Extremists on the Left and Right Have Angry, Negative Messages

SUPPLEMENTAL MATERIALS

Operationalizing Emotional Tone of Language

Examining the relationship between the emotional tone of language and political orientation requires a valid operationalization of the former. Here, we review existing measures of emotional tone of language with the aim of identifying valid measures. McAdams, Diamond, de St. Aubin, and Mansfield (1997) introduced a procedure for coding the emotional tone of language, which entailed human coders reading text passages and rendering judgments about the perceived tone. We see the McAdams et al. (1997) procedure as an excellent measure because it directly measures *perceived* tone; a limitation of the McAdams approach, however, is its labor intensity, limiting its utility to smaller samples and shorter text passages.

To move beyond these limitations, researchers have turned to assessing the emotional tone of language using computer analyses. Several types of computer analyses exist. The approach that we employ is user-defined dictionaries analyses because of their face validity and widespread use. User defined dictionary analyses rely on dictionaries of words that researchers identified as connoting a particular theme. For instance, researchers may identify the words *happy*, *joy*, and *elation* as belonging in a *positive emotion* dictionary. Conventionally, analyses yield word density scores, calculated as the number of words in a target text that match a particular dictionary, divided by the total number of words in the target text.

Compared to other text analytic techniques (such as topic modeling, semantic analysis, and machine learning) user-defined dictionary analyses have the benefit of high face validity and clear theoretical validity. An associated limitation of user defined dictionary analyses is that they sacrifice some precision. For instance, user-defined dictionary analyses miss negations (e.g., *I am not happy* would be coded as a "hit" for *happy*), intensifiers, and diminishers (e.g., Garten et al. 2017; Kennedy & Inkpen, 2006; Taboada, Brooke, Tofiloski, Voll, & Stede, 2011). Future research might apply some of these other techniques to the same research question.

To our knowledge, three studies (Sylwester & Purver, 2015; Turetsky & Riddle, 2018; Wojcik et al., 2015) have employed user-defined dictionary text analyses to examine the relationship between emotional tone and political orientation in "big data". The three papers collectively operationalized emotional tone using eight distinct dictionaries—positive affect, joviality, negative affect, and sadness derived from the Positive and Negative Affect Schedule: Expanded Form (PANAS-X, Watson & Clark 1994), positive and negative emotion using the LIWC (Pennebaker, Booth, Boyd, & Francis, 2015) dictionaries, and happy and sad emoticons. There is not just one right way to measure emotional tone, nor are all ways likely to be equally valid. We propose that identifying a unitary operationalization of emotional tone using computerized text analysis brings with it some advantages, reducing researcher degrees of freedom during hypothesis testing and providing a rigorous test of the competing hypotheses that frame this research.

Theoretically, emotional tone should capture how optimistic and upbeat—as opposed to pessimistic and downbeat—a text passage seems. Emotional tone needs to be distinguished from emotional expressiveness—the expression of both positive *and* negative emotion. Language that is emotionally expressive would likely display elevated levels of both positive and negative affect (e.g., showing both excitement and anxiety). In contrast, language that is positively valenced would exude positive emotion and/or a lack of negative emotion. Accordingly, a

critical metric of emotional tone might compare positive-to-negative emotional displays—for example, using a difference score. Given some of the psychometric concerns and interpretational ambiguity regarding difference scores (Johns, 1981), we also perform analyses using the elemental variables comprising the difference scores. These follow-up analyses will allow us to assess whether negative language is the result of more negative emotion words and/or fewer positive emotion words.

The 2015 edition of LIWC introduced a new aggregate score called "emotional tone", which can range from 1 (*negative tone*) to 99 (*positive tone*). Although its formula is proprietary, the authors disclosed that its origin is Cohn, Mehl, & Pennebaker (2004), which included a variable derived by subtracting standardized negative emotion word density from standardized positive emotion word density. Our own analyses suggest that such a composite variable correlates with emotional tone scores at $r = .99$, meaning that the formula is approximately correct. Given its face validity, we examine whether LIWC's "emotional tone" metric is an especially valid metric for emotional tone.

The *positive emotion* dictionary has 642 words (e.g., *charm, love,* and *success*) whereas the *negative emotion* dictionary has 745 words (e.g., *horrible*, *wrong*, and *fake*). LIWC also includes three negative emotion sub-dictionaries (see Figure S1)—*anxiety* (116 words, such as *afraid*, *fear*, and *worried*), *anger* (230 words, such as *hatred*, *offensive*, and *threat*), and *sadness* (136 words, such as *cried*, *remorse*, and *wept*). Prior work (Kahn, Tobin, Massey & Anderson, 2007) validated earlier editions of LIWC's positive and negative emotion dictionaries. We are unaware of any attempts to validate the emotional tone variable.

Figure S1. Emotion categories included in all text analyses, in their hierarchical relationship. We operationalize language valence using the emotional tone variable.
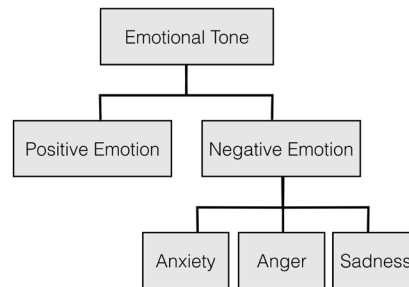
Validation

Next, we describe tests of the validity of the LIWC emotional tone metric (and its constituting positive and negative emotion elements) and an analogous metric derived from the PANAS-X dictionaries employed in Wojcik et al. (2015), the latter of which have just 10 words each. For an emotional tone dictionary to be valid, analyses using it should be able to correctly classify content of known valence.

Given that our secondary finding (that liberal extremists use more negative language than their conservative counterparts) directly contradicts the findings of previous studies, we assess the validity of the measures used in the preceding studies as well. Wojcik et al. (2015) included 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. Previous attempts to validate the PANAS-X dictionaries used to measure

emotional tone (positive affect, negative affect, joviality, and sadness) failed to establish their validity (Pressman & Cohen, 2012).

To test the validity of the LIWC emotional tone and PANAS-X emotional tone dictionaries, and to test the validity of their elemental positive and negative emotion variables, we relied on existing data a set of positively valenced text responses and a set of negatively valenced text responses. Our analyses (described below in detail) found consistent evidence that the LIWC emotional tone dictionary has validity, its PANAS-X compliment has little or none, and that emotional tone consistently outperformed its elemental variables.

Data Sets

Life events. Frimer, Walker, Dunlop, Lee & Riches (2011) asked 50 people (25 recipients of the Caring Canadian Award and 25 demographic matched comparison persons) to describe an event that represented a high point in their life, and to describe a low point event. Event responses were 748 words long on average ($SD = 581$). We text analyzed each response for its emotional tone (LIWC variable), LIWC's positive emotion and negative emotion variables, and for the *density* of positive affect and negative affect word density (using the dictionaries that Wojcik et al. 2015) used. We then derived a PANAS-X emotional tone variable in the same way that the LIWC emotional tone variable is derived: by subtracting standardized negative emotion density scores from standardized positive emotion density scores, then scaling the result to range from 1 to 99. We also included simple difference scores of raw positive emotion scores minus raw negative emotion scores because some researchers do not use LIWC and thus do not have access to the emotional tone variable (due to its proprietary calculation).

Movie Reviews. We used an existing corpus of positive and negative movie reviews (Pang & Lee, 2004). The database contained 1000 positive and 1000 negative movie reviews, which were determined based on the explicit ratings (e.g., star system) from the reviews' authors and the application of an arbitrary cut-off (e.g., 3 or 4 stars out of 4 being positive, otherwise negative). Reviews were 652 words long on average ($SD = 288$). We analyzed the data in the same was as for the life events.

Results

Table S1 displays the average emotional tone scores. If a dictionary is valid, it should be able to correctly classify high versus low point life events, and positive versus negative movie reviews. Table S2 presents results from independent logistic regression analyses for life events and movie reviews, respectively. We found that the LIWC dictionaries consistently outperformed the PANAS-X counterparts. The emotional tone and positive-minus-negative emotion metrics consistently outperformed the elemental positive emotion and negative emotion dictionaries. These results suggest that, among the language valence variables considered here, LIWC's emotional tone (or positive minus negative emotion, which is almost equivalent) is best able to classify content of known valence, and the PANAS-X text analysis dictionaries have little or no validity.

Table S1. Mean (and *SD*s) emotional tone scores of content of known valence—descriptions of high point and low point life events, and positive and negative movie reviews, for both the LIWC and PANAS-X dictionaries. Emotional tone scores can range from 1-99.

Dictionary	Life Events		Movie Reviews	
	High Point	Low Point	Positive	Negative
LIWC	66 (22)	31 (20)	59 (24)	41 (26)
PANAS-X	53 (15)	47 (11)	65 (7)	65 (7)

Table S2. Inferential statistics from independent logistic regressions classifying high point and low point life events, and positive and negative movie reviews. Analyses included four metrics from the LIWC and six metrics from the PANAS-X dictionaries. LIWC consistently outperformed the PANAS-X, and the emotional tone or positive-minus-negative emotion word density score consistently outperformed the elemental positive and negative emotion density metrics. We omitted correct classification and Nagelkerke R^2 statistics for affective word count with total word count covariate analyses because these statistics reflect the effects of both total word count and affective word counts.

| | LIWC | | | | Affective Word Count with Total Word Count Covariate | | PANAS-X | | | |
| | | | | | | | Affective Word Densities | | | |
High and Low Point Life Events	Emotional Tone	Positive - Negative Emotion	Positive Emotion	Negative Emotion	Positive Affect	Negative Affect	Emotional Tone	Positive - Negative Emotion	Positive Affect	Negative Affect
Correct Classification	84%	84%	67%	77%	—	—	60%	59%	58%	54%
Nagelkerke R^2	.531	.490	.245	.420	—	—	.066	.085	.097	.007
χ^2	50.82	45.83	20.31	37.89	2.25	1.42	5.10	6.60	7.56	0.54
Odds Ratio [95%CI]	1.08 [1.05, 1.11]	3.05 [1.90,4.90]	2.44 [1.51, 3.94]	0.18 [0.08, 0.39]	1.00 [1.00, 1.01]	1.00 [0.99,1.00]	1.04 [1.00, 1.07]	17.30 [1.53, 195.90]	53.27 [1.95, 14565.40]	0.20 [0.00, 15.03]
p	< .001	< .001	< .001	< .001	0.17	1.00	.04	.02	.02	.47
Movie Reviews										
Correct Classification	64%	64%	58%	63%	—	—	51%	51%	50%	49%
Nagelkerke R^2	.148	.148	.065	.112	—	—	.000	.000	.001	.000
χ^2	236.12	234.93	100.25	174.84	0.61	0.05	0.65	0.72	0.78	0.09
Odds Ratio [95%CI]	1.03 [1.02, 1.03]	1.52 [1.43,1.61]	1.44 [1.33, 1.55]	0.56 [0.51,0.61]	1.00 [1.00,1.00]	1.00 [1.00,1.00]	1.01 [0.99, 1.02]	1.17 [0.81, 1.70]	1.25 [0.76, 2.04]	0.91 [0.49,1.69]
p	< .001	< .001	< .001	< .001	0.44	0.82	.42	.40	.38	.77

Study 1: Twitter

Table S3. The same analyses as those reported in Study 1, except with the "fake" Twitter accounts included (16,090 Twitter users who produced 38,761 segments)

	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
Political orientation	0.224 (0.330)	.005	-0.014 (0.020)	-.004	-0.038 (0.020)*	-.016	**0.009 (0.001)***	.015	**-0.035 (0.010)***	-.025	-0.009 (0.010)†	-.010
Extremism	**-8.250 (0.700)***	-.082	**0.154 (0.050)**	.022	**0.701 (0.030)***	.140	**0.089 (0.010)***	.074	**0.380 (0.020)***	.129	**0.072 (0.010)***	.039

Study 2: Organizations

Table S4. Political orientation scores, names, and descriptions of the 100 organizations.

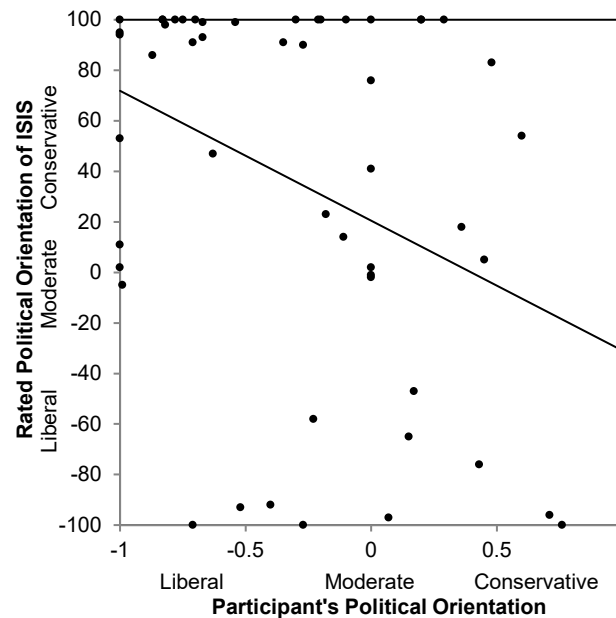| Emotional Tone	Political orientation	Name	Description
53.36	-0.791	Black Panther Party	The Black Panther Party or BPP (originally the Black Panther Party for Self-Defense) was a revolutionary black nationalist and socialist organization active in the United States.
31.38	-0.749	The Communist	We fight to smash capitalism and the dictatorship of the capitalist class. We organize workers, soldiers, and youth into a revolutionary movement for communism
20.73	-0.720	The Free Communist	Puts forward a revolutionary internationalist perspective and is anti-statist in outlook. Releases free magazine annually.
30.32	-0.719	Anarchist Federation	As anarchist communists we fight for a world without leaders, where power is shared equally amongst communities, and people are free to reach their full potential.
55.50	-0.651	The Nation	The periodical, devoted to politics and culture, is self-described as "the flagship of the left".
31.80	-0.645	SQUAT (Pro Choice organization)	SQUAT sought to fill a desperately needed gap in print media for alternative, anarchist, radical birth workers
46.68	-0.639	Liberation	Newspaper of the Party for Socialism and Liberation.
35.28	-0.636	Capitalist Nature Socialist	Encompasses anti-capitalist perspectives that are both egalitarian and environmental in orientation.
31.80	-0.591	Amandla!	Provides coverage and analysis of current political, economic and social processes from a radical left perspective. Coverage is given to issues such as climate change, labour, food sovereignty and national healthcare while adding to debates around South Africa's social movements and popular organizations. The magazine takes its name from the Zulu word amandla, which means power
1.90	-0.561	Individual Action Center	An activist group founded in 1992 by former United States Attorney General Ramsey Clark. It supports anti-imperialist movements around the world, and opposes U.S. military intervention in all circumstances.
37.72	-0.551	Dissent	Dissent is a quarterly, left-wing magazine focusing on politics and culture edited by Michael Kazin and David Marcus.
39.36	-0.537	In These Times	An American politically progressive/democratic socialist monthly magazine of news and opinion.
10.77	-0.535	Banned Thought	Struggling against the suppression of ideas
37.35	-0.508	Class War University	A primary goal of this project is to create tools for anti-capitalist, anti-authoritarian, anti-oppressive movements on the terrain of universities.

60.85	-0.497	CounterPunch	A monthly magazine published in the United States that covers politics in a manner its editors describe as "muckraking with a radical attitude". It has been described as left-wing by both supporters and detractors.
28.37	-0.495	The New Left Project	Dedicated to producing high quality comment and analysis on issues of concern to the political left
20.65	-0.476	Economic and Political Weekly	Known for its strong editorial stance with a "social conscience" and for taking left-leaning positions in its editorials, which were occasionally critical of the Communist Party of India (Marxist) government in West Bengal for not being radical enough
29.27	-0.469	New Socialist	The New Socialist Group (NSG) is a network of socialists active in community, labour and campus organizing.
25.77	-0.463	Pride Life	Lifestyle guide for the LGBT community.
29.34	-0.456	Canadian Dimension	Canadian Dimension is Canada's longest standing magazine of the Left.
44.99	-0.438	The Independent Australian	A politically incorrect magazine of ideas and comment outside the mainstream
28.08	-0.436	New Left Review	The New Left Review is a bimonthly political magazine covering world politics, economy, and culture.
44.53	-0.429	The Economist	Aims "to take part in a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress". It takes an editorial stance of classical and economic liberalism which is supportive of free trade, globalisation, free immigration and cultural liberalism (such as supporting legal recognition for same-sex marriage).
46.11	-0.424	The American Prospect	A journal of liberal ideas, committed to a just society, an enriched democracy, and effective liberal politics which focuses on United States politics and public policy. Politically, the magazine is in support of modern American liberalism
38.42	-0.418	Affirmative Action	Advocate for greater inclusion for performers who have been historically underrepresented and also enforce the nondiscrimination and diversity provisions
43.48	-0.417	Greenpeace	Greenpeace is an independent global campaigning organization that acts to change attitudes and behaviour, to protect and conserve the environment and to promote peace.
46.43	-0.416	Forced Migration Review	The most widely read publication on forced migration. authors from around the world analyse the causes and impacts of displacement; debate policies and programmes
44.74	-0.409	The Advocate	The Advocate is the world's leading source of LGBT news and politics.
28.35	-0.400	The Huffington Post	A liberal-oriented American online news aggregator and blog.
40.11	-0.369	The Big Issue	Challenging, independent journalism, renowned for securing exclusive interviews with the most elusive of superstars. Street newspaper - distributed by homeless people.
66.99	-0.341	INSIGHT into Diversity	INSIGHT Into Diversity is the oldest and largest diversity magazine and website in higher education today. For nearly 40 years, INSIGHT Into Diversity has connected potential employees with institutions and businesses choosing to embrace a workforce more reflective of our local and national communities.
9.84	-0.333	The Rutherford Institute	A non-profit organization based in Charlottesville, Virginia, US dedicated to the defense of civil liberties and human rights.
62.11	-0.321	Invisible Children	Invisible Children, Inc. is an organization founded in 2004 to bring awareness to the activities of the Lord's Resistance Army in Central Africa, and its leader, Joseph Kony.
20.13	-0.318	Foreign Policy	A news publication, founded in 1970, that is focused on global affairs, current events, and domestic and international policy.
54.31	-0.301	Mother Jones	An American magazine featuring investigative and breaking news reporting on politics, the environment, human rights, and culture.
16.31	-0.299	New Internationalist	The world's leading independent publisher of magazines and books on politics, global justice and equality.
24.47	-0.295	Dhaka Courier	The longest running English current affairs magazine in the country. Its content is largely focused on politics, international affairs, economics, travel, literature, society and the arts.
24.85	-0.274	Harvard Political Review	A quarterly, nonpartisan political journal and dynamic online platform produced entirely by undergraduates.
67.32	-0.267	New African	An English-language monthly news magazine based in London. Published since 1966, it is read by many people across the African continent and the African diaspora. It claims to be the oldest pan-African monthly in English, as well as "the bestselling pan-African magazine".

30.79	-0.266	Vice	Vice is a print magazine and website focused on arts, culture, and news topics.
8.67	-0.249	EUobserver	EUobserver is a non-profit independent online newspaper. It aims to support European democracy by giving people the information they need to hold the EU establishment to account.
17.03	-0.213	Accuracy in Media	An American non-profit news media watchdog.
36.39	-0.212	The Monthly	An Australian national magazine of politics, society and the arts.
17.53	-0.211	Standpoint	A monthly British cultural and political magazine.
27.51	-0.205	Save the Children	Save the Children is an international non-governmental organization that promotes children's rights, provides relief and helps support children in developing countries.
12.35	-0.190	International Organization	A peer-reviewed academic journal that covers the entire field of international affairs.
22.13	-0.171	Harper's Magazine	A monthly magazine of literature, politics, culture, finance, and the arts.
51.54	-0.161	American Educator	American Educator is a quarterly journal published by the American Federation of Teachers focusing on various issues about children and education
14.25	-0.161	Quadrant	Australia's leading journal of ideas, essays, literature, poetry, and historical and political debate.
28.85	-0.135	The Atlantic	Created as a literary and cultural commentary magazine, growing to achieve a national reputation as a high-quality review with a moderate worldview.
80.56	-0.133	Alberta Views	A magazine based in Alberta, Canada. A place for Innovators in politics, education, industry, public service and the arts share and discover fresh perspectives related to the public interest of Albertans.
63.81	-0.119	PSRP Reporter	The national publication of aft paraprofessionals and school-related personnel.
70.60	-0.109	Red Cross	The Canadian Red Cross mission is to improve the lives of vulnerable people by mobilizing the power of humanity in Canada and around the world
4.49	-0.101	Midwest Academy	A learning community designed to meet the needs of students for whom the process of schooling elsewhere has been unsuccessful.
77.46	-0.035	Health wire	Health Wire is a free, daily newsletter offering access to important health news and cutting-edge advice from respected members of the personal fitness field.
68.00	0.000	American Library Association	Library issues and trends.
56.24	0.079	Focus on the Family	An American non-profit organization founded in 1977 by psychologist James Dobson, based in Colorado Springs, Colorado.
31.01	0.167	Frontline	As a current affairs magazine, it covers domestic and International news
31.04	0.209	The Independent Review	A quarterly peer-reviewed academic journal covering political economy and the critical analysis of government policy
24.21	0.217	The Diplomat	The Diplomat is an online international news magazine covering politics, society, and culture in the Asia-Pacific region. It is based in Tokyo, Japan.
62.80	0.233	Policy Review	We aim to be the online knowledge hub for those wanting the inside track on European politics, public administration, management issues and game-changing developments in the business world.
34.29	0.262	Herald (Pakistan)	The Herald is considered to be a neutral magazine and produces many large or breaking stories.
7.30	0.288	Organiser	The official publication of the Hindu nationalist volunteer organisation Rashtriya Swayamsevak Sangh (RSS) launched as a newspaper in 1947 in the weeks before the Partition of India
41.32	0.304	Foreign Affairs	An American journal of international relations and U.S. foreign policy
31.48	0.306	National Vanguard	National Vanguard was founded by William Pierce (1933-2002) in 1969 and is now edited by Kevin Alfred Strom and volunteers on four continents. It is the flagship publication of the National Alliance, the leading organization advocating for the interests of men and women of European descent worldwide.
25.77	0.306	Human Events	A conservative American political news and analysis website.

70.00	0.308	Jewish Journal	An independent, nonprofit community weekly newspaper serving the Jewish community.
44.51	0.315	The Middle East	A magazine which covers news, business and culture in the Arab world.
26.11	0.360	The Beijing Review	China's only national news magazine in English.
24.24	0.364	The Spectator	The Spectator is a weekly British conservative magazine.
46.02	0.397	The Weekly Standard	An American conservative opinion magazine published 48 times per year.
42.12	0.400	The European	Features opinion articles, regular columns and interviews. Its claim is "Views, not News". According to its mission statement, "The European is an opinion magazine". Its authors "debate important political and cultural issues within the framework of journalistic news analysis."
21.91	0.409	Newsmax	a conservative American news media organization
41.63	0.410	The New American	The essential news source for freedom-loving Americans.
11.74	0.410	Relevant	Covering faith, culture and intentional living, the stories we tell are at the intersection of where a Christ-centered life is really lived
34.05	0.412	The American Interest	Focuses primarily on foreign policy, international affairs, global economics, and military matters.
35.16	0.415	American Enterprise Institute	The American Enterprise Institute is a community of scholars and supporters committed to expanding liberty, increasing individual opportunity and strengthening free enterprise.
26.65	0.421	The American Spectator	A conservative U.S. monthly magazine covering news and politics.
46.79	0.427	The American Conservative	In both domestic and foreign affairs, The American Conservative promotes a conservatism of realism and reform. A conservatism of ideas over ideology, and principles over party
46.91	0.437	Catholic Answers	To explain and defend the faith.
17.99	0.439	Federation for American Immigration Reform	a national, nonprofit, public-interest, membership organization of concerned citizens who share a common belief that our nation's immigration policies must be reformed to serve the national interest.
39.55	0.453	Americans for Constitutional Liberty	Founded in 1974 as The Conservative Caucus (TCC) in the belief that conservatives could win in Washington only by mobilizing conservative strength at the state and Congressional district level.
12.45	0.458	World Affairs	An American right-leaning bimonthly magazine covering international relations. It is an official publication of the American Peace Society.
58.53	0.464	Townhall	The top source for conservative news, political cartoons, breaking news, election news and commentary on politics and the media culture.
25.77	0.473	The National Interest	An American bi-monthly international affairs magazine published by the Center for the National Interest. It is associated with the realist school of foreign policy thought
39.13	0.496	American Renaissance	The Internet's premier race-realist site. Every weekday we publish articles and news items from a world-wide race-realist perspective.
20.24	0.497	The League of the South	We seek to advance the cultural, social, economic, and political well-being and independence of the Southern people by all honourable means.
28.95	0.505	The Resolve - LRA crisis initiative	The LRA Crisis Tracker is a crisis-mapping social web platform that broadcasts the attacks and other activities perpetrated by the Lord's Resistance Army (LRA) in near real time.
62.21	0.512	Minnesota Tea Party Alliance	The MN Tea Party Alliance is a grassroots organization focused on solutions at the local and state level. Our core principles are the belief that the market place should be free; our elected officials should be fiscally responsible; and our government should operate within the confines of the Constitution.
42.44	0.558	Family Research Council	An American conservative Christian group and lobbying organization formed in the United States in 1981 by James Dobson.
74.00	0.563	Nation of Islam	An Islamic religious movement founded in Detroit, United States.
26.84	0.574	Christian Coalition of America	Represents the pro-family point of view before local councils, school boards, state legislatures and Congress

74.47	0.622	Texas Nationalist Movement	The Texas Nationalist Movement's mission is to secure and protect the political, cultural and economic independence of the nation of Texas and to restore and protect a constitutional Republic and the inherent rights of the people of Texas.
60.26	0.643	National Rifle Association	American non-profit organization which advocates for gun rights.
44.58	0.739	Tea Party Express	Tea Party Express is proud to stand for six simple principles: No more bailouts, Reduce the size and intrusiveness of government, Stop raising our taxes, Repeal Obamacare, Cease out-of-control spending, Bring back American prosperity
23.09	0.754	The American Freedom Party	The American Freedom Party (formerly the American Third Position Party or A3P) is a third position American political party that promotes white supremacy.
8.35	0.925	Stormfront	A white nationalist, white supremacist and neo-Nazi Internet forum that was the Web's first major racial hate site
44.26	0.936	KKK	Three distinct past and present movements in the United States, which have advocated extremist reactionary currents such as white supremacy, white nationalism, and anti-immigration, historically expressed through terrorism
22.22	0.937	ISIS	Salafi jihadist extremist militant group and self-proclaimed Islamic state and caliphate led by Sunni Arabs from Iraq and Syria.
44.25	1.000	Imperial Klans of America	A white supremacist organization styled after the original Ku Klux Klan (KKK)

Possible validity threat. Might the inclusion of descriptions bias and invalidate the extremism ratings? The descriptions of some organizations (e.g., ISIS, the Black Panther Party) might have had included text that depicted them as extremist organizations, whereas more moderate organizations (e.g., Mother Jones) might not have had such extremist labels. If this were the case, then ratings of the same organizations without descriptions would yield lower extremism scores for the former organizations (and perhaps not change the ratings of the more moderate organizations). We tested this possibility by asking participants in Study S1 to rate all three organizations. These participants did *not* see descriptions. Figure S3 displays the raw ratings.

Since participants in Study 2 rated only one of the three organizations, we analyzed the effect of descriptions separately for each organization. In each, we ran an ANCOVA with descriptions as a factor and the political orientation of the rater as a covariate. The results did not support the view that the descriptions of the extremist organizations increased their extremism scores of ISIS and the Black Panthers. For ISIS, extremism scores were *lower* when descriptions were present, $F(1,1066) = 6.24$, $p = .013$, $\eta_p^2 = .006$. For the Black Panther Party, descriptions did not affect extremism scores, $F(1,1065) = 0.52$, $p = .470$, $\eta_p^2 < .001$. And for Mother Jones, descriptions lowered extremism scores, $F(1,1047) = 7.60$, $p = .006$, $\eta_p^2 = .007$.

More importantly, the rank ordering extremism ratings was preserved. Without descriptions, the Black Panthers were 19 points more extreme than Mother Jones; with prompts, the gap was very similar (16 points). And without prompts, ISIS was 19 points more extreme than the Black Panthers; with prompts, the gap was very similar (24 points).
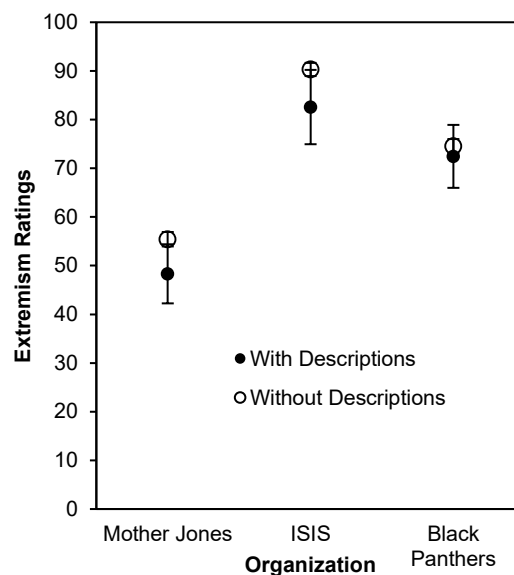
Table S5. Effects of political orientation and extremism on emotional tone of language when transcripts are not segmented. Bolded numbers are significant.

	N	Emotional Tone	
		B (SE)	β
Twitter (Study 1)	3,380,140		
Political orientation		-.004 (0.130)	.000
Extremism		**-0.393 (0.110)***	**-.007**
Organizations (Study 2)	100		
Political orientation		2.486 (3.985)	.064
Extremism		-8.500 (9.144)	-.095
Congress (Study 3)	4,958		
Political orientation		**7.236 (0.656)***	**.191**
Extremism		**-28.040 (1.746)***	**-.286**
News Media (Study 4)	55		
Political orientation		**2.277 (0.627)**	**.278**
Extremism		**-10.759 (0.082)***	**-.765**

Note. $^\dagger p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Study S1

Study S1 provides an additional test of whether the language of extremists is more negative than that of moderates, and examines whether individual differences in perceived threat are correlated with this trend. Our notion that liberals and conservatives feel more threatened than moderates departs from some previous research that found that conservatives perceive more threat than do liberals (e.g., Duckitt, 2001). The scales used in these studies specified particular

entities that conservatives might find more threatening than liberals (e.g., anarchy, bestiality, instability). Liberal extremists may perceive danger from other forces not fully captured in some scales, such as climate change and policy brutality (Jost et al., 2017). We used a more generic measure of perceived threat to test our primary prediction that perceived threat would help explain extremists' negative language.

Method

Participants. We recruited 1,019 Americans on Amazon's Mechanical Turk, a crowdsourcing website. The sample was 53% female and 38 years old on average ($SD = 12$). Each received \$0.40 for participating.

Procedure. In October 2017, participants wrote a short essay about the state of society, responded to three self-report mediators (perceived threat, competitive world, dissatisfaction with the status quo), completed a self-affirmation task to reduce any possible negative affect resulting from the essay task, rated the extremism of three organizations (validity check for Study 2; see above for results) and reported demographics, which included an item about political orientation/extremism. We included more than one covariate because Duckitt et al. (2002) proposed that the conservative social worldview includes the belief that the world is dangerous (perceived threat) and the belief that the world is a competitive place. We included both beliefs in our study to test these different worldviews. A third possibility is that extremists merely feel dissatisfied with the status quo (which they find threatening), and this dissatisfaction explains their negative language. Although some prominent social psychological accounts of support for the status quo suggests that liberals are particularly dissatisfied with the status quo (Jost, Banaji, & Nosek, 2004), it remains a possibility that this sentiment is in the province of extremist groups on both sides.

Political orientation/Extremism. The rating scale asked, "When it comes to politics, how do you identify on social issues" Participants responded on a 201-point slider scale anchored at -100 (*extremely liberal*), -50 (*somewhat liberal*), 0 (*moderate*), 50 (*somewhat conservative*), and 100 (*extremely conservative*). We divided participants response by 100 to form a political orientation measure that could vary from -1.00 to 1.00, and took the absolute value of political orientation as a measure of extremism.

Writing Task. The instructions were, "The next task is to describe the current state of the country and the world. In your view, how are the country and the world doing? Please explain. How did it come to be this way? Please explain. What makes this situation good or bad (or somewhere in between) in your opinion?" Participants wrote 83 words on average ($SD = 63$). We used computer software for content analysis.

Mediators. We included three mediators. For all three, the question asked, "How much do you agree or disagree with each statement?" Participants responded on a 21-point scale anchored at -10 (*strongly disagree*), 0 (*neither agree nor disagree*), and 10 (*strongly agree*). The mediator items were presented in random order and were:

Perceived threat ($\alpha = .68$)
- People in society that I care about are under threat.
- The world is a dangerous place.
- In general, I feel safe. (reverse scored)

Competitive world ($\alpha = .24$)
- The world is a competitive place.
- Winning is the ultimate goal.
- If one person wins, everyone should share in the bounty. (reverse scored)

Dissatisfaction with the status quo (α = .47)

- I am dissatisfied with the status quo.
- I am frustrated by how slowly social change is happening.
- The way forward for society is baby steps. (reverse scored)

Although the alpha levels for the latter two scales are lower than anticipated, because our original intention was to combine the items and because of their face validity, we report the results with the combined scale in the main text and analyze each item from each scale.

Results

Extremism negatively (and marginally) predicted the emotional tone of the language in short essays (see Table S6).

Table S6. Regression analyses of political orientation and extremism predicting emotional qualities of the language of short essays written by Mechanical Turk workers (Study S1).

	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
Political Orientation	2.921 (1.915)	.049	0.226 (0.193)	.038	**-0.482 (0.245)***	-.064	-0.094 (0.078)	-.039	-0.172 (0.140)	-.040	0.030 (0.059)	.017
Extremism	-6.574 (3.380)†	-.063	-0.617 (0.340)†	-.059	-0.493 (0.433)	-.037	**-0.332 (0.137)***	-.078	-0.179 (0.246)	-.024	0.163 (0.104)	.051

To test which beliefs are most closely associated with extremists' more negative language, we first examined whether political orientation and/or extremism were related to the covarying beliefs. Table S7 shows that both extremism and political orientation predicted perceived threat. When breaking down the effect of extremism, extremism positively predicted perceived threat among liberals and conservatives respectively, albeit non-significantly for conservatives. Although extremism was associated with more threat, the fact that the extremism effect was not symmetrical on the left and the right might make sense in light of conservatives controlling the U.S. Presidency and both chambers of Congress at the time of the study. Unlike perceived threat, the other two covariates were less linked to extremism and more to political orientation.

Table S7. Associations between political orientation and extremism and the three mediators in Study S1. Analyses were regression analyses. Bolded numbers are statistically significant.

Predictor	Perceived Threat		Competitive World		Dissatisfied with Status Quo	
	B (SE)	β	B (SE)	β	B (SE)	β
Political Orientation	**-0.649 (0.285)***	-.073	**-2.006 (0.287)*****	.220	**-2.366 (0.319)*****	-.231
Extremism	**1.321 (0.504)****	.085	**-1.289 (0.507)***	-.080	**1.838 (0.564)****	.102
Effect of Extremism…						
…Among Liberals	**2.410 (0.693)****	.139	**-3.421 (0.637)*****	-.212	**5.198 (0.763)*****	.265
…Among Conservatives	0.032 (0.629)	.002	1.381 (0.729)†	.090	**-1.535 (0.711)***	-.102

Note. †*p* < .10, * *p* < .05, ** *p* < .01, *** *p* < .001

We did not manipulate the independent variable (extremism) or the mediators in this study, meaning that the causal relationship between extremism, perceived threat, and negative language remains unclear. That said, for the sake of thoroughness and transparency, we tested

which belief(s) mediate(s) extremisms' association with negative emotional tone. We ran a bias corrected bootstrapped mediation analysis in which extremism predicted emotional tone, the three covariates were entered simultaneously as potential mediators, and political orientation was entered as a covariate to isolate the effect of extremism on the mediators and emotional tone. Figure S4 shows how perceived threat mediated the negative emotional tone of political extremists. The belief that the world is a competitive place did too, albeit in the opposite direction that one might expect: extremists were less likely than moderates to believe that the world is a competitive place. Dissatisfaction with the status quo did not mediate extremists' negative emotional tone.

Figure S4. Mediation model showing that extremists' language has a negative emotional tone in part because they perceive threat (Study 5). All mediators were entered simultaneously, and political orientation was entered as a covariate to isolate the effects of extremism on the mediators and emotional tone. Solid lines and bolded numbers are statistically significant. *$p < .05$, **$p < .01$ *** $p < .001$.
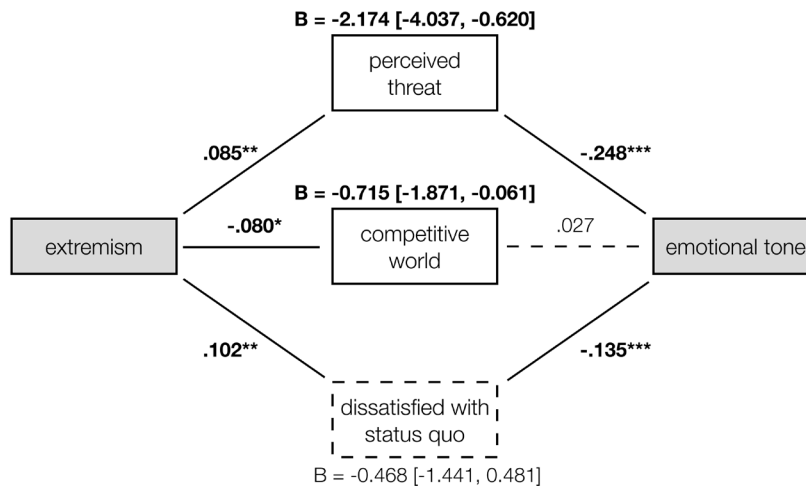
Noting that the reliability of some of the mediators was somewhat low, we also ran the mediation analysis using nine separate mediators (i.e. items). Table S8 displays the results. Items from the perceived threat scale tended to mediate extremists' negativity. These results are generally consistent with our idea that perceived threat helps explain extremists' use of negative language. However, this analysis does help us understand that extremists' threat perceptions may be more proximately associated with negative emotional tone than extremism itself.

Table S8. Regression and mediation analyses with all nine items. The regression analyses were conducted with political orientation and extremism as predictors of each mediator. The mediation analysis involved extremism predicting emotional tone through all nine mediators entered simultaneously and political orientation as a covariate. All items were scores such that higher numbers represent a negative (threat, competitive, dissatisfied) outlook. Items are presented in descending order of strength of mediation. Bolded numbers are statistically significant.

Scale	Item	Regression				Mediation
		Political Orientation		Extremism		Effect of extremism
		B (SE)	β	B (SE)	β	B [95%CI]
PT	People in society that I care about are under threat.	-1.158 (0.278)***	-.131	2.883 (0.490)***	.185	-1.662 [-3.547, -0.27]
DSQ	I am dissatisfied with the status quo.	-2.005 (0.260)***	-.240	1.673 (0.460)***	.113	-1.556 [-3.129, -0.573]
PT	The world is a dangerous place.	0.844 (0.244)**	.111	1.081 (0.432)*	.081	-0.994 [-2.404, -0.201]
CW	Winning is the ultimate goal.	2.255 (0.304)***	.231	-2.206 (0.537)***	-.128	-0.945 [-2.199, -0.209]

DSQ	The way forward for society is baby steps.	-0.947 (0.259)***	-.117	1.498 (0.457)**	.105	-0.395 [-1.243, 0.142]
CW	If one person wins, everyone should share in the bounty.	3.263 (0.280)***	.352	-1.214 (0.493)*	-.074	-0.087 [-0.787, 0.413]
CW	The world is a competitive place.	0.533 (0.188)**	.092	0.104 (0.333)	.010	-0.025 [-0.571, 0.176]
PT	In general, I feel safe.	-1.003 (0.277)***	-.117	0.011 (0.488)	.001	0.013 [-1.153, 1.220]
DSQ	I am frustrated by how slowly social change is happening.	-3.619 (0.278)***	-.385	1.606 (0.490)**	.097	0.773 [0.094, 2.008]

Note. PT = Perceived Threat Scale; CW = Competitive World Scale; DSQ = Dissatisfied with the Status Quo Scale; * *p* < .05, ** *p* < .01, *** *p* < .001

Study S2

In Study S2, we aimed to again test the extremist hypothesis with a crowdsourced sample. A second goal was to test, and rule out the venting mechanism: that extremists' negative language is merely a cathartic expression of chronically depressed mood. If it were, then we would predict that extremists would report being in a more depressed mood than moderates prior to verbal expression, and their lower mood would predict their negative language. Our theory is that extremists' negative language reflects perceived threat from ideological adversaries; it does not necessarily suggest that extremists would be chronically unhappy in their lives. Thus, this test helps us establish the specificity of our proposed mechanism.

A second objective was to test the boundary conditions of the extremist hypothesis. In Studies 1-4 and S1, the topic of conversation may have uniformly been political issues—Twitter users tweeting about an election (Study 1), politically minded organizations writing newsletters and magazines (Study 2), politicians debating policy (Study 3), the media covering politics (Study 4), and a crowdsourced sample describing the state of society and the world (Study S1). This raises the question of whether extremists' usage of negative language is limited to political topics, or whether it is a tendency that generalizes to other topics, such as the state of television. Our final goal was to (again) test the validity of the LIWC emotional tone dictionary by comparing such analyses to subjective judgments made by human judges.

Method

Participants. We collected these data in April 2017 by recruiting a diverse sample from a variety of English-speaking countries using http://crowdflower.com, a crowdsourcing website like Mechanical Turk. The sample (*N* = 774; 58.5% female) was from the U.S. (*n* = 317), India (*n* = 249), Canada (*n* = 101), the U.K. (*n* = 92), Ireland (*n* = 8), and Australia (*n* = 7). On average, participants were 34 years old (*SD* = 13, range 18-78).

Procedure. After reporting their mood, participants wrote a short essay either about the state of society or about the state of television (randomly assigned, between subjects), then reported their mood again. Finally, participants completed a self-affirmation task to mitigate possible negative affect caused by the writing task, and reported demographics, which included a question about their political orientation. Later, computer software and research assistants independently coded the text passages for emotional tone.

Political orientation and extremism. The question asked, "When it comes to politics, what best describes your views?" Participants responded on a 5-point scale anchored at -1.0 (*Left Wing*), -0.5 (*Center-Left*), 0 (*Moderate*), 0.5 (*Center-Right*), and 1.0 (*Right Wing*). We used the left-right dimension of political orientation because it has a more similar meaning between countries than does the liberal-conservative dimension. We took the absolute value of their political orientation score as a measure of extremism.

Writing task. We randomly assigned participants to write about either the state of society or the state of television. The instructions were as follows: "The next task is to write a paragraph in which you describe the state of society [television] these days. To do so, please: (a) describe your thoughts about how things are going; (b) describe how it came to be this way; (c) describe what makes the situation good or bad or somewhere in between in your opinion, and (d) describe any consequences of the current state of affairs that are important to you." Participants wrote 50 words on average (*SD* = 52). We later coded the passages for their language valence both using computer coding and human coding.

Computer coding. We used LIWC to analyze the emotional tone along with the density of positive emotion, negative emotion, anxiety, anger, and sadness words.

Human coding. Two research assistants, blind to the study design and hypotheses, independently (from one another, and without knowledge of the computer analysis) coded the emotional tone of each text passage using McAdams et al.'s (1997) procedure. The instructions were from McAdams et al. (1997; p. 685): "Read each passage and provide a rating for overall positivity, on a 5-point scale ranging from -2 (*completely negative and pessimistic*) to +2 (*completely positive and optimistic*). Code responses that are meaningless or not in English as 9999." Of the 774 passages, 10 received a code of 9999 from both judges (2.6%); we dropped these 10 participants from all analyses. In the 20 cases where only one coder assigned an emotional tone score and the other scored it 9999, we used the assigned rating as the final emotional tone score. For the remaining 744 passages, neither coder assigned a score of 9999; on these responses, inter-rater reliability was *r* = .81. We averaged the two coders' responses to form a single metric of human-coded emotional tone

To test the validity of computer coded language valence, we examined whether the LIWC category of emotional tone converged with human coding, and found supportive evidence, *r*(752) = .65, *p* < .001 (positive emotion and negative emotion correlated with human coded language valence too, *r*s = .42 and -.51, respectively).

Mood. The question asked, "How do you feel right now?" Participants responded to six items (*angry*, *anxious*, *sad*, *at ease*, *relaxed*, and *happy*; which appeared in random order) on a 7-point scale anchored at 0 (*not at all*), 2 (*slightly*), 4 (*moderately*), and 6 (*extremely*). To form a mood composite where higher scores mean a more positive mood, we forward-scored *at ease*, *relaxed*, and *happy* and reverse-scored *angry*, *anxious*, and *sad* (α = .81 at pre-test and α = .83 at post-test).

Results

Replication and boundary conditions. To test whether extremism and/or political orientation predicted the emotional tone of their language (replication), and whether these effects are limited to discussing the state of society or generalize to other topics, we ran a series of regression analyses. In each, the outcome was a linguistic emotion category (emotional tone, positive emotions, and so on). The predictors were uniformly: participant political orientation and extremism, the experimental condition (coded 1=society and -1=TV), and the interactions between political orientation and condition and extremism and condition.

Table S9 shows how emotional tone varied by political orientation and experimental condition. Extremism was the only significant (and negative) predictor of emotional tone, meaning that extremists' language was more negative than those of moderates (supporting the extremist hypothesis), and the effect generalized to descriptions of society and television. Using human-coded language valence as a dependent variable yielded similar results as using computer-coded language valence, with the one exception being a main effect of experimental

condition: society essays were more negative than TV essays. (This difference may simply be a product of human coding being more sensitive/reliable.) Compared to moderates, extremists used less positive emotion, more negative emotion, and more anger words. Like in 4 of the 5 preceding studies, anger better distinguished moderates from extremists than anxiety and sadness.

Table S9. Predictors of the emotional tone (and its subcategories) in the language of Internet users writing either about the state of society or the state of television (Study S2). Extremism negatively predicted the emotional tone of the language. The effect generalized to both experimental conditions, meaning that extremists' language is more negative on multiple topics. Analyses were multiple regression analyses. Bolded numbers are statistically significant.

Predictor	Computer Coded												Human Coded	
	Emotional Tone		Positive Emotion		Negative Emotion		Anxiety		Anger		Sadness		Emotional Tone	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Political orientation	-0.782 (3.167)	-.009	0.964 (1.063)	.034	0.125 (0.292)	.016	0.098 (0.124)	.030	0.039 (0.149)	.010	0.057 (0.088)	.025	-0.115 (0.090)	-.047
Extremism	**-18.027 (4.016)***	**-.168**	**-2.870 (1.348)***	**-.081**	**1.013 (0.371)**	**.102**	0.257 (0.157)	.062	**0.569 (0.189)**	**.113**	0.019 (0.111)	.006	**-0.672 (0.114)***	**-.217**
Condition (1=Society, -1=TV)	-2.971 (1.895)	-.072	0.523 (0.636)	.039	**0.502 (0.175)**	**.133**	**0.237 (0.074)**	**.149**	0.156 (0.089)†	.081	0.061 (0.053)	.055	**-0.160 (0.054)**	**-.135**
Condition × Political orientation	3.570 (3.167)	.043	0.073 (1.063)	.003	**-0.653 (0.292)***	**-.085**	**-0.325 (0.124)**	**-.101**	-0.156 (0.149)	-.040	-0.130 (0.088)	-.057	0.069 (0.090)	.029
Condition × Extremism	-2.920 (4.016)	-.035	-0.361 (1.348)	-.013	-0.159 (0.371)	-.021	-0.241 (0.157)	-.074	0.077 (0.189)	.020	-0.120 (0.111)	-.053	-0.100 (0.114)	-.041

Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Testing the venting hypothesis. If extremists' negative language is the result of emotional venting, then extremists should be in a more negative mood than moderates before the writing task. This possibility did not receive support: in fact, extremists reported feeling in a marginally better mood than moderates at pre-test (see Table S10). Moreover, higher mood at pre-test was associated with a more negative emotional tone of language within each condition, rs ≤ -.133, ps ≤ .010.

In contrast, the act of expressing negativity seems to have lowered extremists' mood. To remove pre-existing differences in participants' mood before the essay task, we calculated a change-in-mood score by subtracting pre-test mood from post-test mood for each participant. Extremism predicted a decrease in mood (see Table S10). We also found an effect of political orientation, such that right wing participants experienced a larger mood reduction than did left wing participants, and an interaction with the experimental topic. Within each condition, we found that extremists experienced more mood depression than did moderates after writing about society but not after writing about TV.

Table S10. Predictor of self-reported mood of Internet users both before and after writing either about the state of society or the state of television (Study S2). Extremism positively predicted pre-test mood, countering the view that extremists are drawn to using negative language to express unhappiness. In contrast, extremism negatively predicted post-test mood (marginally) and the change in mood that occurred after writing about the state of society or TV. This induced negative mood among extremists occurred after writing about society but not about TV. Analyses were multiple regression analyses. Bolded numbers are statistically significant.

	Mood						Change-in-Mood, by Condition			
	Pre-test		Post-Test		Change		TV Condition		Society Condition	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Political orientation	**0.619 (0.178)****	**.133**	0.295 (0.191)	.059	**-0.368 (0.145)***	**-.095**	-0.267 (0.176)	-.082	**-0.468 (0.229)***	**-.109**
Extremism	0.416 (0.225)[†]	.071	-0.413 (0.241)[†]	-.065	**-0.895 (0.183)*****	**-.182**	-0.308 (0.221)	-.076	**-1.482 (0.291)*****	**-.271**
Condition	-0.113 (0.106)	-.050	-0.251 (0.113)*	-.104	-0.132 (0.086)	-.071				
Condition × Political orientation	0.095 (0.178)	.021	0.064 (0.191)	.013	-0.101 (0.145)	-.026				
Condition × Extremism	0.258 (0.225)	.056	-0.241 (0.241)	-.049	**-0.587 (0.183)****	**-.154**				

Note. [†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

We also ran the analyses separately for each country (Table S11), and repeated all of the analyses while controlling for the country of origin of the author. To do so, we created dummy codes for all but one country, and included them in all analyses. Tables S12-13 present the results. The following effects of controlling for country were noteworthy:

- Controlling for country reduced the effect of LIWC emotional tone on extremism to marginal significance.
- Controlling for country did not affect the effect of human coded emotional tone on extremism.
- Controlling for country did not affect the effects of topic on emotional tone
- Controlling for country reduced the relationship between extremism and pre-test mood from marginal to non-significance.
- Controlling for country made the relationship between extremism and post-test mood significant.

- Controlling for country did not alter the pattern of results concerning change-in-mood: right wing and extremist participants experienced a more negative shift, and these effects were limited to the society condition.
- The language of participants from India was particularly positive. Examining the histograms, we noted that the Indian sample tended to identify as political centrist more so than samples from other countries. Controlling for country thus reduced the effect of extremism on emotional tone.

Table S11. Predictors of the emotional tone in the language of Internet users writing either about the state of society or the state of television, by country. We included only the countries that had a substantial sample (ns ranged from 92 to 317 in these four countries), and did not analyze countries with small ns (Ireland and Australia, ns < 10). The relationship between extremism and the emotional tone of language was in the predicted (negative) direction in three of four countries. India yielded the strongest result. Analyses were multiple regression analyses. Numbers represent unstandardized estimates (and SEs). Bolded numbers are statistically significant.

	Canada	India	UK	US
Political orientation	5.313 (7.503)	7.288 (8.685)	-1.029 (8.932)	-1.327 (4.088)
Extremism	3.725 (10.064)	**-26.514 (9.603)****	-2.442 (12.591)	-3.846 (5.572)
Condition (1=Society, -1=TV)	-6.039 (5.130)	-0.733 (2.731)	**-20.453 (5.755)****	-1.056 (3.064)
Condition × Political orientation	**19.609 (7.503)***	-11.188 (8.685)	-4.113 (8.932)	3.383 (4.088)
Condition × Extremism	14.523 (10.064)	-8.225 (9.603)	5.401 (12.591)	-7.012 (5.572)

Table S12. Predictors of the emotional tone (and its subcategories) in the language of Internet users writing either about the state of society or the state of television, while controlling for the country of original of the author. Extremism negatively predicted the emotional tone of the language. The effect generalized to both experimental conditions, meaning that extremists' language is negative on multiple topics. Analyses were multiple regression analyses. Numbers represent unstandardized estimates (and SEs). Bolded numbers are statistically significant.

Predictor	Computer Coded						Human Coded
	Emotional Tone	Positive Emotion	Negative Emotion	Anxiety	Anger	Sadness	Emotional Tone
Political orientation	-1.178 (2.988)	1.026 (1.011)	0.143 (0.283)	0.122 (0.122)	0.042 (0.148)	0.063 (0.087)	-0.127 (0.082)
Extremism	-6.762 (3.959)†	0.559 (1.331)	0.184 (0.375)	0.063 (0.162)	0.319 (0.197)	-0.100 (0.116)	**-0.294 (0.109)****
Condition (1=Society, -1=TV)	-3.507 (1.788)*	0.295 (0.599)	**0.542 (0.169)****	**0.257 (0.073)*****	0.169 (0.089)†	0.068 (0.052)	**-0.178 (0.049)*****
Condition × Political orientation	4.459 (2.989)	0.190 (1.011)	-0.722 (0.283)*	**-0.342 (0.122)****	-0.176 (0.148)	-0.145 (0.087)†	0.104 (0.082)
Condition × Extremism	-3.991 (3.797)	-0.526 (1.277)	-0.094 (0.360)	-0.238 (0.155)	0.090 (0.189)	-0.114 (0.111)	-0.134 (0.104)
Country							
United States	9.938 (14.531)	1.687 (4.956)	-0.963 (1.377)	-0.351 (0.593)	-0.056 (0.722)	0.080 (0.425)	0.605 (0.399)
India	**39.937 (14.573)****	9.610 (4.968)†	**-3.182 (1.381)***	-0.821 (0.595)	-0.733 (0.724)	-0.285 (0.426)	**1.629 (0.400)*****
Canada	8.507 (14.870)	1.083 (5.073)	-0.979 (1.409)	-0.429 (0.607)	-0.145 (0.738)	-0.014 (0.435)	0.575 (0.408)
United Kingdom	5.032 (14.919)	0.787 (5.090)	-0.661 (1.414)	0.199 (0.609)	0.009 (0.741)	-0.023 (0.436)	0.487 (0.409)
Ireland	0.794 (19.666)	-0.832 (6.709)	-1.362 (1.864)	-0.575 (0.803)	-0.653 (0.977)	0.636 (0.575)	0.115 (0.540)

Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table S13. Predictor of self-reported mood of Internet users both before and after writing either about the state of society or the state of television, while controlling for the country of the author. Analyses were multiple regression analyses. Numbers represent unstandardized estimates (and *SE*s). Bolded numbers are statistically significant.

	Feelings			Change-in-Feelings, by Condition	
	Pre-test	Post-Test	Change	TV Condition	Society Condition
Political orientation	**0.596** **(0.174)****	0.269 (0.191)	**-0.363** **(0.143)***	-0.271 (0.176)	**-0.451** **(0.224)***
Extremism	-0.002 (0.231)	**-0.525** **(0.254)***	**-0.596** **(0.190)****	-0.148 (0.235)	**-1.125** **(0.297)****
Condition	-0.114 (0.104)	**-0.258** **(0.114)***	-0.138 (0.085)		
Condition × Right Wing	0.066 (0.174)	0.054 (0.191)	-0.073 (0.143)		
Condition × Extremism	0.306 (0.221)	-0.231 (0.242)	**-0.615** **(0.181)****		
Country					
United States	-0.330 (0.835)	-0.079 (0.915)	0.244 (0.682)	-0.070 (0.887)	0.489 (1.014)
India	-1.516 (0.838)†	-0.413 (0.918)	1.052 (0.684)	0.435 (0.891)	1.538 (1.018)
Canada	-0.306 (0.854)	-0.075 (0.936)	0.213 (0.698)	0.151 (0.906)	0.225 (1.040)
United Kingdom	-0.970 (0.857)	-0.510 (0.939)	0.444 (0.700)	0.353 (0.902)	0.371 (1.054)
Ireland	-0.942 (1.130)	-1.013 (1.238)	-0.098 (0.922)	0.384 (1.110)	-1.171 (1.528)

Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

Study S2 again found that extremism negatively predicted emotional tone, and political orientation was unrelated to emotional tone, supporting the extremist hypothesis. Extremists' language was more negative than that of moderates both when describing the state of society and when describing the state of television. This result might mean that extremists have a general tendency to use negative language. Alternatively, extremists may have described the state of television in politicized terms. For example, a left-wing American described the state of television as follows:

> In regards to cable news programs, I believe the angry politics were created and fueled by Fox News and the way they tapped into the fears and prejudice of a certain group of Americans. The consequence is that to those Americans, the truth doesn't matter. They only believe what they want to and whatever the angry political pundits tell them regardless of how wrong it is.

An informal inspection of the descriptions of the state of television found that ~20% of them were in explicitly political terms. A significant number of additional descriptions offered a social commentary without explicitly invoking politics:

> The state of television is very unique these days because there is so much reporting on the terrible things that are happening in the world today. Bullying, murders, violence seem very prevalent on television every day. It's hard to turn on the tv and not see this almost every hour.

Although participants were not asked to comment on politics or asked any questions about politics, the survey was titled, "The State of the World Study". This could have primed participants in both conditions to think about societal issues. These observations suggest that social and political issues might pervade many aspects of people's lives, and thus attest to the far-reaching tendency of extremists' to use negative language.

Study S3 (Common Threats)

Method

To describe the most common threats that liberal and conservative extremists perceive, we asked 666 Americans on Crowdflower to indicate their level of agreement with the statement, "people that I care about are in danger" on a 6-point scale anchored at 1 (*strongly disagree*) 2 (*disagree*), 3 (*slightly disagree*), 4 (*slightly agree*), 5 (*agree*), and 6 (*strongly agree*). For those who answered 3 or above, three follow-up questions appeared. They asked, (a) "Who might be in danger?" (b) "What is the danger?" and (c) "Who or what is likely responsible for the danger?"

Results

We began by forming two groups: Liberal extremists were people whose political orientation was between -0.60 and -1.00. And conservative extremists were people whose political orientation was between 0.60 and 1.00. We then analyzed their answers to the final two questions by simply counting up the most frequent words, and used those data to form word clouds.

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