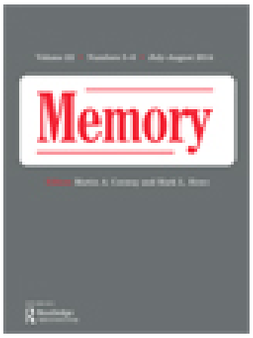

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Moralized memory: binding values predict inflated estimates of the group's historical influence

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ABSTRACT
Collective memories are memories or historical knowledge shared by individual group members, which shape their collective identity. Ingroup inflation, which has previously also been referred to as national narcissism or state narcissism, is the finding that group members judge their own group to have been significantly more historically influential than do people from outside the group. We examined the role of moral motivations in this biased remembering. A sample of 2118 participants, on average 42 from each state of the United States, rated their home state's contribution to U.S. history, as well as that of ten other states randomly selected. We demonstrated an ingroup inflation effect in estimates of the group's historical influence. Participants' endorsement of binding values – loyalty, authority, and sanctity, but particularly loyalty – positively predicted the size of this effect. Endorsement of individuating values – care and fairness – did not predict collective narcissism. Moral motives may shape biases in collective remembering.

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Collective memory; collective narcissism; binding values; moral foundations theory; cognitive attractor

In a widely publicized 2016 speech at Texas A&M University, Richard Spencer, an influential figure in the American white supremacist Alt-Right movement, pronounced that "as Europeans we are, uniquely, at the center of history" (Edwards & Stevens, 2016). Although most may readily dismiss white nationalists' revisionist telling of history, a basic psychological phenomenon underlying Spencer's ethnocentric rendering of the past may very well characterize historical remembering more generally. That is, people may represent history in a way that exaggerates their group's historical significance. Psychologists have most frequently studied collective narcissism – a strong emotional investment in exaggerating the group's greatness – as it relates to self-esteem, perception of threat posed by outsiders, the willingness to forgive historical wrongs, and as a predictor of intergroup aggression (e.g., de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009). In other words, psychologists have studied collective narcissism's impact on intergroup relations. We are interested in examining two somewhat different aspects of collective narcissism: how a group-centric bias might manifest when people think about history, and how group-oriented moral values might play a role in motivating such biases in collective memory.

Group-centric bias in collective remembering

It is well established that people tend to over-claim responsibility for positive outcomes. Across several types of group – romantic couples, sports teams, problem-solving groups – Ross and Sicoly (1979) demonstrated that individuals preferentially remembered their own contributions to joint tasks at the expense of the contributions made by other group members. People also attributed a greater proportion of responsibility for collective outcomes to themselves, relative to other group members. Individuals' perception of their own influence was inflated. This inflation arose partly due to the availability heuristic, in which one's own actions are more accessible in memory than the actions of other people, and so are more likely to be used when making judgments of responsibility (Tversky & Kahneman, 1973).

Egocentric biases in availability and attribution as described by Ross and Sicoly (1979) may also be found at the group level. Putnam, Ross, Soter, and Roediger (2018) asked nearly three thousand Americans to estimate the proportion of U.S. history that could be attributed to their home state and then make such estimates for ten other randomly selected U.S. states. Mean in-state ratings were reliably higher than corresponding out-of-state ratings for all states except Washington.[1] That is, people inflated their own state's historical contribution above and beyond what might be considered a reasonable baseline calculated from an aggregate, national consensus. The mean out-of-state rating for each state allowed Putnam et al. to control for historical contingency, in that people from certain states genuinely did exert a greater degree of historical influence than people from others (e.g., Virgi-

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nia or Massachusetts vs. South Dakota or Idaho). Putnam et al. termed this psychological inflation of the ingroup's historical influence *state narcissism* and characterized it as a group-centric bias in collective memory analogous to Ross and Sicoly's (1979) egocentric bias. Instead of inflating their own influence relative to other ingroup members, participants inflated their group's influence relative to that of other groups.

Such inflated perceptions of the group's historical influence also appear at the level of nations. As part of the 35 country World History Survey, Zaromb, Liu, Hanke, Putnam, and Roediger (2018) asked participants to estimate the proportion of world history for which their own country was responsible. Across thousands of years of human civilization and countless nations (193 modern countries are in the UN, for instance, and many more than that have existed historically), even very influential countries should realistically claim relatively small amounts of credit. Nevertheless, members of the 35 tested nations reported extraordinarily high estimates for their nation's influence; collectively, Zaromb et al.'s participants claimed responsibility for 1156% of world history.

In all demonstrations to date of national or state narcissism effects, the effect is unevenly distributed. That is, there is considerable regional variation in the size of the effect. Zaromb et al. (2018) speculated that systematic differences in people's image of their nation's history could be driven by differences in cultural values. They did not, however, test for this proposed mechanism. A similar question arises from Putnam et al.'s (2018) data on U.S. states, which likewise showed a fair amount of regional variability in the average size of their state narcissism effects. Cognitive factors such as the availability heuristic undoubtedly do play an important role in explaining state and national narcissism effects (Putnam, Sterling-Maisel, & Ross, 2019), but what would explain the observed regional variances?

Moral foundations theory

We suggest that group-oriented moral values, which vary across individuals and between cultures, are frames that may bias the way people think about their group's past. Systematic variations in moral concerns have been well specified in an influential programme that Haidt and Graham (2007) termed Moral Foundations Theory (MFT). MFT is a pluralist theory of morality that proposes five domains of morality, each with its own characteristic logic, emotional intuitions, and realm of concerns: prevention of harm, fairness, loyalty, respect for authority, and sanctity (sometimes called purity). The first two domains, fairness and preventing harm, are referred to as the *individuating values*, because they emphasize concern that an individuals' rights are properly respected, regardless of social affiliation. The latter three domains – loyalty, authority, and sanctity – are collectively referred to as the *binding values* because they serve to motivate the formation and maintenance of strong group ties. While most people endorse individuating values to similar degrees, people vary considerably in the extent to which they are motivated by the group-oriented binding values. For instance, conservatives are more likely than liberals to moralize loyalty towards other members of their groups and respect for legitimate social hierarchies, as well as to sanctify group symbols like the nation's flag (Graham, Haidt, & Nosek, 2009).

Memory and morality

In the current study, we proposed that people higher in binding values should be more likely to think of history in a way that centres their own group – that is, in which the ingroup is perceived as more powerful, influential, and special relative to other groups. Moral values should shape collective remembering in such characteristic ways in part because, by definition, binding values lead people to attribute more value to their groups in general. If ingroup affection and ego-protection are two of the potential mechanisms driving ingroup inflation (the other being the availability heuristic; Putnam et al., 2018, 2019), and people higher in binding values experience greater ingroup affection, they should also show greater ingroup inflation in collective memory.

This inquiry is in part inspired by Zaromb et al.'s (2018) speculation that some of the variance in national narcissism from their multi-national sample might be attributed to variations in cultural values. In their study, participants from cultures sharing traditional and survival values (versus secular/rational and self-expressive values; Ingelhard & Welzel, 2010) tended to show the most national narcissism in collective remembering. As established above, the group-oriented binding values of loyalty, authority, and sanctity tend to be more heavily endorsed among members of such conservative, traditional cultures (Graham et al. 2009). We aimed to test for this relation directly.

Strong endorsement of loyalty, for instance, seems especially likely to shape collective remembering. Durkheim (1915/1995) characterized social sentiments of loyalty as operating at two levels: the sense of duty group members feel towards one another (e.g., soldiers towards their fellow unit members), and that which they feel towards the group as a whole (e.g., those same soldiers towards the idealized concept of the homeland, or, more symbolically, towards their nation's flag). Loyalty in this second sense should schematically shape recall of history. A historical image of the group as impotent or peripheral to important events could be seen as, in some ways, a betrayal; a memory exemplifying loyalty should frame the group as an influential and important actor. Given some set of historical events, all else being equal, a sense of loyalty should make people more likely to attribute responsibility for those events to members of their own group. Indeed, it should not especially matter whether people actually have specific events in mind; we would see this biased

attribution even in rough judgments of magnitude, as our task (described below) employs. For those high on the loyalty foundation, collective memory in which the group is centred and influential would provide both personal satisfaction, and, if communicated, signal that one is a trustworthy member of the coalition.

A "correct" manner of remembering the collective's past itself is frequently moralized (Blustein, 2008; Margalit, 2002), and there is experimental evidence that moral values can bias memory. For instance, Americans may collectively experience a moral duty to remember the 9/11 terrorist attacks, which people from other societies do not. When Echterhoff and Hirst (2006) manipulated the fluency with which American and German participants could recall their flashbulb memories of 9/11, Germans used ease of recall as a heuristic to make their confidence judgments. That is, greater difficulty with recall was associated with decreased confidence in the accuracy of the memory, and vice versa. Americans, on the other hand, consistently rated their 9/11 flashbulb memories with high confidence, regardless of the fluency with which those memories could be retrieved. Echterhoff and Hirst (2006) argued that, rather than using ease of retrieval when making judgments of confidence, Americans experienced a moral duty: "Never forget". This sense of duty explained Americans' uniform, though perhaps unmerited, confidence.

The current study

Our primary goal in the current study was to examine whether endorsement of particular moral values – the binding values in general, and loyalty in specific – predicted the extent to which people inflate their ingroup's perceived historical influence. To do so, we adopted the methods by which Putnam et al. (2018) originally demonstrated the state narcissism effect. Participants from the 50 U.S. states estimated the proportion of U.S. history that could be attributed to their home state, as well as the proportion contributed by 10 other random states. An inflation index could then be calculated as the difference between in-state and average out-of-state ratings, for participants from each state. Of novel interest was the relation this inflation index would bear to participants' moral profiles, as determined by the Moral Foundations Questionnaire (MFQ). We predicted that endorsement of binding values, particularly loyalty, would have a positive relation with ingroup inflation, and that endorsement of individuating values would have either no relation, or a negative relation, with ingroup inflation.

Materials and methods

Participants

To qualify for the study, participants had to identify as American. Additionally, they had to be at least 18 years old, speak fluent English (we did not require English to be their first language), and to have responded correctly to attention checks distributed throughout the survey. Participants' home state was assigned by self-report. Participants were required to have lived in their home state continuously up to the age of 18, and not to have spent more than 4 years living outside of their home state after the age of 18. To detect an ingroup inflation effect of the size reported by Putnam et al. ($d = .41$) at $\alpha = .05$ and power of 0.80, with an allocation ratio of 10, a G*Power power analysis required a total sample size of at least 448, which our sample adequately surpassed. We aimed to collect usable data for at least 40 participants per U.S. state. Data were collected from 2,446 anonymous Mechanical Turk workers. Three hundred and twenty-eight of these were disqualified for either providing incomplete data (i.e., they began but did not finish the survey), or for failing to meet the inclusion criteria specified in the recruitment material – e.g., they did not self-report as being fluent in English, or failed the attention checks presented throughout the survey. Analyses were conducted on the remaining 2118 participants, at an average of 42 participants per U.S. state, who met all study criteria and presented complete data.

Ages ranged from 18 to 88, with a mean of 35 years of age. Forty-four percent of participants identified as male, 56% as female, with less than 1% identifying as other. Ethnically, 80% of participants were White, 5% Black, 4.2% Asian, 3.4% Latino, with remaining ethnic identifications all below 1%. The Washington University in St. Louis Office of Human Research Protections determined that the study was exempt from IRB review. Participants were notified that their participation was voluntary and that they could end the study at any time. Each participant was paid $2 upon completion of the survey, which took about 15 minutes to finish.

Procedure

The full questionnaire is provided in Appendix I of the supporting online materials and is available at the Open Science Framework (OSF; https://osf.io/bcz3y/). One MTurk survey was targeted to each U.S. state, and only participants who reported that state as their home state were allowed to take the survey. Following consent procedures, participants were directed to the survey, where they selected their current state of residence, and their home state (i.e., the state in which they grew up). Following this check, they then advanced to one of the following four blocks of questions. The order of blocks was randomized for each participant, and all participants responded to all four blocks. All items within each block were presented in random order. In one block, participants estimated what proportion of U.S. history could be attributed to people from their home state. The question read:

> You said you grew up in [home state]. In terms of percentage, what do you think was [home state's] contribution to the history of the United States? In other words, how responsible was your home state for the historical developments in the United States? Keep in mind that there are 50 states and that the total contribution for all states has to equal 100%.

They then answered the same question about ten other randomly presented states. Participants made these ratings using a slider, which was initially set to 0. They moved the slider to estimate the percentage of U.S. history that could be attributed to people from the target state, between 0 and 100.

Table 1. Proportion of U.S. history claimed for each state, in mean resident ratings, baseline (i.e., aggregate out-of-state consensus) ratings, and mean ingroup inflation index for people from each of the 50 states.

State	Mean resident rating	Mean baseline rating	Mean ingroup inflation index
Alabama	.23 [.15, .32]	.13 [.12, .15]	.10 [.01, .19]
Alaska	.08 [.04, .12]	.11 [.09, .13]	−.03 [−.07, .01]
Arizona	.10 [.06, .14]	.11 [.10, .13]	−.01 [−.05, .02]
Arkansas	.12 [.08, .17]	.12 [.11, .14]	0.0 [−.04, .04]
California	.32 [.27, .38]	.22 [.19, .24]	.11 [.06, .16]
Colorado	.11 [.07, .16]	.12 [.11, .14]	−.01 [−.05, .03]
Connecticut	.30 [.22, .37]	.21 [.19, .23]	.08 [.01, .16]
Delaware	.29 [.19, .39]	.20 [.18, .22]	.09 [−.01, .20]
Florida	.23 [.16, .30]	.15 [.14, .17]	.07 [0.0, .15]
Georgia	.29 [.18, .40]	.19 [.17, .21]	.10 [0.0, .21]
Hawaii	.14 [.09, .19]	.11 [.10, .13]	.03 [−.02, .08]
Idaho	.09 [.06, .12]	.09 [.08, .1]	0.0 [−.03, .03]
Illinois	.19 [.14, .24]	.15 [.13, .17]	.04 [−.01, .09]
Indiana	.13 [.08, .19]	.11 [.10, .13]	.02 [−.03, .07]
Iowa	.12 [.07, .18]	.11 [.10, .13]	.01 [−.05, .07]
Kansas	.16 [.11, .20]	.12 [.10, .14]	.04 [−.01, .08]
Kentucky	.19 [.12, .25]	.14 [.12, .16]	.05 [−.02, .11]
Louisiana	.29 [.21, .37]	.18 [.16, .20]	.11 [.03, .19]
Maine	.12 [.05, .18]	.15 [.13, .16]	−.03 [−.09, .03]
Maryland	.23 [.19, .28]	.21 [.19, .24]	.02 [−.02, .07]
Massachusetts	.43 [.35, .51]	.34 [.27, .40]	.09 [.01, .18]
Michigan	.12 [.09, .15]	.12 [.10, .13]	0.0 [−.03, .03]
Minnesota	.12 [.08, .15]	.13 [.09, .16]	−.01 [−.05, .03]
Mississippi	.16 [.11, .22]	.17 [.16, .19]	−.01 [−.07, .04]
Missouri	.22 [.17, .28]	.13 [.12, .15]	.09 [.03, .15]
Montana	.17 [.11, .24]	.11 [.09, .13]	.07 [0.0, .13]
Nebraska	.14 [.09, .19]	.10 [.07, .13]	.03 [−.02, .08]
Nevada	.15 [.08, .21]	.12 [.11, .14]	.02 [−.04, .09]
New Hampshire	.30 [.20, .40]	.17 [.15, .19]	.13 [.03, .23]
New Jersey	.31 [.24, .39]	.16 [.14, .17]	.16 [.08, .23]
New Mexico	.11 [.07, .16]	.10 [.09, .12]	.01 [−.04, .05]
New York	.32 [.24, .39]	.36 [.30, .42]	−.04 [−.12, .03]
North Carolina	.26 [.18, .34]	.17 [.15, .19]	.05 [−.03, .12]
North Dakota	.13 [.06, .19]	.10 [.09, .12]	.03 [−.04, .01]
Ohio	.19 [.12, .25]	.14 [.12, .16]	.05 [−.01, .11]
Oklahoma	.18 [.10, .25]	.11 [.10, .13]	.06 [−.02, .14]
Oregon	.20 [.12, .28]	.13 [.11, .14]	.07 [−.01, .15]
Pennsylvania	.38 [.30, .46]	.29 [.26, .31]	.09 [.01, .17]
Rhode Island	.21 [.14, .29]	.15 [.13, .17]	.06 [−.02, .14]
South Carolina	.28 [.18, .37]	.21 [.16, .27]	.13 [.04, .22]
South Dakota	.09 [.05, .12]	.09 [.06, .13]	.02 [−.02, .05]
Tennessee	.21 [.14, .29]	.15 [.11, .19]	.06 [−.01, .13]
Texas	.23 [.18, .28]	.22 [.20, .24]	.01 [−.04, .06]
Utah	.13 [.06, .20]	.10 [.09, .12]	.03 [−.04, .10]
Vermont	.19 [.11, .27]	.18 [.13, .23]	.01 [−.07, .09]
Virginia	.42 [.34, .51]	.28 [.25, .30]	.15 [.06, .23]
Washington	.13 [.09, .18]	.17 [.15, .19]	−.04 [−.08, .01]
West Virginia	.13 [.08, .17]	.21 [.19, .23]	−.08 [−.13, −.04]
Wisconsin	.10 [.06, .15]	.11 [.10, .12]	−.01 [−.05, .04]
Wyoming	.15 [.08, .22]	.10 [.09, .11]	.05 [−.02, .13]

Notes: Ingroup inflation index represents difference between in-state rating and out-of-state baseline. 95% confidence intervals in brackets.

Two other blocks were comprised of the two sections of Graham, Haidt, and Nosek's (2009) 34-item Moral Foundations Questionnaire (MFQ). The questionnaire consists of two blocks of 17 items. In the first block, participants assess how relevant certain statements are to their moral judgments. This block contains statements like "Whether or not someone suffered emotionally" and "Whether or not someone violated standards of purity or decency". Participants rate each statement on a 5-point scale from "not at all relevant" to "extremely relevant" to their moral reasoning. The second block, also 17 items, assesses the degree to which participants agree with various moral statements, on a scale from 0 (Strongly disagree) to 5 (Strongly agree). This block contains questions like "Respect for authority is something all children need to learn" and "I think it's morally wrong that rich children inherit a lot of money while poor children inherit nothing". The questionnaire provides a score for each of the five moral foundations, representing the degree to which that foundation is important in an individual's moral profile. An aggregate score for the individuating values is calculated as the mean of the Harm/Care and Fairness foundations, and an aggregate binding value score is calculated as the mean of the Loyalty, Authority, and Sanctity foundations.

In the final block participants ranked the top 10 states by contribution to U.S. history, from greatest to least. Participants typed the states into a text box, with each state separated by a comma. They were not shown a list of all 50 states. Data from this block are not presented in the current report, but they will be available online at the OSF repository.

Finally, participants answered a series of demographic questions. They provided their age, the number of years they had lived in their home state, the number of years they had lived outside their home state if applicable, and, if they had left their home state, how old they were when they left. They provided gender, ethnicity, highest educational degree attained, and household income bracket. Participants were asked to select the community type in which they were raised: rural, small town, suburban, urban, or other. Participants were then given a series of 30 news sources, selected from across the political spectrum, to indicate where they got their news. Finally, participants responded to several questions aimed at assessing their attachment to their home state. Participants provided the number of classes they had taken on their state's history, rated how much they enjoyed reading and studying about their state on a 5 point scale from "a great deal" to "not at all", stated the number of states they had visited in the U.S., and the number of countries they had visited outside of the U.S. Participants responded to a seven-point home state identification question, "To what extent do you identify with the state that you grew up in, 0 being you feel no connection with your state, 7 being your relationship with your state is central to your identity?" They also provided entitativity ratings for their home state, in response to the question "How much of a

group do people from your home state form?" on a five-point scale from "Not at all a group" to "Very much a group". Participants were then thanked for their participation and reimbursed.

Results

Complete datasets and further analyses not presented here are available on the OSF. Moral Foundations Questionnaire scores for each foundation, as well as aggregate individuating and binding values scores, were computed using publicly available syntax provided on MoralFoundations.org. An ingroup inflation index was computed as the difference between each participant's home-state ratings and the mean rating for that state provide by out-of-state raters, who were drawn from all of the other 49 states. For Resident and Baseline ratings, along with ingroup inflation indices for each state (see Table 1).

Home state ratings

On average, participants believed their home state to be responsible for 20.8% of U.S. history, 95% CI [.20, .22]. The data for in-state raters appear in the first column of Table 1. The summed contributions for all states, as estimated by in-state residents, which logically should have totalled to 100%, was 990%. The states whose in-state raters claimed greatest contribution to U.S. history were Massachusetts (43%), Virginia (42%), and Pennsylvania (38%), whereas the lowest were Idaho (9%), South Dakota (9%), and Alaska (8%). Residents' ratings were strongly correlated with those reported by Putnam et al. (2018), $r(48) = .82$, $p < .001$. For regional variations in estimated historical contribution by residents of different states (see Figure 1). As is apparent from the figure, residents of the original colonies tended to rate their state's historical contribution higher than those of most other states, as did residents of California. The former Confederate states of the American South also tended to rate their states' contribution fairly highly, with Western and Midwestern states tending towards the lowest ratings.

Non-resident ratings

Each participant additionally estimated the historical contribution of ten other random states. For each state, then, we calculated a national consensus baseline by averaging the estimated contributions as rated by non-residents from across the country. These data are presented in the middle column of Table 1. The ten states presented for non-resident ratings were sampled evenly and randomly from the 49 non-resident states. An average of 413 non-resident raters contributed to a state's baseline rating, so the data are quite stable. These non-resident ratings allowed us to correct for the fact that some states are perceived as having exerted more historical influence than others even by those who grew up and live in other states. The average non-resident rating from all states was 16.42%, 95% CI [.16, .17], which was less than the average resident rating (20.8%) reported above, suggesting a general ingroup inflation bias, $t(49) = 7.38$, $p < .001$, $d = 1.05$. The sum of all state baseline ratings was 787%, which, while still inflated, was less than the sum of resident ratings (990%). The states with the lowest baseline ratings were Wyoming (9.94%) and South Dakota (9.49%), while the highest were New York (36%) and Massachusetts (34%). Our baseline ratings correlated nearly perfectly with the non-resident ratings for each state observed by Putnam et al. (2018), $r(48) = .96$, $p < .001$. Additionally, baseline ratings correlated strongly with the resident ratings for each state described above, $r(48) = .80$, $p < .001$, indicating agreement between residents and non-residents on individual states' historical influence; this correlation indicates a strong sharedness of collective memory in Americans concerning regional contributions to their history. However, as we demonstrate in the next section, systematic differences between resident and out-of-state raters did emerge in the form of an ingroup inflation bias in collective memory.

Ingroup inflation index

We calculated an ingroup inflation index as the difference between resident ratings and mean non-resident ratings; see the third column in Table 1. The mean ingroup inflation index across all states was 4.38%, 95% CI [.04, .05]. The state with the lowest ingroup inflation index was West Virginia at −8%, while the most inflated states were New Jersey (16%), Virginia (15%), and South Carolina (13%). Figure 2 presents a choropleth map for the mean ingroup inflation index for each state, with darker fill representing a larger resident inflation of historical influence, relative to the national consensus. The state-by-state ingroup inflation indices were again significantly correlated with those found by Putnam et al. (2018), $r(48) = .40$, $p = .004$. The comparable mean inflation bias reported in Putnam et al. (2018) was 6.62%

Moral foundations and ingroup inflation

We thus replicated the primary finding that people show inflated perceptions of their ingroup's historical influence, what has been referred to in prior literature as state or national narcissism (Putnam et al., 2018; Zaromb et al. 2018), and which we are referring to by the more general term, ingroup inflation. People over-claimed historical influence for people from their home state, relative to a non-resident baseline. The primary interest, and the novel contribution of the current research, however, concerned whether variations in moral values would predict the size of this bias in collective remembering. We predicted that people whose moral profiles emphasized the binding values – Loyalty, Authority, and Sanctity, and particularly Loyalty – would score higher on measures of

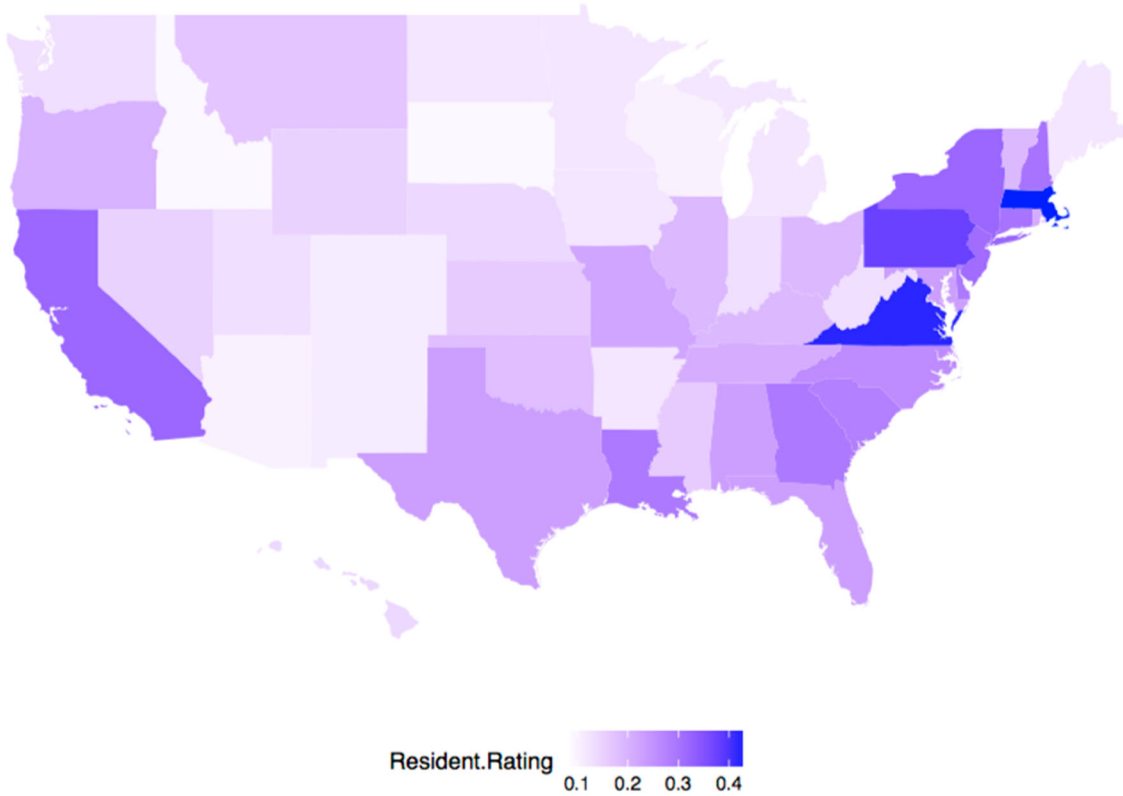

Figure 1. Choropleth map for the mean historical contribution of each state as estimated by its residents.
Note: Darker fill indicates higher proportion rating by its residents.

ingroup inflation. We further hypothesized that the individuating values – Harm/Care and Fairness – would either have no relation with ingroup inflation in collective memory, or a negative relation. Harm/Care has no obvious relation to people's attitudes towards their groups, and Fairness could mitigate ingroup inflation by motivating people to pay more attention to the contributions of all states. In order to address this question, for each participant we calculated MFQ scores on the five moral foundations, and aggregate scores for endorsement of binding and individuating values.

On their own, each of the individual binding foundations positively predicted ingroup inflation, and the individual individuating foundations did not (see Table 2). In a multiple regression with aggregated binding and individuating values predicting ingroup inflation, only the binding values significantly predicted ingroup inflation, B = .04, 95% CI [.03, .05], $p < .001$ (see Figure 3). Importantly, individuating values had no relation with ingroup inflation, B = .002, 95% CI [−.01, .02], $p = .75$. The model demonstrated good fit, $R^2 = .03$, $F(2, 2113) = 31.47$, $p < .001$. Each point increase in endorsement of binding values predicted a 4% inflation in the proportion of U.S. history accounted for by people from the home state. To examine whether any single binding foundation was driving this effect, we conducted a multiple regression entering the three binding values simultaneously. Only loyalty independently predicted ingroup inflation, B = .02, 95% CI [.01, .04], $p = .001$. In the multiple regression with all three binding values, authority, B = .009, 95% CI [−.007, .03], $p = .29$ and sanctity, B = .01, 95% CI [−.001, .02], $p = .08$, no longer independently predicted ingroup inflation. The model showed good fit, $R^2 = .03$, $F(3, 2112) = 21.76$, $p < .001$. In a similar multiple regression with the two individuating values as predictors, neither harm, B = .008, 95% CI [−.007, .02], $p = .31$, nor fairness, B = .004, 95% CI [−.02, .01], $p = .65$, significantly predicted ingroup inflation. As predicted, binding values (in particular, loyalty) significantly and positively predicted collective memory characterized by ingroup inflation, whereas individuating values did not.

Table 2. Individual moral foundations regression coefficients, predicting ingroup inflation.

Foundation	*b*	95% CI	*p*
Loyalty	.04	[.03, .05]	<.001
Authority	.04	[.03, .05]	<.001
Purity	.03	[.02, .03]	<.001
Fairness	.001	[−.01, .01]	.86
Harm	.005	[−.01, .02]	.36

State identity, entitativity, and ingroup inflation

We were further interested in attempting to parcel out the role of two variables that could potentially mediate this relation. The first potential mediator was state *entitativity*,

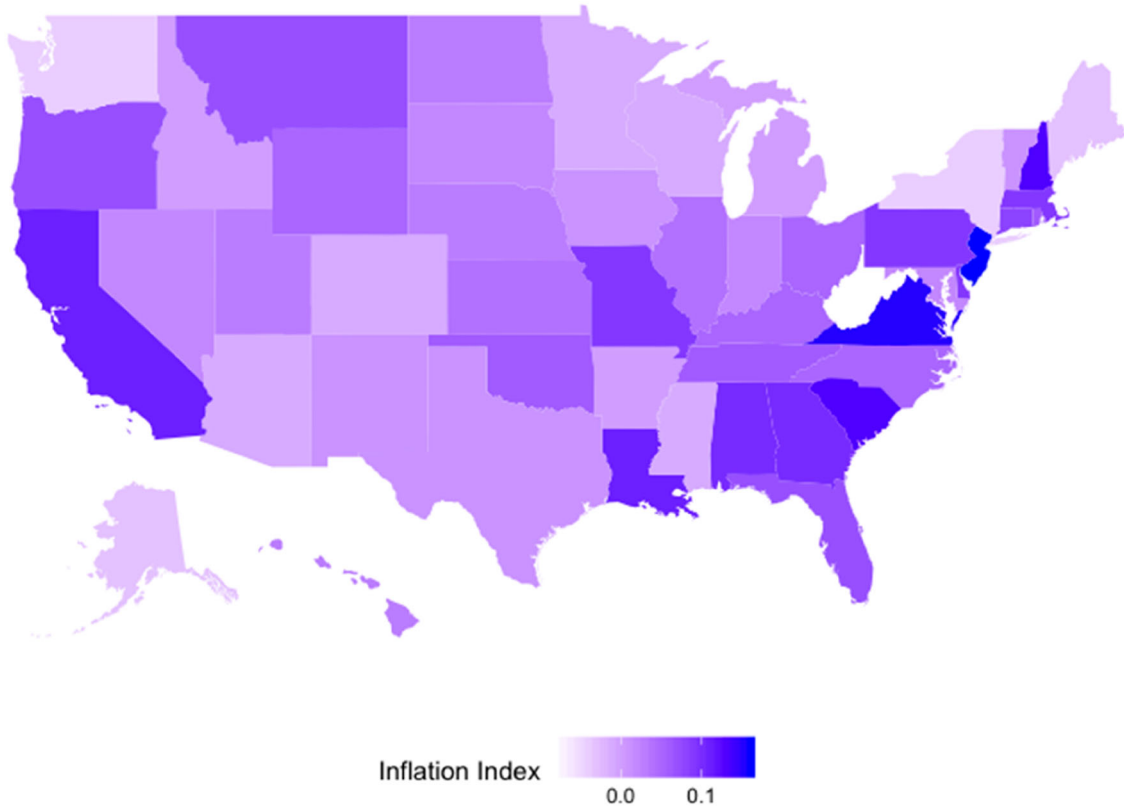

Figure 2. Choropleth map for mean ingroup inflation index.

Note: Darker colors represent a larger inflation of perceived historical influence of a state relative to a national consensus baseline.

or the extent to which people from a state are perceived as a psychologically real group. Campbell (1958) argued that highly entitative groups are salient, are bounded (i.e., have a clear distinction between ingroup and outgroup members), have members that share a common fate or goal, and have members who are similar to one another. The second potential mediator was state *identification*, or the degree to which participants endorse their state membership as an important part of their identity. Moral values that motivate people to value their groups seemed likely to positively predict both of these qualities. We next examined whether endorsement of binding values increased the likelihood that people would a) perceive their groups as psychologically real entities and b) identify more strongly with those entities. Assuming the first two conditions hold, we could then ask c) whether entitativity and identification mediated the relation between binding values and ingroup inflation. We first examined correlations among the four variables of interest, and the results are in Table 3. All four variables correlated significantly, with binding values, entitativity, and identification correlating most strongly, with relatively weaker (but still significant) correlations existing between ingroup inflation and these three variables.

We conducted a Hayes PROCESS Model 6 mediation analysis for two mediators, with binding values predicting ingroup inflation, and entitativity and state identification as the two mediators. Neither entitativity nor state identification, nor a path through both, mediated the relation between binding values and ingroup inflation (for all indirect effects, $b = 0$). The direct effect of binding values on ingroup inflation was maintained, b = .03, 95% CI [.02, .04], $p < .001$. The relation of binding values to ingroup inflation, in our data, was not due to binding values increasing the likelihood of identifying with the state or perceiving the state as a psychologically real entity; binding values independently predicted ingroup inflation.

Table 3. Correlations between endorsement of binding values, state entitativity, state identification, and ingroup inflation.

	Entitativity	Identification	Ingroup inflation
Binding values	.28*	.32*	.17*
Entitativity		.49*	.12*
Identification			.11*

*All correlations significant at $p < .001$.

Regional culture

Finally, we briefly examined the role of regional culture in binding values and ingroup inflation. There are two overlapping geographical regions that we judged likely to demonstrate inflated perceptions of historical influence, the thirteen original colonies and the former Confederate states of the American South. The thirteen original colonies

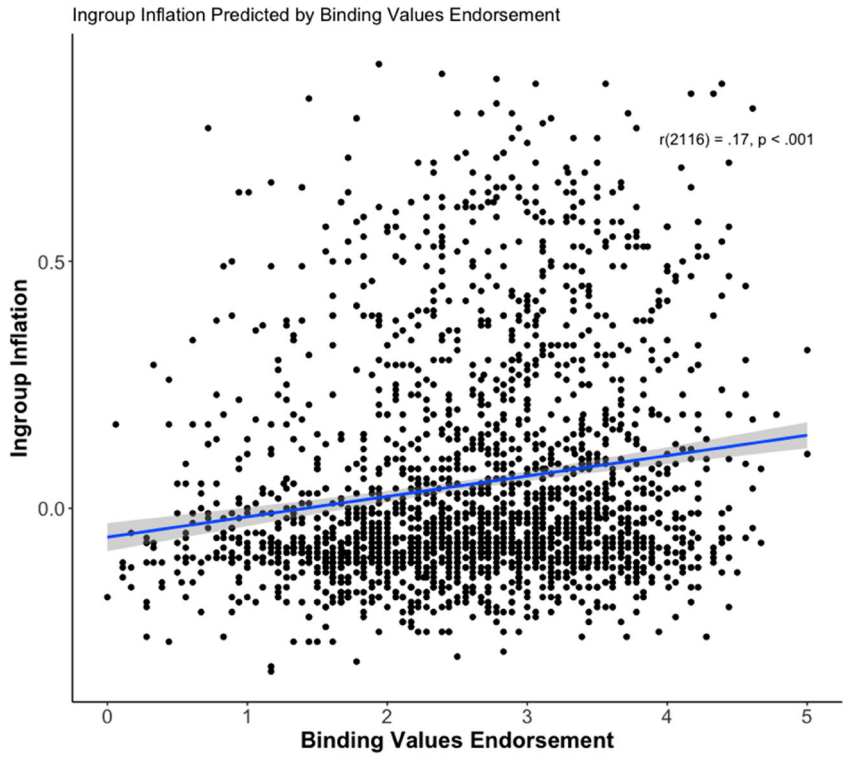

Figure 3. Endorsement of binding values positively predicted inflation of the home state's historical influence relative to a consensus baseline.
Notes: Shading around the line of best-fit represents 95% CI for the regression coefficient. Each point represents an individual in the study.

are the oldest of the English settlements in what later became the U.S. and they played pivotal roles in the early formation of the modern nation. The American South has traditionally fostered social identities that are focused more locally; these state loyalties may be traced back to the American Civil War, and have persisted into

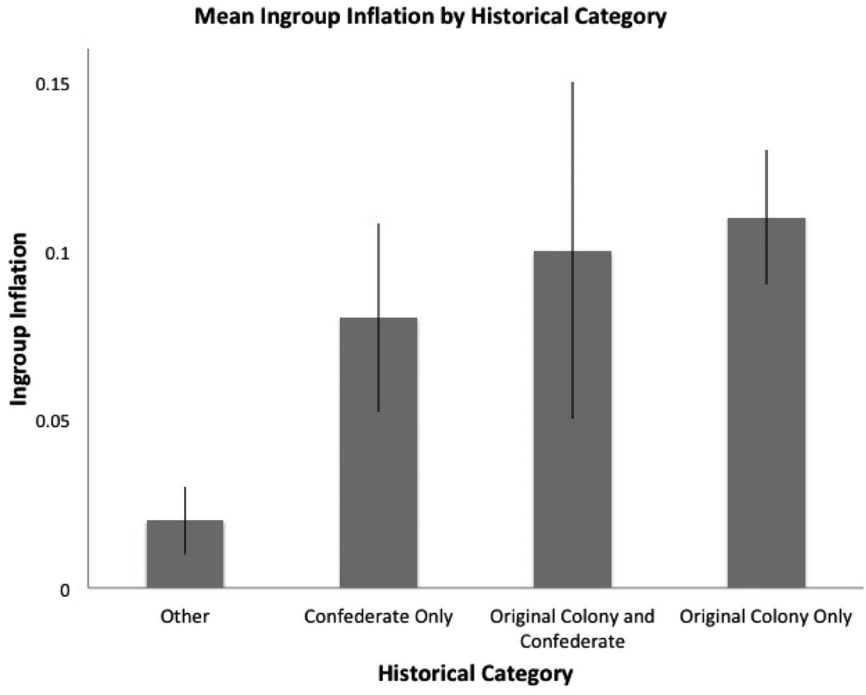

Figure 4. Participants from historically influential regions, the original thirteen colonies and former Confederate states, showed higher ingroup inflation than participants from states outside these historical regions.
Note: Error bars represent 95% CI.

contemporary life (Horwitz, 1998). Further, sub-national cultural differences in moral concerns have been well documented, for instance in terms of the South's culture of honour (Nisbett & Cohen, 1996). Four states (Georgia, North and South Carolina, and Virginia) belonged to both the original colonies and the South.

Participants from both historical regions, the thirteen original colonies and the Southern states, showed higher levels of ingroup inflation than participants from outside these historical regions (see Figure 4). In a multiple regression on ingroup inflation, both original colony, B = .10, 95% CI [.08, .12], $p < .001$, and Southern state, B = .05, 95% CI [.02, .07], $p = .001$, independently predicted elevated levels of ingroup inflation. On average, participants from the original colonies showed a 10% greater ingroup inflation than those from other states, and those from former Confederate states showed 5% greater ingroup inflation. The positive relation between binding values and ingroup inflation did not differ between historical regions; that is, historical region (original colony only, Confederacy only, both original colony and Confederacy, other) did not significantly moderate the relation between binding values and ingroup inflation, interaction b = .007 [−.001, .02], $p = .10$. Regardless of region, greater endorsement of binding values was associated with greater ingroup inflation. Analyses focusing on only the loyalty foundation showed the same results as those using the aggregated binding values.

Binding values themselves did vary by region. In a similar multiple regression with historical region predicting binding values, only Southern state predicted binding values, b = .19 [.08, .30], $p = .001$, whereas original colony did not, $b = -.09$ [−.19, .02], $p = .09$. Southerners, M = 2.79, 95% CI [2.67, 2.90], were on average more likely to endorse binding values than either residents of the 9 of the original thirteen colonies that did not overlap with the South, M = 2.53 [2.45, 2.61], $M_{diff} = .26$, 95% CI [.12, .39], $p < .001$, or participants from states outside these historical regions, M = 2.60 [2.56, 2.65], $M_{diff} = .18$, 95% CI [.06, .31], $p = .004$. Participants from regions outside the South did not differ from one another in endorsement of binding values, all $p > .05$. No other demographic factor moderated the relation between binding values and ingroup inflation; although the two variables showed higher or lower levels in different groups, they always tracked together (see supporting material on OSF).

Discussion

When people remember their collective past, they frequently construct memories that centre their group in history (Wertsch, 2002; Wertsch & Roediger, 2008). This centring may encourage group members to exaggerate the group's influence relative to that of other groups (Putnam et al., 2018; Zaromb et al., 2018) and focus on the group's glories at the expense of its failures (Breslin & Safer, 2011; Renan, 1882/1992; Yamashiro, Van Engen, & Roediger, 2019). Moral values may motivate specific distortions of collective memories. People who weighted group-oriented moral priorities more heavily – sanctity, respect for authority, and loyalty in particular – tended to inflate their group's perceived historical influence more than people who endorse those group-oriented moral values to a lesser extent. We theorize this link to be due to a moral framing in collective remembering.

In the initial demonstration of what they called state narcissism and what we refer to under the more general category of ingroup inflation, Putnam et al. (2018) drew on Ross and Sicoly's (1979) explanations for over-claiming at the interpersonal level. The phenomenon, Putnam et al. (2018) argued, could be attributed to a confluence of cognitive factors (availability heuristics and base-rate neglect) and affective factors (ego-protection and in-group affection). Our results also strongly support the role of cognitive factors in some of the observed effects. For instance, the fact that the sum of ratings for all states exceeded 100% in both in-state and out-of-state raters would indicate base-rate neglect. Given that there are 50 states, a reasonable base rate for proportion of U.S. history accounted for by any single state would be 2% (i.e., 100% of history distributed among 50 states); estimates then should be adjusted from that baseline. The empirical average of 15.74% per state even in out-of-state ratings suggests, however, that this was not the strategy participants used. The relative benefit to in-state ratings versus out-of-state ratings may be attributed in part to the availability heuristic (Tversky & Kahneman, 1973); people simply tend to know more about their home state's history than that of other states, and this asymmetrical availability makes them more likely to attribute historical influence to the state about which more information is accessible (Putnam et al., 2019). Future research could test for such hypothesized asymmetries in knowledge about the home state versus other states more directly.

One finding from Putnam et al. (2018), however, would suggest caution in attributing ingroup inflation solely to the availability heuristic. Their participants took a quiz covering all of U.S. history; half of the participants took the quiz before making their ratings, and half after they made their ratings. Covering all of U.S. history, the quiz should have increased the accessibility of events occurring outside the home state, thereby undermining the availability bias. Yet the placement of the quiz, before or after ratings, made no difference to ingroup inflation, and average in-state ratings were nearly identical in both conditions. Subsequent, more systematic examinations of the availability bias in ingroup inflation suggests that having more knowledge about a territory does tend to lead people to attribute more influence to it (Putnam et al., 2019). However, affective mechanisms, such as ingroup affection and ego-protection, both of which would track with endorsement of group-oriented moral values, should also play a role.

Moral frames could influence both affective and cognitive mechanisms underlying ingroup inflation. Regarding affective mechanisms, strong endorsement of loyalty could increase the strength of ingroup affection and the extent to which positive regard for the group serves ego-protective functions. In terms of cognitive mechanisms, binding values could exert their influence on the availability heuristic from two directions, by decreasing attention to historical contributions by outgroups, and by focusing attention on knowledge of the ingroup's history. A strong emphasis on loyalty and sanctity could impact the relative rate of acquisition of historical information about the ingroup and outgroups. Such morally framed biases in processing would predict that those who more strongly endorse binding values would be less likely to expose themselves to, attend to, or retain information about states and groups other than their own.

The relative contributions of cognitive and affective factors could be contextually dependent; in our sample both the original colonies (mostly in the Northeast) and the South showed elevated ingroup inflation, but this ingroup inflation was associated with higher binding values at the state level only in the South. It is plausible then, that cognitive and affective factors contribute to ingroup inflation independently. For instance, most American history textbooks centre American history in the Northeast and the original colonies; ingroup inflation in these areas could be driven more by availability biases. On the other hand, in the South, where ingroup inflation was associated with a higher prevalence of binding values, the affective factors such as loyalty-driven ingroup affection could play a larger role. One limitation of the current study is that it is descriptive and correlational; thus, it offers the fairly high-level observation that moral values may be linked with specific biases in collective remembering. Future research may further specify how moral values shape people's encounters with, and uses of, historical information.

We situate our study within an epidemiological approach to collective memory as part of the much larger and more heterogeneous field of cultural epidemiology (Hirst & Manier, 2008; Sperber, 1996). Researchers in this tradition examine how particular social representations, collective memories, or ideational content more generally propagate and stabilize across group members (Vlasceanu, Enz, & Coman, 2018). Central to this project is the concept of *cultural attractors*. Early figures such as Bartlett (1932) and Halbwachs (1992) proposed that social frames can systematically transform memory such that group members sharing particular culture-specific schemata will tend to reconstruct remembered information similarly. The common representation onto which schemata-sharing individuals converge is an example of an attractor. More formally, an attractor is a set of coordinates in ideational space into which information is most likely to be transformed (Sperber, 1996). Cognitive and affective factors involved in funnelling information into particular attractors are referred to as *factors of attraction* (Buskell, 2017). Factors of attraction could be, for example, motivational factors that impact the probability with which particular representations are communicated, or cognitive factors that determine the sort of content people are most likely to remember (e.g., Blaine & Boyer, 2017; Boyer, 2001; Hirschfeld & Sperber, 2004; Norenzayan, Atran, Faulkner, & Schaller, 2006). One major task of a "top down" approach to the psychological study of collective memory is identifying the factors of attraction that underlie commonly shared representations (Hirst, Yamashiro, & Coman, 2018). In the current context, if many people share a collective memory that centres their own group, what cognitive, motivational, and affective factors might explain this quality of the collective memory (Roediger & Abel, 2015)?

Within this framework, moral values could be classified as factors of attraction (Eriksson & Coultas, 2014; Nichols, 2002). At the individual level, stronger endorsement of binding values could shape how people reconstruct and use the historical information they do encounter, as described above. The distribution of binding values, particularly loyalty, within a population would impact how effectively group-centring representations of history could propagate and stabilize. Moral values as they are characterized in the MFT framework are individual-level psychological phenomena. However, particular configurations of values do tend to cluster differently within different social groups (Graham et al., 2009), and their uneven distribution could support convergence onto different attractors in different groups. Of note, moral values as factors of attraction would exert their influence independently of transmission via communication. Undoubtedly, concerted efforts at transmission do occur, and elites try to propagate favorable versions of the nation's history (e.g., Crawford & Foster, 2007). The distribution of moral values across a population, however, could moderate the efficacy of such efforts.

This research adds to a growing consensus that collective remembering is sensitive to our relational motives towards our groups (Echterhoff, Higgins, & Levine, 2009; Hirst & Echterhoff, 2012). Remembering the group's past in a socially sanctioned manner is frequently moralized, to the point that memory is enjoined as a duty (Blustein, 2008; Margalit, 2002). A novel contribution of the current research is our demonstration that relational moral motives may be associated with specific biases in collective remembering, and that these moral motives and biases may vary considerably among individuals. For individuals belonging to some social groups, binding values are foundational to their moral profiles; for others, these foundations are devalued (Graham et al., 2009). Such differences in moral profile distributed across communities of people who share similar values, consequentially, should be linked with different landscapes of collective memory (Yamashiro, Van Engen, & Roediger, 2019). Moral values undoubtedly provide a powerful frame for collective memory.

Note

1. Putnam et al. conjectured that this was due to some out-of-state participants confusing Washington State with Washington, D.C., raising the baseline against which in-state ratings were compared.

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