

Supplementary Material

Supplementary results

Moral-emotional language

All 16 false statements employed (8 sacred values and 8 non-sacred values) were formulated twice, once using moral-emotional language and once using neutral language. There were some cross-cultural differences in the effect of moral-emotional language on likelihood of sharing in the US and Spanish surveys. While using moral-emotional language had a small effect across the whole sample in Spain (moral-emotional language: $M = 4.13$, $SD = 1.61$; neutral language: $M = 4.03$, $SD = 1.60$; $M_{diff} = 0.10$, 95% [0.05, 0.14], $t(811) = 5.07$, $p < .001$, Cohen's $d = 0.08$, 95% CI [-0.02, 0.17]), only respondents who were fused with Trump were responsive to language in the US sample (moral-emotional language: $M = 3.62$, $SD = 1.60$; neutral language: $M = 3.46$, $SD = 1.53$; $M_{diff} = 0.16$, 95% [0.03, 0.29], $t(795) = 2.48$, $p = .013$, Cohen's $d = 0.10$, 95% CI [-0.15, 0.36]) as compared to those who weren't fused with Trump (moral-emotional language: $M = 2.62$, $SD = 1.39$; neutral language: $M = 2.67$, $SD = 1.32$; $M_{diff} = -0.05$, 95% [-0.10, 0.01], $t(795) = -1.66$, $p = .10$, Cohen's $d = -0.03$, 95% CI [-0.14, 0.07]). No such interaction was found in Spanish conservatives ($p = .16$). Thus, support for our pre-registered hypothesis on moral-emotional language was mixed.

We also found mixed evidence for our prediction that non-sacred values would be more susceptible to moral-emotional language effects as compared to sacred values. In the Spanish sample, moral-emotional language was associated with increased likelihood of sharing posts on non-sacred values (moral-emotional language: $M = 3.87$, $SD = 1.38$; neutral language: $M = 3.74$, $SD = 1.29$; $M_{diff} = 0.14$, 95% [0.07, 0.20], z -score = 4.18, $p < .001$, Cohen's $d = 0.10$, 95% CI [0.004, 0.20]), but did not affect posts on sacred values (moral-emotional language: $M = 4.38$, $SD = 1.40$; neutral language: $M = 4.32$, $SD = 1.39$; $M_{diff} = 0.06$, 95% [-0.001, 0.13], z -score = 1.92, $p = .054$, Cohen's $d = 0.04$, 95% CI [-0.05, 0.14]). However, these differences were not detected in the US sample ($ps > .47$).

Media literacy, humility, and curiosity

Individuals with higher media literacy scores were more likely to share misinformation related to sacred compared to non-sacred values as compared to those with lower media literacy scores both in the Spanish sample (high media literacy: $M_{diff} = 0.74$, 95% [0.63, 0.84], $t(810) = -13.26$, $p < .001$, Cohen's $d = 0.48$, 95% CI [0.13, 0.83]; low media literacy: $M_{diff} = 0.12$, 95% [-0.08, 0.33], $t(810) = 1.13$, $p = .26$, Cohen's $d = 0.60$, 95% CI [-3.80, 5.00]) and the US sample (high media literacy: $M_{diff} = 0.63$, 95% [0.52, 0.75],

$t(795) = 10.55, p < .001$, Cohen's $d = 0.44$, 95% CI [0.20, 0.68]; low media literacy: $M_{diff} = 0.36$, 95% [0.09, 0.64], $t(795) = 2.60, p = .010$, Cohen's $d = 0.73$, 95% CI [-1.05, 2.52]).

In the Spanish sample, individuals with higher humility scores were more likely to share misinformation related to sacred vs. non-sacred values ($M_{diff} = 0.71$, 95% [0.61, 0.81], $t(810) = 14.06, p < .001$, Cohen's $d = 0.34$, 95% CI [0.02, 0.66]) as compared to those with lower humility scores ($M_{diff} = -0.07$, 95% [-0.23, 0.37], $t(810) = -0.45, p = .65$, Cohen's $d = -0.09$, 95% CI [-0.67, 0.50]). However, scientific curiosity did not moderate sharing of posts with sacred versus non-sacred values ($p = .22$). Neither humility nor curiosity were assessed in the US survey.

Neuroimaging results

Participants who started getting fact-checked in the second half of the fMRI session exhibited higher activation in the left dorsomedial prefrontal cortex, the left middle temporal gyrus, the cerebellum and the occipital cortex (thresholded at $T = 3.36, k = 273, p < .001$ FWE_c) in response to sacred (vs. non-sacred) values compared to participants who were fact-checked from the beginning of the fMRI paradigm (see Figure 2c and Table 3c), suggesting a reduced response to fact-checking in participants who were habituated to fact-checks from the start. 63% of these areas overlapped with the default mode network, 21% with the visual network and 6% with the frontoparietal network.

For the sacred versus non-sacred values contrast, the top 3 non-anatomical words most frequently associated with the peak activation coordinates of each of these clusters in *Neurosynth* were: *language* (z-score = 10.62), *sentences* (z-score = 10.45) and *sentence* (z-score = 9.87) for the left middle temporal gyrus cluster; *negative positive* (z-score = 5), *inferences* (z-score = 4.96) and *social* (z-score: 3.86) for the left dorsomedial prefrontal cluster; *autobiographical* (z-score = 10.13), *autobiographical memory* (z-score = 8.98) and *default mode* (z-score = 7.65) for the left precuneus; *intention* (z-score = 5.17), *disorder ocd* (z-score = 5.11), and *ocd* (z-score = 4.93) for the left middle frontal cluster; and *phonological* (z-score = 13.16), *language* (z-score: 11.68) and *syntactic* (z-score = 11.46) for the left inferior frontal cluster.

For the value by fact-check interaction contrast, the top 3 non-anatomical words associated with the resulting clusters in *Neurosynth* were: *mind tom* (z-score = 8.92), *tom* (z-score = 8.51) and *theory of mind* (z-score = 6.69) for the right dorsomedial prefrontal cluster; *default* (z-score = 8.23), *autobiographical* (z-score = 7.24) and *default mode* (z-score = 7.17) for the precuneus cluster; *episodic memory* (z-score = 7.38), *episodic* (z-score = 6.31) and *encoding* (z-score = 5.78) for the hippocampus; *experiencing* (z-score = 6.19), *imagined* (z-score = 5.37) and *solving* (z-score = 4.23) for the left cerebellum; and *empathy* (z-score = 6.06), *mind* (z-score = 5.51) and *theory of mind* (z-score = 5.28) for the right cerebellum.

Supplementary discussion

In terms of moral-emotional language, we found that using more moral-emotional words increased misinformation sharing across Spanish conservatives and in individuals fused with Trump. This is aligned with previous work on the effects of moral-emotional language in sharing online content (Brady et al., 2017). Of note, our moral-emotional versions of the items were particularly aggressive, emulating the tone employed by some of the relevant political leaders on social media. This could have made moderate conservatives more reluctant to share social media posts with strong moral-emotional language.

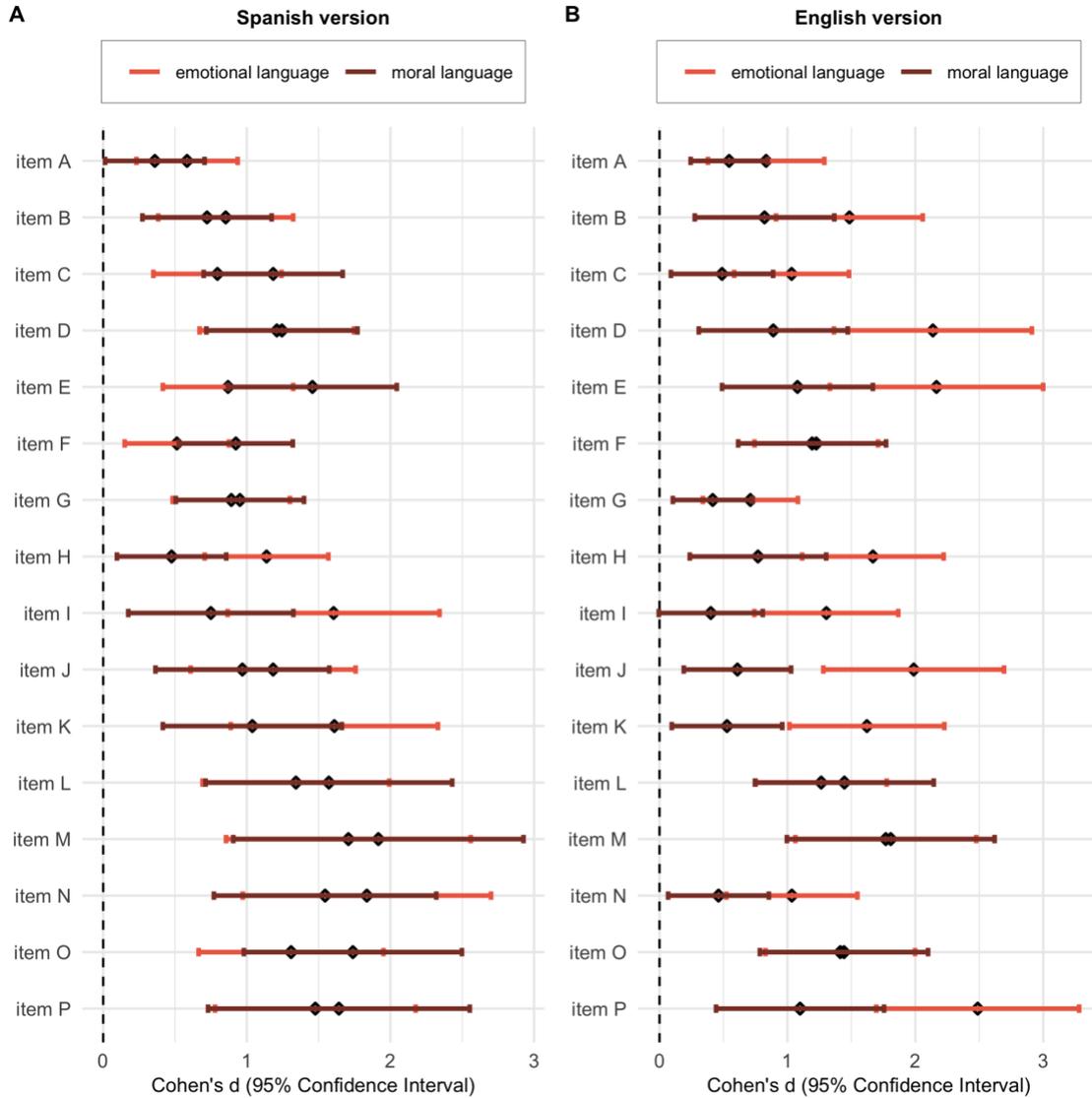


Fig. S1. Differences in moral and emotional language in the two language versions for each item. The moral-emotional language and neutral language versions of the employed sacred and non-sacred value items across the three studies were perceived as different in emotional language (Spanish version: $p < 0.005$, English version: $p < 0.001$) and moral language (Spanish version $p < 0.05$, English version: $p < 0.05$).

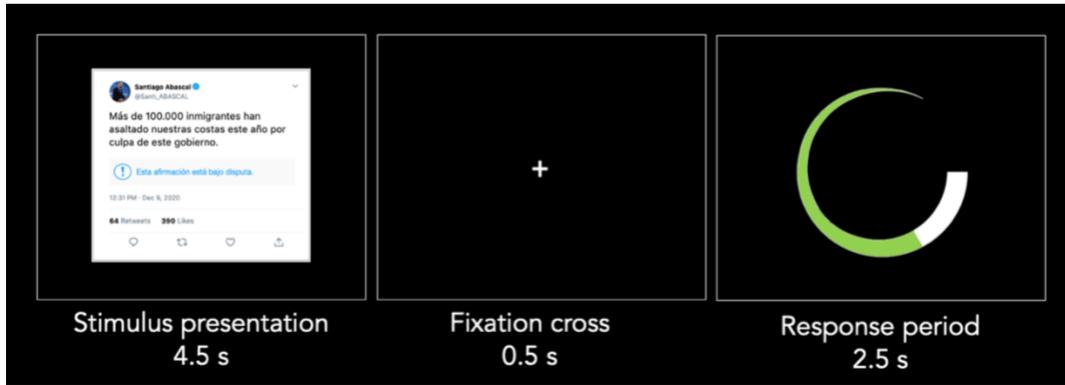


Fig. S2. Trial structure of the fMRI paradigm. Trials in the neuroimaging paradigm included a 4.5-second stimulus presentation period and a 2.5-second response period separated by a brief resting interval of 0.5 seconds. Participants responded using a 6-point circular response scale by means of a right/left button following (Kahnt et al., 2011).

Table S1. Value sacralization across study populations. Percentage of respondents who are not willing to give up values associated with immigration, nationalism and women and family values (proposed sacred values) as compared to values associated with roads and infrastructure, foreign affairs and waste and materials (proposed non-sacred values).

% Participants who deem value sacred		Spanish sample		US sample	fMRI sample	Num. of items
		<i>Center-right</i>	<i>Far-right</i>			
<i>Proposed sacred values</i>	<i>Immigration</i>	45%	68%	58%	61%	3
	<i>Nationalism</i>	71%	78%	63%	64%	3
	<i>Women and family values</i>	46%	64%	68%	64%	2
<i>Proposed non-sacred values</i>	<i>Roads & infrastructure</i>	5%	6%	15%	8%	3
	<i>Foreign affairs</i>	14%	17%	23%	6%	2
	<i>Waste & Materials</i>	3%	7%	16%	3%	3
Total						16

Table S2. List of items used in the US study. For each item, we include the moral-emotional language and the neutral language formulation.

Items on sacred values		Likes	Retweets
1	<i>Blindly believing the woman's side of the story causes 1 in 4 innocent men to be victimized with false abuse accusations.</i>	65	407
	<i>Always believing the woman's side of the story means that 1 in 4 men are accused without having actually done anything.</i>		
2	<i>We pay 1.6 billion annually through taxes to make it so that Planned Parenthood can keep killing unborn children</i>	76	479
	<i>The government allocates 1.6 billion annually to finance Planned Parenthood. They are highly dependent on taxpayers.</i>		
3	<i>It is an attack on the nation that American families are forced to learn Spanish to work at some companies in the US.</i>	80	398
	<i>It doesn't make much sense that Americans have to learn Spanish to work at some companies.</i>		
4	<i>The new government is pushing a disgraceful bill that will forbid our children from saying the pledge of allegiance.</i>	85	217
	<i>The new government is proposing a bill that will not require the pledge of allegiance to be recited in schools.</i>		
5	<i>The pathetic Biden administration is considering a bill that would rob young Americans of the right to fly the flag on college campuses.</i>	98	416
	<i>The Biden administration is considering a bill that would ban flying the American flag on college campuses.</i>		
6	<i>This year alone, more than 1 million illegal immigrants have infiltrated our border because they want handouts from our socialist government.</i>	64	390
	<i>This year alone, more than 1 million people have entered our country without documentation, drawn by government aid programs.</i>		
7	<i>3 out of 4 illegal immigrants who enter our country end up in criminal gangs, endangering our American way of life.</i>	82	360
	<i>3 out of 4 people who enter our country without documentation find themselves getting part-time jobs, weakening American society.</i>		
8	<i>It is intolerable that this year the government handed out more money to illegal immigrants than to American families in need.</i>	58	340
	<i>This year the government is allocating more money to newcomers than to citizens with few resources.</i>		
Items on non-sacred values		Likes	Retweets
1	<i>The communist Biden administration is starting to decrease trade with Lithuania. The current government is an enemy of freedom and the nation.</i>	91	411
	<i>The Biden administration is starting to decrease trade with Lithuania. This will limit our possibilities as a country.</i>		

2	<i>That the government has slashed the funding for American embassies in the Asia-Pacific region is an attack against the nation.</i>	63	366
	<i>The fact that the government has reduced funding for American embassies in the Asia-Pacific region limits our foreign policy.</i>		
3	<i>The government demands less steel in containers, condemning thousands of American families who depend on the steel industry to poverty.</i>	54	363
	<i>The government is limiting the steel content of containers, which means less income for the American steel industry.</i>		
4	<i>The totalitarian Democrats announced its new plan to regulate construction materials-- they only want to cover up their corruption.</i>	53	414
	<i>The Democrats presented its new plan to regulate construction materials, which will probably slow the construction industry.</i>		
5	<i>This phony government is imposing government regulations on waste treatment plants. They're just trying to avoid corruption charges.</i>	77	210
	<i>The government proposed to modernize several waste treatment plants in our country to comply with new standards.</i>		
6	<i>The government is blatantly ignoring the US citizens plagued by the deteriorating national highways.</i>	82	203
	<i>The government has yet to attend to the US citizens affected by the deteriorating road network.</i>		
7	<i>This inept government sows chaos once again by changing the name of highways and accesses to the national highway system.</i>	80	398
	<i>Several sectors are puzzled by the change in the name of highways and access to the national highway system.</i>		
8	<i>The government is incompetent, manipulating at will what is considered part of the national highway.</i>	83	483
	<i>The government decided to change the technical criteria of which sections and roads can be categorized as part of the national highway system.</i>		