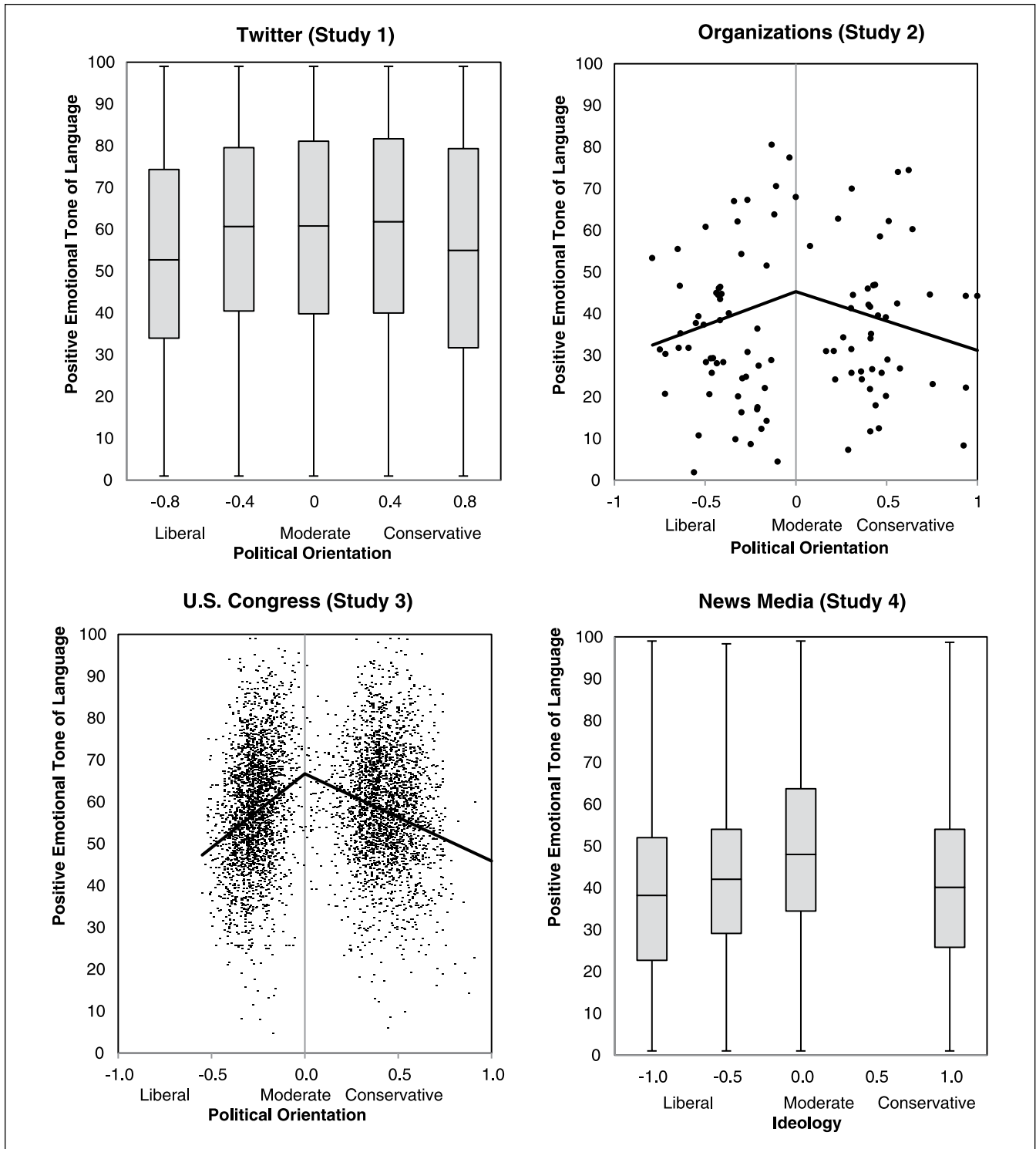
**Figure 1.** Strategy for interpreting the relationship between political orientation/extremism and emotional tone of language with respect to the three hypotheses that liberals, conservatives, or extremists have the most negative language. *Note.* The bottom-right panel displays a hybrid outcome in which the Negative Extremists Hypothesis is supported.

that the civilization and cultural environment which have grown out of His life and His teachings shall be mutilated, subdued and destroyed. The enemies of Christ operate on every front. Their chief underwriter is the organized Jew who is determined that Christ as the Son of God shall not be the determining factor in the destiny of our society whether it involves the individual, or the world, or the factors which lie between individual influence and worldwide influence.

In contrast, the politically moderate *Red Cross* (political orientation = -0.11) offered a more optimistic note (emotional

tone = 70.60), ironically from an objectively dire situation, on the Syrian War:

Nawaf was 3 years into a challenging 5-year bachelor’s degree in computer and information engineering in Damascus when the ongoing Syrian conflict forced him to put his dreams on pause. He had hoped to stay in Syria’s capital city long enough to finish his degree, but with his home destroyed and attacks escalating in his community, he was forced to follow his family into neighboring Jordan. Finding community in the midst of chaos prompted Nawaf to look for ways to support his old—and



**Figure 2.** The language of political extremists is more negative in its emotional tone than that of moderates. Note. Results are from Twitter users (Study 1), political organizations (ranging from the Black Panther Party to the Islamic State (ISIS); Study 2), members of the U.S. Congress between 1996 and 2014 (Study 3), and articles from the media written between 1987 and 2016 (Study 4). For the Twitter data (Study 1), we divided the political spectrum into five quintiles, and represented each quintile using a box plot. Boxes represent first and third quartiles and medians. Error bars represent maximum and minimum values. For the organization data (Study 2), dots represent individual organizations (averaged across their segments). The line represents the model-implied function from the multilevel model described in the text. For the Congressional data (Study 3), each dot represents the emotional tone of the language of a single U.S. politician over a 2-year session of Congress. The line represents the model-implied function from the multilevel model described in the text. For the news media, each box plot represents distinct political categories (Study 4). Boxes represent first and third quartiles and medians. Error bars represent maximum and minimum values.

**Table 1.** Political Extremism Negatively Predicted the Emotional Tone of the Language of Twitter Users (Study 1), Organizations (Study 2), Members of the U.S. Congress (Study 3), and Articles in the Media (Study 4).

	Emotional tone		Positive emotion		Negative emotion		Anxiety		Anger		Sadness	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Twitter (Study 1)												
Political orientation	0.470 (0.340)	.010	-0.020 (0.020)	-.006	<b>-0.042 (0.020)*</b>	<b>-.017</b>	<b>0.011 (0.001)**</b>	<b>.017</b>	<b>-0.033 (0.010)***</b>	<b>-.024</b>	-0.009 (0.010)	-.009
Extremism	<b>-7.602 (0.730)***</b>	<b>-.076</b>	<b>0.154 (0.050)**</b>	<b>.024</b>	<b>0.668 (0.030)***</b>	<b>.133</b>	<b>0.098 (0.010)***</b>	<b>.072</b>	<b>0.350 (0.020)***</b>	<b>.119</b>	<b>0.054 (0.010)***</b>	<b>.027</b>
Organizations (Study 2)												
Political orientation	1.083 (3.286)	.021	0.183 (0.137)	.074	0.104 (0.179)	.043	-0.050 (0.049)	-.064	0.045 (0.112)	.033	0.013 (0.041)	.026
Extremism	<b>-15.170 (7.307)*</b>	<b>-.160</b>	-0.366 (0.297)	-.081	0.463 (0.401)	.103	-0.059 (0.109)	-.041	<b>0.530 (0.253)*</b>	<b>.214</b>	0.030 (0.092)	.032
Congress (Study 3)												
Political orientation	<b>5.676 (0.515)***</b>	<b>.090</b>	<b>0.079 (0.029)**</b>	<b>.026</b>	<b>-0.291 (0.021)***</b>	<b>-.116</b>	<b>-0.024 (0.005)***</b>	<b>-.033</b>	<b>-0.079 (0.011)***</b>	<b>-.058</b>	<b>-0.084 (0.005)***</b>	<b>-.117</b>
Extremism	<b>-22.661 (1.384)***</b>	<b>-.129</b>	<b>-0.914 (0.077)***</b>	<b>-.106</b>	<b>0.564 (0.056)***</b>	<b>.080</b>	<b>0.054 (0.014)***</b>	<b>.026</b>	<b>0.245 (0.029)***</b>	<b>.064</b>	<b>0.091 (0.013)***</b>	<b>.045</b>
News media (Study 4)												
Political orientation	<b>1.497 (0.146)***</b>	<b>.061</b>	<b>0.029 (0.006)***</b>	<b>.027</b>	<b>-0.072 (0.006)***</b>	<b>-.066</b>	<b>-0.028 (0.002)***</b>	<b>-.082</b>	<b>-0.040 (0.004)***</b>	<b>-.064</b>	<b>-0.005 (0.002)**</b>	<b>-.016</b>
Extremism	<b>-8.721 (0.338)***</b>	<b>-.156</b>	<b>0.057 (0.015)***</b>	<b>.023</b>	<b>0.588 (0.015)***</b>	<b>.240</b>	<b>0.097 (0.005)***</b>	<b>.127</b>	<b>0.239 (0.009)***</b>	<b>.168</b>	<b>0.060 (0.004)***</b>	<b>.086</b>
Meta-analysis	<b>.078 [-0.075, .082]***</b>		<b>.023 [-0.020, .027]***</b>		<b>-1.00 [-1.03, -.096]***</b>		<b>-0.32 [-0.36, -.029]***</b>		<b>-0.054 [-0.057, -.051]***</b>		<b>-0.095 [-0.099, -.092]***</b>	
Political orientation	<b>-1.126 [-1.129, -.123]***</b>		<b>-0.082 [-0.085, -.078]***</b>		<b>.099 [-0.096, .102]***</b>		<b>.038 [-0.035, .042]***</b>		<b>.080 [-0.077, .083]***</b>		<b>.046 [-0.043, .050]***</b>	

Note. Analyses used multilevel modeling, with text segments nested within sources. Numbers are unstandardized estimates (and standard errors). Bolded numbers are statistically significant. Multilevel modeling does not have a universally agreed upon method for estimating effect sizes. In all analyses using multilevel modeling, we estimated effect sizes by standardizing all variables (z scores), rerunning the analyses, and taking the unstandardized estimate to be an estimate of effect size, β. All p values are from two-tailed tests. Fixed-effects meta-analyses include all four studies and Studies S1 and S2 (see the Supplemental Material); effects of political orientation control for extremism and vice versa. CI = confidence interval.  
 \*p < .05. \*\*p < .01. \*\*\*p < .001.

**Table 2.** Effects (Unstandardized Estimates and SEs) of Political Orientation and Extremism on Emotional Tone of Language, While Controlling for Six Topics.

	Study 1	Study 2	Study 3	Study 4
	Twitter	Organizations	Congress	Media
Individual differences				
Political orientation	0.585 (0.320) <sup>†</sup>	-0.383 (2.678)	<b>4.964 (0.467)***</b>	<b>0.517 (0.135)***</b>
Extremism	<b>-5.396 (0.690)***</b>	-11.337 (5.910) <sup>†</sup>	<b>-19.568 (1.256)***</b>	<b>-3.789 (0.335)***</b>
Topics				
Work	<b>0.875 (0.110)***</b>	<b>0.659 (0.130)***</b>	<b>1.280 (0.023)***</b>	<b>0.262 (0.071)***</b>
Leisure	<b>3.978 (0.130)***</b>	<b>5.267 (0.481)***</b>	<b>6.116 (0.101)***</b>	<b>6.767 (0.155)***</b>
Home	0.448 (0.360)	<b>-4.576 (0.816)***</b>	<b>-1.317 (0.106)***</b>	<b>-3.731 (0.320)***</b>
Money	<b>-0.569 (0.210)**</b>	<b>3.639 (0.217)***</b>	-0.003 (0.031)	<b>1.270 (0.109)***</b>
Religion	<b>0.604 (0.220)**</b>	<b>2.623 (0.472)***</b>	<b>4.399 (0.126)***</b>	<b>0.986 (0.119)***</b>
Death	<b>-11.430 (0.410)***</b>	<b>-15.342 (0.970)***</b>	<b>-17.538 (0.153)***</b>	<b>-17.470 (0.320)***</b>

<sup>†</sup> $p < .10$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Bolded numbers are significant.

new—neighbors so he found himself volunteering in the Red Cross Red Crescent hospital that provides specialized medical care to Syrian refugees.

The following examples illustrate how extremists used more negative language than moderates on Twitter. The first example comes from a strongly conservative (political orientation = 0.87) Twitter user who used a negative emotional tone (9.45) when tweeting: “[Paul Ryan] is a drug-addled, squandering milksop spewing codswolop all over himself #Trump#MAGA,” “RACIST MUSLIMS hate Jews and Blacks. They must be extricated from America,” and “Mainstream Americans are dumb as a post. They think America is not a corporation and Barry an evil CEO. They think simply.”

Like his or her conservative counterpart, a liberal extremist (political orientation = -0.95) used a negative emotional tone (5.00) when criticizing Republicans. “Benghazi: 4 died. America: 90 daily die from guns. What is the GOP doing to protect us? NOTHING,” “Can’t stand listening to Trumps lies but I really can’t stand to look at that orange fat face, put a bag on it. UGLY,” and “[Jan Brewer] is an excellent example of what’s WRONG with the GOP. She is a racist, rude moron and Trump is the GOP’s KARMA.”

In contrast to the language of the two extremists, a moderate Hillary Clinton supporter (political orientation = 0.03, emotional tone = 72.34) used more positive language: “Hillary Clinton was right. It took courage for this woman to bring her children to the US. Great moment #DemDebate,” “I bet a Clinton/Sanders ticket would be unstoppable. Maybe not the other way around #DemDebate,” and “As the mother of 2 teachers [I] agree with Hillary Clinton we need to invest in education again. Bet those bad teachers would disappear #DemDebate”

**Topic selection.** While illustrative of the difference in emotional tone between the language of extremists and moderates, these examples give the impression that extremists and moderates

might spontaneously gravitate toward different topics. Some topics (e.g., death) might evoke more negative language than others (e.g., leisure activities). Differences in topic selection could thus explain why extremists and moderates differ in their tone. To test this possibility, we reran the main analyses (political orientation and extremism predicting tone) but now holding the topic constant. For this analysis, we used LIWC’s predefined “personal concern” dictionaries, which included dictionaries for the topics of *work*, *leisure*, *home*, *money*, *religion*, and *death*. Table 2 shows how extremism remained a negative predictor of emotional tone when holding the topic constant (marginally in Study 2), suggesting that extremists’ negative language is not fully explained by differences in topic selection. We also (consistently) found that people used a negative tone when talking about death, and a positive tone when talking about work, leisure, and religion. Results for home and money were mixed.

### Studies 3 and 4

Studies 3 and 4 again tested whether extremists use more negative language than moderates, this time in politicians’ speeches and news media articles, both of which spanned decades. We suggest that extremists use angrier, more negative language than do moderates as a way of signaling to others that they disapprove of what they perceive to be a threatening state of society and the world. By criticizing an opponent group or their agenda, extremists may establish their social identity, virtues, and credentials as a member of a resistance movement. Angry language may be particularly effective for this purpose because it tends to get more attention than making positive statements (Brady, Wills, Jost, Tucker, & Van Bavel, 2017; Pew Research Center, 2017). Negative language may also reflect an attempt to persuade others to oppose what is seen as a threatening agenda. Although they are not always effective (Feinberg & Willer, 2015), persuasion attempts



may be aimed at alerting their political opponents about perceived negative consequences of their efforts or at persuading moderates and ideological allies to mobilize against the other side's agenda.

If extremists' negative language is sourced to an effort to communicate, then their language should become less negative when the perceived threats lose their potency, such as when extremists with the opposing political orientation lose power. This is because losing political power strips the opposing group of its authority to make the threatening proposals a reality.

## Method

**Study 3 (U.S. Congress).** We downloaded 262,935,589 words in the *U.S. Congressional Record*, which included all the words spoken in U.S. Congress during floor debates between 1996 and 2014 inclusive. To operationalize political orientation and extremism, we used a behavioral measure of political orientation (DW-Nominate, Dimension 1; Lewis & Poole, 2004) derived from each politician's tendency to vote along party lines (extremism) or in a more nuanced, bipartisan fashion (moderate). Finally, we examined whether the U.S. Presidency, House of Representatives, and/or Senate being under control of ideologically like-minded people reduced the negativity of extremists' language.

We used multilevel modeling, with extremism and political orientation predicting emotional tone. Each transcript comprised all the words of a single politician within a single 2-year session of Congress. Politicians often served multiple terms, meaning that some politicians had multiple transcripts. We divided each transcript into 1,000-word segments and then accommodated the nested nature of the data with three-level multilevel models with transcripts (i) nested within politicians (j), and politicians nested within sessions of Congress (k). The analysis included random intercepts for politicians and sessions.

$$\text{Tone}_{ijk} = \beta_0 + \beta_1 \text{PoliticalOrientation}_{jk} + \beta_2 \text{Extremism}_{jk} + u_{ojk} + u_{ok} + e_{oijk} \quad (2)$$

**Study 4 (news media).** The sample was 17 news media sources spanning the political spectrum. It included outlets from the far left (e.g., *New Republic*) and the far right (e.g., *American Spectator*), as well as from the center (e.g., *Associated Press*). For each source, we downloaded political articles from LexisNexus written between 1987 and 2016 (28,966,798 words total), and divided them into segments of 1,000 words each. We used multilevel modeling, with extremism and political orientation predicting emotional tone. The unit of analysis was the text file segment (i). Each text file was comprised of all the words of news articles from a particular political orientation within a single 2-year session of Congress (j):

$$\text{Tone}_{ij} = \beta_0 + \beta_1 \text{PoliticalOrientation}_{ij} + \beta_2 \text{Extremism}_{ij} + u_{oj} + e_{oij} \quad (3)$$

## Results

**Extremists' tone is the most negative.** In both studies, extremism negatively and political orientation positively predicted emotional tone (see Table 1 and Figure 2; These effects held when controlling for the topic; see Table 2). Examining the effect of extremism on each side of centrism in the U.S. Congress, we found that extremism negatively predicted emotional tone among liberals,  $B = -32.115$ ,  $SE = 2.178$ ,  $\beta = -.183$ ,  $p < .001$ , and among conservatives in Congress,  $B = -13.054$ ,  $SE = 1.677$ ,  $\beta = -.074$ ,  $p < .001$ . Similarly, extremism negatively predicted emotional tone among liberal media organizations,  $B = -10.199$ ,  $SE = 0.359$ ,  $\beta = -.183$ ,  $p < .001$ , and among conservative media organizations,  $B = -7.333$ ,  $SE = 0.415$ ,  $\beta = -.131$ ,  $p < .001$ . These results again support the negative extremists hypothesis, with the caveat that liberal extremists' tone was more negative than conservative extremists' in both studies. In both studies, extremists (compared with moderates) used more negative emotion words and more anxiety, anger, and sadness words, with anger words being the most distinguishing of the negative emotion word categories. In the study of U.S. Congress, extremists used fewer positive emotion words, whereas in the media study, extremists used more positive emotion words.

**Reconciling difference with prior research.** The results reported in the present Studies 3 and 4 suggest a full reversal of the conclusion from previous analyses of the media (Turetsky & Riddle, 2018) and U.S. Congress (Wojcik et al., 2015, Study 2). We found that liberals use more negative language than conservatives and not vice versa. The potential extremism-political orientation confound and the context being limited to coverage of the 2014 Michael Brown shooting in the prior analysis (Turetsky & Riddle, 2018) might explain the different findings in the former.

Regarding the analyses of U.S. Congress, the differences between the present and prior analysis were manifold and nuanced. We identified eight methodological/analytic differences between the prior analysis of U.S. Congress (Wojcik et al., 2015, Study 2) and our Study 3, and systematically examined the empirical consequences of these analytic factors by changing one at a time and observing changes to the conclusions (see Table 3). Two of the eight differences turned out to explain the diverging conclusions about affective language and political orientation.

There are several methodological differences that *cannot* fully explain the differences between our results and prior studies. The prior analysis used separate positive and negative affect dictionaries, whereas we relied on a single metric of emotional tone (Analysis 2  $\rightarrow$  3), the two analyses used

**Table 3.** Original Analysis of the U.S. Congressional Record by Wojcik, Hovasapian, Graham, Motyl, and Ditto (2015; Study2; Analysis 1 in This Table) and Our Reanalyses (Analyses 2-9), Which Adjusted Analytic Features Sequentially.

Analysis	Description	Predictor	B (SE), $\beta$	
			Political orientation	Extremism
1	Original (Wojcik, Hovasapian, Graham, Motyl, & Ditto, 2015, Study 2)	Positive affect	<b>-0.88 (0.19), -.16***</b>	—
		Negative affect	0.04 (0.05), .04 ns	—
2 (critical change)	Replace [word count and wordiness covariate] with [word density]	Positive affect	$-4 \times 10^{-3}$ ( $5 \times 10^{-3}$ ), -.04 ns	—
		Negative affect	-0.01 (0.01), -.04 ns	—
3	Use emotional tone composite (=PA-NA)	Emotional tone	$1 \times 10^{-3}$ ( $9 \times 10^{-3}$ ), .00 ns	—
4	Add extremism	Emotional tone	$-2 \times 10^{-3}$ (0.01), -.02 ns	-0.02 (0.02), -.04 ns
5	Use DW-Nominate instead of <i>That's my Congress</i> measure of political orientation and extremism	Emotional tone	0.11 (0.21), .05 ns	-0.62 (0.46), -.10 ns
6 (critical change)	Use LIWC instead of the PANAS-X text analysis dictionaries	Emotional tone	<b>6.65 (2.19), .25**</b>	<b>-21.77 (4.87), -.33***</b>
7	Remove demographics	Emotional tone	<b>8.17 (1.86), .31***</b>	<b>-17.83 (4.62), -.27***</b>
8	Expand from 1 to 20 years of data (current research)	Emotional tone	<b>7.24 (0.66), .19***</b>	<b>-28.04 (1.75), -.29***</b>
9	Divide each transcript into 1,000-word segments	Emotional tone	<b>5.68 (0.52), .09***</b>	<b>-22.66 (1.38), -.13***</b>

Note. Analyses 1 to 7 were OLS regression; Analysis 8 to 9 were multilevel models (see Study 3). Significant effects are in bold. The critical changes are indicated. LIWC = Linguistic Inquiry and Word Count; OLS = ordinary least squares; PA = Positive Affect; NA = Negative Affect; PANAS-X = Positive and Negative Affect Scale-X. ns > .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

different measures of ideology, with the prior analysis using ratings from <http://thatsmycongress.com> and our analysis using DW Nominate Dimension 1 (Analysis 4 → 5), the prior analysis statistically controlled for demographic and political variables, whereas we did not (Analysis 6 → 7), the prior analysis included 1 year of data, whereas ours spanned 20 years (Analysis 7 → 8), and the current analysis introduced text segmentation (Analysis 8 → 9).

The critical differences between the prior and current analyses concerned the text analysis dictionaries themselves. First, to isolate the qualities of language from its quantity, a common procedure when performing text analyses is to use word *densities* (number of words in a dictionary/number of words total). Wojcik et al. (2015) used an alternative operationalization of positive and negative language as word *counts* and included (a proxy measure of) word count (called “wordiness”) as a covariate in their analyses. This seemingly trivial difference turned out to be important. In Table 3, Analysis 1, we used their original data and operationalizations to reproduce the results of Wojcik et al. (2015; Study 2). Analysis 2 introduced a critical change: We replaced the word count and wordiness covariates with a single word density (= word count/wordiness × 100%). This ostensibly trivial operational adjustment reduced the association between political orientation and affective language to nonsignificance, meaning that Wojcik et al.’s Study 2 results were not robust with respect to this analytic feature. To adjudicate between this positive and null result, we independently assessed the validity of using separate measures of affective

word count and total word count as a covariate, and found no supportive evidence to suggest that this method is valid (see *Operationalizing emotional tone of language* in the Supplemental Material). Creating a word density score by dividing affective word count by the total word count slightly improved the validity of these dictionaries—one test yielded a null while the other had  $p = .04$  (see the Supplemental Material).

This raises the second critical difference between the prior and current analyses of U.S. Congress—the text analysis dictionaries themselves. In identifying positive and negative emotion words, Wojcik et al. relied on dictionaries derived from the Positive and Negative Affect Schedule: Expanded Form (PANAS-X, Watson & Clark, 1994). Whereas the PANAS-X is a validated measure of self-reported emotion (Watson, Clark, & Tellegen, 1988), its validity as a dictionary for text analysis remains to be established. To date, three attempts have been made (our own two in the Supplemental Material, and Pressman & Cohen, 2012) to validate the PANAS-X positive and negative affect dictionaries; evidence of their validity remains slim.

Meanwhile, we established the validity of the Linguistic Inquiry and Word Count (Pennebaker et al., 2015) variable called “emotional tone” in the Supplemental Material. With these validated tools, we reanalyzed the *U.S. Congressional Record* (now including extremism as a predictor; see Analysis 6 in Table 3). Extremists on both sides used more negative language than moderates (our primary prediction), and liberal extremists used more negative

language than conservative extremists (a reversal of the Wojcik et al., Study 2, finding). To summarize, prior research used invalidated measures, whereas we used validated ones. Therefore, we believe that the current approach represents the best estimate of the effect of political orientation and extremism on emotional tone.

**Illustrations.** Illustrative of the reported trends, Representative Ron Paul (R-TX), a conservative extremist (political orientation = 0.85) with a negative emotional tone (19.03 on the 1-99 scale) in the 110th session of Congress (2008-2009) sounded the alarm in September 2008 about the bailout of the U.S. financial system in the wake of the 2008 financial crisis. At the time, the Senate and the House were under Democratic majorities and the president was Republican.

Just imagine the results if a construction company was forced to use a yardstick whose measures changed daily to construct a skyscraper. The result would be a very unstable and dangerous building. No doubt the construction company would try to cover up their fundamental problem with patchwork repairs, but no amount of patchwork can fix a building with an unstable inner structure. Eventually, the skyscraper will collapse, forcing the construction company to rebuild—hopefully this time with a stable yardstick. This US\$700 billion package is more patchwork repair and will prove to be money down a rat hole and will only make the dollar crisis that much worse.

Similarly, Rep. James McDermott (D-WA), a somewhat extreme liberal (political orientation = -0.50) with a negative emotional tone (30.27) in the 108th session of Congress (2003-2004) sounded the alarm about the War in Iraq and its management. At the time, the presidency, Senate, House were in Republican control.

Mr. Speaker, the ship of state sails without a rudder. Increasingly, the world sees our presence in Iraq as an occupation, not a liberation. Any talk of democracy has been replaced with images of brute and brutal force. The President talks about a superb Cabinet Secretary, but America and the world reel in horror and shame over what was done in the name of defending our country. If only the administration had paid attention. The Red Cross knew, but the administration would not listen. American leadership and credibility have cratered deeper and deeper, yet the administration remains deaf to what happened and the need to act.

In contrast, Rep. Travis Childers (D-MS), a political moderate (political orientation = 0.01) with a positive emotional tone (92.54) in the 111th session of Congress (2009-2010) spoke more positively in support of legislation that would increase student aid:

I want to see these education benefits accessed by veterans, and help those veterans to succeed in their college careers. I would like to especially commend the unprecedented investments in community colleges included Student Aid and Fiscal Responsibility Act of 2009];in H.R. 3221. Community colleges

in Mississippi are some of the best in the Nation. They play an important role in preparing students for tomorrow's workforce. A community college education is one of the best investments a student can make.

**Moderation by political power.** Stemming from our view that extremists' negative language is derivative of perceived threat from political rivals, we also predicted that when their political rivals lost power, extremists' negativity would be reduced. This idea suggests that that political orientation would positively interact with conservatives holding political power in the House, Senate, and Presidency.

In Study 3, we ran the same multilevel model as before but now splitting the House and Senate to test whether extremists use more negative language in both chambers. The predictors of emotional tone were political orientation, extremism, political power in the presidency, the House, and the Senate (all three coded 1 = Republican, -1 = Democrat), and the interactions between political orientation or extremism and the three indicators of political power:

$$\begin{aligned} \text{Tone}_{ijk} = & \beta_0 + \beta_1 \text{PoliticalOrientation}_{jk} \\ & + \beta_2 \text{Extremism}_{jk} + \beta_3 \text{President}_k \\ & + \beta_4 \text{House}_k + \beta_5 \text{Senate}_k + \beta_6 \text{President} \\ & \times \text{PoliticalOrientation}_{jk} + \beta_7 \text{President} \\ & \times \text{Extremism}_{jk} + \beta_8 \text{House} \\ & \times \text{PoliticalOrientation}_{jk} + \beta_9 \text{House} \\ & \times \text{Extremism}_{jk} + \beta_{10} \text{Senate} \\ & \times \text{PoliticalOrientation}_{jk} + \beta_{11} \text{Senate} \\ & \times \text{Extremism}_{jk} + u_{ojk} + u_{ok} + u_{1k} + u_{2k} + e_{ojk} \end{aligned} \quad (4)$$

with  $i$  = segment,  $j$  = politician,  $k$  = session. The model included random intercepts for politicians and sessions. It also included random slopes at the session level for political orientation and extremism.

We did the same thing in Study 4 (with the exception of there being no chambers to split):

$$\begin{aligned} \text{Tone}_{ij} = & \beta_0 + \beta_1 \text{PoliticalOrientation}_{ij} \\ & + \beta_2 \text{Extremism}_{ij} + \beta_3 \text{President}_j \\ & + \beta_4 \text{House}_j + \beta_5 \text{Senate}_j \\ & + \beta_6 \text{President} \times \text{PoliticalOrientation}_{ij} \\ & + \beta_7 \text{President} \times \text{Extremism}_{ij} \\ & + \beta_8 \text{House} \times \text{PoliticalOrientation}_{ij} \\ & + \beta_9 \text{House} \times \text{Extremism}_{ij} \\ & + \beta_{10} \text{Senate} \times \text{PoliticalOrientation}_{ij} \\ & + \beta_{11} \text{Senate} \times \text{Extremism}_{ij} \\ & + u_{oj} + u_{1j} + u_{2j} + e_{oj} \end{aligned} \quad (5)$$

**Table 4.** Tests of Whether Sharing a Political Orientation With Those in Political Power Reduced the Negativity of Extremists' Language in U.S. Congress (Study 3) and in the Media (Study 4).

Predictor of emotional tone of language	U.S. Congress (Study 3)		
	Senate	House	Media (Study 4)
Political orientation	2.055 (1.480)	<b>4.118 (0.723)***</b>	<b>1.732 (0.448)**</b>
Extremism	<b>-24.019 (4.037)***</b>	<b>-25.71 (1.910)***</b>	<b>-9.169 (1.031)***</b>
Political orientation of president	1.018 (1.204)	0.476 (0.735)	1.086 (0.897)
Political orientation of House	-0.008 (1.496)	<b>-3.236 (1.057)**</b>	0.527 (1.193)
Political orientation of Senate	-1.535 (1.383)	-1.005 (0.883)	-0.477 (1.152)
<b>Political orientation × President</b>	<b>5.023 (1.253)***</b>	<b>2.755 (0.574)***</b>	0.215 (0.392)
<b>Political orientation × House</b>	1.246 (1.491)	<b>4.940 (0.852)***</b>	-0.011 (0.524)
<b>Political orientation × Senate</b>	0.530 (1.399)	-0.994 (0.705)	0.154 (0.479)
Extremism × President	-3.262 (3.486)	-2.782 (1.577) <sup>†</sup>	-1.989 (0.945) <sup>†</sup>
Extremism × House	-0.697 (3.945)	3.164 (2.219)	0.091 (1.257)
Extremism × Senate	-0.295 (4.021)	-0.590 (1.926)	0.148 (1.187)

Note. The critical prediction was that political orientation would positively interact with the political orientation of the presidency and with majority control of the House and Senate (boldfaced predictors). Analyses were multilevel models. Numbers represent unstandardized estimates (and SEs). Bolded numbers are statistically significant.

<sup>†</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

with  $i = \text{segment}$ ,  $j = \text{session}$ . The model included random intercepts for sessions. It also included random slopes at the session level for political orientation and extremism.

The two studies provided nine distinct tests of whether political orientation interacted with political power (political orientation  $\times$  president, etc.). Seven of the nine tests were in the predicted (positive) direction, of which three reached significance (see Table 4). Two effects were non significantly in the unpredicted (negative) direction. Extremists reacted most consistently to the presidency, and less consistently to political control in the House and Senate, perhaps because Americans tend to think that the Presidency is more powerful than the other branches of government (Brownlow, 1969; Meindl, Ehrlich, & Dukerich, 1985; Nyhan, 2009), even though the founding fathers designed the presidency to be coequal with Congress and the Supreme Court. These results generally, albeit imperfectly, support the theory that extremists' negative language is linked to perceived threat. We supply further tests in subsequent studies and analyses.

## Study 5

Study 5 reports a meta-analysis using all of the available data to test which political group uses the most negative language and to test a key moderator. As anger is the characteristic emotional response to threat, we tested whether extremists' negativity is especially sourced to their use of angry language (compared with sad and anxious language).

## Results

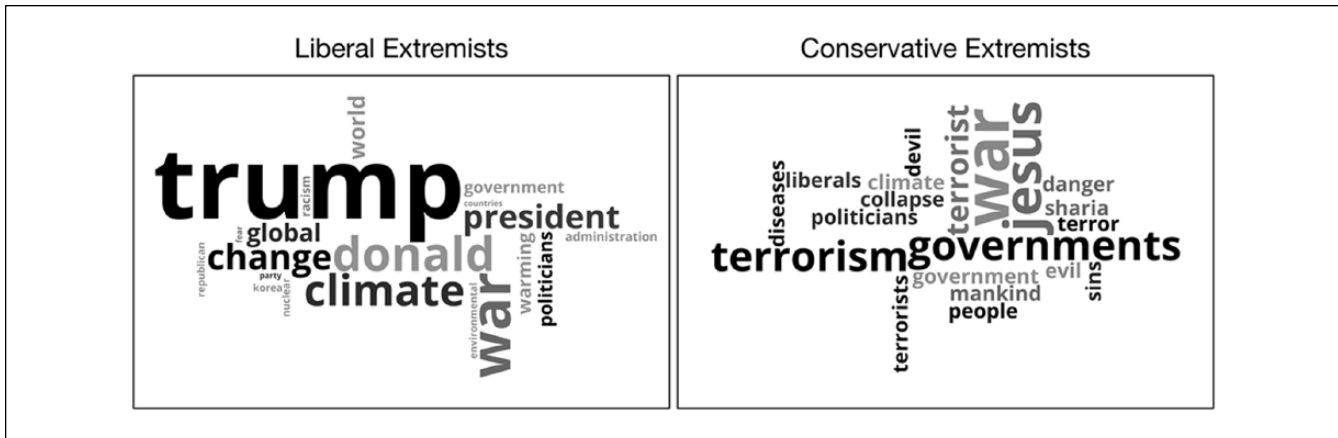
Including the data from all four studies and Studies S1 and S2 (see the Supplemental Material for details), we applied fixed-effects models on the standardized effects of extremism,

controlling for political orientation, on the linguistic categories. We repeated the analyses to test the effects of political orientation (controlling for extremism) on the various linguistic categories. Our analyses revealed that extremists used a more negative emotional tone than moderates (see Table 1). Liberal extremists used more negative language than conservative extremists, contradicting Sylwester and Purver (2015), Turetsky and Riddle (2018), and Wojcik et al. (2015). However, the effect of extremism dwarfed this trend, meaning that extremists on both ends of the political spectrum used more negative language than moderates. In addition, extremists used less positive and more negative emotion words, and more anxious, angry, and sad words than moderates.

In five of the six studies, extremism was more strongly associated with the use of anger words than anxiety and sadness words; Meta-analytically, extremists used more angry words than anxious words,  $\chi^2(1, N = 343,701) = 299.52, p < .001, \phi = .030$ , and more angry words than sad words,  $\chi^2(1, N = 343,701) = 193.98, p < .001, \phi = .024$ . Insofar as anger is the characteristic emotional response to threat (Smith & Ellsworth, 1985), these results are consistent with the idea that extremists' negative language is linked to their heightened attention to perceived threat.

## General Discussion

We began with three competing hypotheses about which group uses the most negative language—liberals, conservatives, or extremists of both liberal and conservative orientations. Six new studies consistently supported the view that extremists use the most negative language. Just comparing liberal and conservative extremists, we found that liberal extremists used a more negative emotional tone. Unlike the previous studies, ours considered the possibility that political



**Figure 3.** Word clouds representing the most common threats that liberal and conservative extremists implicated.  
 Note. The size of each word is proportional to the frequency of its mentioning.

orientation and emotional tone are nonlinearly related and employed validated measures to produce conclusions that depart from the incumbent views.

### Mechanisms

Extremists' negative language may be a product of their perceived threat from their political rivals as they (verbally) sound the alarm to persuade others and signal their virtues or opposition. This mechanism departs from the view that liberals "display greater happiness" in their language than conservatives (Wojcik et al., 2015), which implies that negative language is a form of venting—an outward expression of an inner feeling. Although our results are not obviously in line with a venting mechanism, we decided to directly test it in Study S2 (see the Supplemental Material). Contrary to what the venting mechanism would predict, extremists reported being in a marginally *better* mood than moderates before communicating about the state of society. These results suggest the affective correlate of extremism is limited to language and does not generalize to mood.

If extremists' negative language is not a vent, then what is it? We believe our data point to the possibility that it is a reaction to perceived threat. But who or what is the cause of the threat? To explore the possibility that extremists are reacting to the activities of political rivals, we asked a new sample of Americans (Study S3) to write down the threats they perceive (see Figure 3 for results and the Supplemental Material for methodological details). For extremists on both sides, opponent political causes were prevalent, as were international threats. While domestic and international threats are conceptually distinct entities, they may be politically and psychologically linked (Berinsky, 2009).

A limitation of the present research is that it did not fully establish the social functions of extremists' negative language. We leave it to future research to investigate whether the negative language is intentionally or unintentionally an

effort to signal a social identity and/or gain acceptance in a resistance movement and/or an effort to persuade political opponents, allies, or moderates. Extremists of both the liberal and conservative varieties have some important psychological similarities, and among them is the tendency to perceive threat in their environment and use angrier, negative language than moderates in response.

Another limitation of the present studies is the correlational nature of the data, which leave open the possibilities that being an extremist causes a person to use negative language and that using negative language causes a person to become an extremist. Future research might test these causal pathways. A final limitation of the present studies is that they leave open the possibilities that extremists' negative language is the result of extremists talking about particular issues that tend to evoke negativity (such as the war in Iraq) or a tendency for extremists to use negative language when talking about any particular issue. The illustrative examples from Studies 1 to 3 seem to reveal topical differences between the texts from moderates and extremists. We attempted to address this issue by statistically controlling for six topics (work, leisure, home, money, religion, and death) in a supplementary analysis and still found that extremists used a more negative tone than moderates. It remains possible that some other topic (e.g., war) explains the tonal differences between moderates and extremists. Future research might experimentally investigate the contexts in which extremists end up using more negative language.

### Implications

The *negative extremists hypothesis* could have real-world implications. Ideological extremism is on the rise (Pew Research Center, 2014; Voteview, 2015). Extremists tend to get more attention than moderates (Hong & Kim, 2016; Hughes & Lam, 2017) and their words can influence others (Clifford, Jerit, Rainey, & Motyl, 2015; Frimer, Aquino,

Gebauer, Zhu, & Oakes, 2015; Kramer, Guillory, & Hancock, 2014), which could have consequences for mental health and civic discourse. This is because, along with using angry, negative words, extremists tend to be self-righteous (Toner, Leary, Asher, & Jongman-Sereno, 2013), cognitively inflexible (Brandt et al., 2015; Conway et al., 2016; Tetlock, 1984, 1986), highly deferential to their own authorities (Frimer, Gaucher, & Schaefer, 2014), and have a simplistic understanding of the political domain (Lammers, Koch, Conway, & Brandt, 2017) and of how their preferred policies would work (Fernbach, Rogers, Fox, & Sloman, 2013). Understanding the inner life and communicative tendencies of extremists could be crucial for developing strategies to neutralize extremists' appeals and thus help stabilize democracies strained by extremists' language.

This research contributes to the literature in three ways. First, there is a growing interest in the relationship between ideology and affective language (e.g., Tumasjan, Sprenger, Sandner & Welpe, 2011; Young & Soroka, 2012). The current state of knowledge about the relationship between political orientation and emotional tone of language suggests that liberals "display greater happiness" in their language than conservatives (Sylwester & Purver, 2015; Wojcik et al., 2015). We provide the first tests of whether political orientation and the emotional tone of language are nonlinearly related. Second, the notion of "displaying greater happiness" implicitly characterizes language as an outward expression of an inner feeling. We offer a different characterization of language of varying emotion tone as serving social functions (e.g., persuasion). Third, the current state of knowledge is that conservatives perceived more threat than liberals (e.g., Altemeyer, 1998; Duckitt, 2001). We develop a perspective about why extremists on the left and right may perceive greater threat than moderates.

## Conclusion

In the opening epigraph, Donald Trump described many threats—poverty, deteriorating work environments, poor education, crime, drugs, and murder. As we have found, left-wing extremists may also feel threatened, only by different forces, such as bigotry, social inequality, and climate change; in turn, liberal extremists use similarly (or even more) negative and angry language than their conservative counterparts. For instance, on the floor of the U.S. Senate in June 2012, Senator Bernie Sanders (Independent-Vermont [I-VT]), a liberal extremist (political orientation =  $-0.53$ ) offered the following words:

The American people are angry. They are angry because they are living through the worst recession since the great depression. Unemployment is not 8.2%, real unemployment is closer to 15% . . . There are workers out there 50, 55 years old who intended to work the remainder of their working lives, suddenly they got a pink slip, their self-esteem is destroyed, they're never going to have another job again and now they're worried about

their retirement security. What the American people are angry about is they understand that they did not cause this recession. Teachers did not cause this recession. Firefighters and police officers who are being attacked daily by governors all over this country did not cause this recession. Construction workers did not cause this recession. This recession was caused by the greed, the recklessness and illegal behavior of the people on Wall Street.

Compared with moderates, extremists on both ends of the spectrum seem to perceive danger and sound the alarm.

## Authors' Note

*Open Science Practices.* The data and code are available at <https://osf.io/va3hk/>

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## Notes


1. We use the terms *left wing* and *liberalism* synonymously, as well as *right wing* and *conservatism*. The two dimensions diverge in some countries. However, they converge in the United States, the primary context under study.
2. Although Donald Trump was a Democrat until 2009 and currently supports some left-leaning policies (e.g., investing in infrastructure), most of his policies and his inaugural address are right of center.


## Supplemental Material

Supplemental material is available online with this article.

## ORCID iDs

Jeremy A. Frimer  <https://orcid.org/0000-0003-4811-0199>

Mark J. Brandt  <https://orcid.org/0000-0002-7185-7031>

Matt Motyl  <https://orcid.org/0000-0002-7190-0802>

## References

- Altemeyer, R. A. (1998). The other "authoritarian personality." In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 30, pp. 47-91). New York, NY: Academic Press.

- Barberá, P., Jost, J. T., Nagler, J., Tucker, J. A., & Bonneau, R. (2015). Tweeting from left to right: Is online political communication more than an echo chamber? *Psychological Science*, 26, 1531-1542. doi:10.1177/0956797615594620
- Berinsky, A. J. (2009). *In time of war: Understanding American public opinion from World War II to Iraq*. Chicago, IL: The University of Chicago Press.
- Brady, W. J., Wills, J. A., Jost, J. T., Tucker, J. A., & Van Bavel, J. J. (2017). Emotion shapes the diffusion of moralized content in social networks. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, 114, 7313-7318. doi:10.1073/pnas.1618923114
- Brandt, M. J., Evans, A. M., & Crawford, J. T. (2015). The unthinking or confident extremist? Political extremists are more likely than moderates to reject experimenter-generated anchors. *Psychological Science*, 26, 189-202. doi:10.1177/0956797614559730
- Brandt, M. J., & Van Tongeren, D. R. (2017). People both high and low on religious fundamentalism are prejudiced toward dissimilar groups. *Journal of Personality and Social Psychology*, 112, 76-97.
- Brownlow, L. (1969). What we expect the president to do. *The presidency*, (pp. 35-43).
- Byrne, D. (1969). Attitudes and attraction. *Advances in Experimental Social Psychology*, 4, 35-89.
- Clifford, S., Jerit, J., Rainey, C., & Motyl, M. (2015). Moral concerns and policy attitudes: Investigating the influence of elite rhetoric. *Political Communication*, 32, 229-248.
- Conway, L. G., Gornick, L. J., Houck, S. C., Anderson, C., Stockert, J., Sessoms, D., & McCue, K. (2016). Are conservatives really more simple-minded than liberals? The domain specificity of complex thinking. *Political Psychology*, 37, 777-798.
- Crawford, J. T. (2014). Ideological symmetries and asymmetries in political intolerance and prejudice toward political activist groups. *Journal of Experimental Social Psychology*, 55, 284-298.
- Duckitt, J. (2001). A dual-process cognitive-motivational theory of ideology and prejudice. In M. P. Zanna & M. P. Zanna (Eds.), *Advances in experimental social psychology* (Vol. 33, pp. 41-113). San Diego, CA: Academic Press.
- Feinberg, M., & Willer, R. (2015). From gulf to bridge: When do moral arguments facilitate political influence? *Personality and Social Psychology Bulletin*, 41, 1665-1681.
- Fernbach, P. M., Rogers, T., Fox, C. R., & Sloman, S. A. (2013). Political extremism is supported by an illusion of understanding. *Psychological Science*, 24, 939-946. doi:10.1177/0956797612464058
- Frimer, J. A., Aquino, K., Gebauer, J. E., Zhu, L., & Oakes, H. (2015). A decline in prosocial language helps explain public disapproval of the U.S. Congress. *Proceedings of the National Academy of Sciences of the United States of America*, 112, 6591-6594. doi:10.1073/pnas.1500355112
- Frimer, J. A., Gaucher, D., & Schaefer, N. K. (2014). Political conservatives' affinity for obedience to authority is loyal, not blind. *Personality and Social Psychology Bulletin*, 40, 1205-1214. doi:10.1177/0146167214538672
- Hibbing, J. R., Smith, K. B., & Alford, J. R. (2014). Differences in negativity bias underlie variations in political ideology. *Behavioral and Brain Sciences*, 37, 297-307. doi:10.1017/S0140525X13001192
- Hong, S., & Kim, S. H. (2016). Political polarization on twitter: Implications for the use of social media in digital governments. *Government Information Quarterly*, 33, 777-782. doi:10.1016/j.giq.2016.04.007
- Huddy, L., Mason, L., & Aarøe, L. (2015). Expressive partisanship: Campaign involvement, political emotion, and partisan identity. *American Political Science Review*, 109, 1-17.
- Hughes, A., & Lam, O. (2017, August 21). *Highly ideological members of Congress have more Facebook followers than moderates do*. Retrieved from <http://www.pewresearch.org/fact-tank/2017/08/21/highly-ideological-members-of-congress-have-more-facebook-followers-than-moderates-do/>
- Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin*, 129, 339-375. doi:10.1037/0033-2909.129.3.339
- Kinder, D. R., & Kalmoe, N. P. (2017). *Neither liberal nor conservative: Ideological innocence in the American public*. Chicago, IL: The University of Chicago Press.
- Kramer, A. I., Guillory, J. E., & Hancock, J. T. (2014). Experimental evidence of massive-scale emotional contagion through social networks. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, 111, 8788-8790. doi:10.1073/pnas.1320040111
- Lakoff, G. (2002). *Moral politics: How liberals and conservatives think* (2nd ed.). Chicago, IL: The University of Chicago Press.
- Lammers, J., Koch, A., Conway, P., & Brandt, M. J. (2017). The political domain appears simpler to the politically extreme than to political moderates. *Social Psychological & Personality Science*, 8, 612-622. doi:10.1177/1948550616678456
- Lewis, J. B., & Poole, K. T. (2004). Measuring bias and uncertainty in ideal point estimates via the parametric bootstrap. *Political Analysis*, 12, 105-127. doi:10.1093/pan/mp015
- Mason, L. (2018). Ideologues without issues: The polarizing consequences of ideological identities. *Public Opinion Quarterly*, 82, 280-301.
- McAdams, D. P., Diamond, A., de St. Aubin, E., & Mansfield, E. (1997). Stories of commitment: The psychosocial construction of generative lives. *Journal of Personality and Social Psychology*, 72, 678-694. doi:10.1037/0022-3514.72.3.678
- McClosky, H., & Chong, D. (1985). Similarities and differences between left-wing and right-wing radicals. *British Journal of Political Science*, 15, 329-363.
- Meindl, J. R., Ehrlich, S. B., & Dukerich, J. M. (1985). The romance of leadership. *Administrative Science Quarterly*, 30, 78-102. doi:10.2307/2392813
- Mullen, E., & Skitka, L. J. (2006). Exploring the psychological underpinnings of the moral mandate effect: Motivated reasoning, group differentiation, or anger? *Journal of Personality and Social Psychology*, 90, 629-643. doi:10.1037/0022-3514.90.4.629
- Napier, J. L., & Jost, J. T. (2008). Why are conservatives happier than liberals? *Psychological Science*, 19, 565-572. doi:10.1111/j.1467-9280.2008.02124.x
- Nyhan, B. (2009, December 14). The Green Lantern theory of the presidency [Web log post]. Retrieved from <http://www.brendan-nyhan.com/blog/2009/12/the-green-lantern-theory-of-the-presidency.html>
- Onraet, E., Van Hiel, A., & Dhont, K. (2013). The relationship between right-wing ideological attitudes and psychological

- well-being. *Personality and Social Psychology Bulletin*, 39, 509-522. doi:10.1177/0146167213478199S
- Pennebaker, J. W., Booth, R. J., Boyd, R. L., & Francis, M. E. (2015). *Linguistic Inquiry and Word Count: LIWC2015*. Austin, TX: Pennebaker Conglomerates. Available from www.liwc.net
- Pew Research Center. (2014, June 12). *Political polarization in the American public*. Retrieved from <http://www.people-press.org/2014/06/12/political-polarization-in-the-american-public/>
- Pew Research Center. (2016, June 22). *Partisanship and political animosity in 2016*. Retrieved from <http://www.people-press.org/2016/06/22/partisanship-and-political-animosity-in-2016/>
- Pew Research Center. (2017, February 23). *Partisan conflict and congressional outreach*. Retrieved from <http://www.people-press.org/2017/02/23/partisan-conflict-and-congressional-outreach/>
- Pressman, S.D., & Cohen, S. (2012). Positive emotion words and longevity in famous deceased psychologists. *Health Psychology*, 31, 297-305.
- Ryan, T. J. (2014). Reconsidering moral issues in politics. *The Journal of Politics*, 76, 380-397. doi:10.1017/S0022381613001357
- Schlenker, B. R., Chambers, J. R., & Le, B. M. (2012). Conservatives are happier than liberals, but why? Political ideology, personality, and life satisfaction. *Journal of Research in Personality*, 46, 127-146. doi:10.1016/j.jrp.2011.12.009
- Sherif, M., Harvey, O. J., White, B. J., Hood, W. R., & Sherif, C. W. (1961). *Intergroup conflict and cooperation: The Robbers' Cave experiment*. Norman: Institute of Group Relations, University of Oklahoma.
- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, 48, 813-838. doi:10.1037/0022-3514.48.4.813
- Sylwester, K., & Purver, M. (2015). Twitter language use reflects psychological differences between Democrats and Republicans. *PLoS ONE*, 10(9), e0137422. doi:10.1371/journal.pone.0137422
- Tetlock, P. E. (1984). Cognitive style and political belief systems in the British House of Commons. *Journal of Personality and Social Psychology*, 46, 365-375. doi:10.1037/0022-3514.46.2.365
- Tetlock, P. E. (1986). A value pluralism model of ideological reasoning. *Journal of Personality and Social Psychology*, 50, 819-827. doi:10.1037/0022-3514.50.4.819
- Toner, K., Leary, M. R., Asher, M. W., & Jongman-Sereno, K. P. (2013). Feeling superior is a bipartisan issue: Extremity (not direction) of political views predicts perceived belief superiority. *Psychological Science*, 24, 2454-2462. doi:10.1177/0956797613494848
- Tumasjan, A., Sprenger, T. O., Sandner, P. G., & Welpe, I. M. (2011). Election forecasts with Twitter: How 140 characters reflect the political landscape. *Social Science Computer Review*, 29, 402-418. doi:10.1177/0894439310386557
- Turetsky, K. M., & Riddle, T. A. (2018). Porous chambers, echoes of valence and stereotypes. A network analysis of online news coverage interconnectedness following a nationally polarizing race-related event. *Social Psychological and Personality Science*, 92, 163-175. doi:10.1177/1948550617733519
- vanProoijen, J., Krouwel, A. M., Boiten, M., & Eendebak, L. (2015). Fear among the extremes: How political ideology predicts negative emotions and outgroup derogation. *Personality and Social Psychology Bulletin*, 41, 485-497. doi:10.1177/0146167215569706
- Voteview. (2015, March 21). *The polarization of the Congressional Parties*. Retrieved from [https://legacy.voteview.com/political\\_polarization\\_2014.htm](https://legacy.voteview.com/political_polarization_2014.htm)
- Watson, D., & Clark, L. A. (1994). *The PANAS-X: Manual for the Positive and Negative Affect Schedule-Expanded Form*. Ames: Iowa State University.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070. doi:10.1037/0022-3514.54.6.1063
- Wojcik, S. P., Hovasapian, A., Graham, J., Motyl, M., & Ditto, P. H. (2015). Conservatives report, but liberals display, greater happiness. *Science*, 347, 1243-1246. doi:10.1126/science.1260817
- Wynn, K. (2016). Origins of value conflict: Babies do not agree to disagree. *Trends in Cognitive Sciences*, 20, 3-5.
- Young, L., & Soroka, S. (2012). Affective news: The automated coding of sentiment in political texts. *Political Communication*, 29, 205-231.