

Supplemental Materials

Study 1

Participants

All 482 participants were exposed to animal related knowledge before responding to the survey for the sake of a larger study aiming to understand the relationship between human-animal divide and human intergroup bias. The animal related knowledge described the life history and daily activities of wolves and bonobos.

Measures

In addition to the humanness measures, SDO and outgroup prosociality measures introduced in the main text, participants also responded to the following supplementary measures of group-based beliefs:

Breed Dominance Orientation (BDO): Participants responded to four statements about the equality and hierarchy of dog breeds by rating their agreement following a 7-point Likert scale (from 1 = strongly disagree to 7 = strongly agree). These four statements were adapted from the items of SDO 7 scale ¹.

Human-animal divide: participants were presented a silhouette of a human as the origin and rated the divide between human and animal following a 13-point scale (scored from 1 = the narrowest to 13 = the widest).

Human intergroup divide: Similar to the measure of human-animal divide, a silhouette of a human was given to represent the participant's ethnic ingroup, and each participant rated the divide between the ingroup and Muslims following a 13-point scale (scored from 1 = the narrowest to 13 = the widest).

Group expansion: This measure was adapted from the Inclusion of the Other in the Self Scale ². We used five Venn diagram-like pairs of circles that vary on the level of overlap. Participants were instructed to choose the pair which best represent the relationship between their ethnic ingroup and Muslims following a 5-point scale (scored from 1 = the least connected to 5 = the most connected).

The survey also asked the following demographic information:

Race/ethnic identity: Participants reported the race/ethnic group they identify with by selecting from a list of groups. Participants who chose “two or more races” or “others” were asked to further describe their identities. Participants were allowed to choose “prefer not to respond”.

Political preference: Participants reported their political preference following a 7-point scale (coded from 1 = extremely liberal to 7 = extremely conservative).

Age: We collected each participant’s year of birth and calculated the age when the responses were submitted.

Sex: Participants reported their sex by selecting from “male”, “female”, and “other”. Those who chose “other” were allowed to further describe their sex. However, in the participants who completed the survey, no one chose “other”.

Participants responded to the measures following the order below:

1	Race/ethnic group	10	SDO
2	Muslim or not	11	Outgroup prosociality
3	Stimuli: animal-related knowledge	12	Human-animal divide
4	Rating humanness of ingroup on Ascent of Man	13	Human intergroup divide
5	Rating humanness of outgroup on Ascent of Man	14	Group expansion

6	Rating humanness of ingroup on Face Continuum	15	BDO
7	Rating humanness of outgroup on Face Continuum	16	Political preference
8	Rating humanness of ingroup on Human Silhouette	17	Sex
9	Rating humanness of outgroup on Human Silhouette	18	Year of birth

Supplementary analysis

BDO, human-animal divide, human intergroup divide and group expansion were entered as continuous variables. In addition to the tests introduced in the main text, ordinal logistic regressions were calculated using cumulative link mixed models to test the relationship between ingroup-outgroup difference of humanness and the measures of BDO, human-animal divide, human intergroup divide and group expansion. All tests were two-tailed, and p values were adjusted using Holm-Bonferroni method. We did not include these analyses in the main text because either the measures were not tested in children or their links to dehumanization are redundant to testing the *Early Emergence hypothesis* (EEH) and the *Social Artifact hypothesis* (SAH).

Supplementary results

The distribution of demographic variables is illustrated in Supplementary Figure 1. The descriptive statistics of the supplementary measures are reported in Supplementary Table 2. Ordinal logistic regressions are reported in Supplementary Table 6-9. Results show that outgroup dehumanization is predicted by higher BDO scores, perception of wider human intergroup divide, and less likelihood of including the outgroup in the ingroup.

Study 2

Participants

The participants were from a relatively heterogeneous racial composition (including White, Black or African American, Asian, and Hispanic or Latino children). However, we did not ask or record their racial background to avoid possible association between racial groups and dehumanizing representations.

For the sake of a larger study aiming to understand the relationship between perception of animals and human intergroup bias, all 150 children participants were exposed to animal related knowledge before responding to the main survey. The animal related knowledge described the life history and daily activities of wolves and bonobos. Participants also answered questions about animal conservation in the survey while the responses were not included in the data analyses.

Some potential participants at the same camp were excluded from this experiment. This happened when a child was not experimentally naïve (they had participated in other related research activities conducted by our group; $N = 147$) or they did not feel comfortable being tested ($N = 25$). Children that did not participate were moved to an area where they were not visible to participants.

Measures

In addition to the measures introduced in the main text, children participants also responded to human-animal divide which is identical to the measure tested in study 1. This measure was added for the 2019 data collection season. A subsample of 63 participants (mean age = 8.33, $SD = 1.64$, 36 girls, 27 boys) responded to it. See details of procedure, scripts, and wording of questions and items in Appendix 2.

81 Children participants responded to the measures following the order below:

1	Comprehension pre-test	6	SDO-c
2	Stimuli: animal-related knowledge	7	Emotional response
3	Human-animal divide	8	Outgroup punishment
4	Animal conservation (not included in analyses)	9	Outgroup sharing
5	Humanness	10	Age and gender

82 **Supplementary analysis**

83 Human-animal divide was treated continuous. Ordinal logistic regression was calculated via
84 cumulative link mixed model to identify the relationship between dehumanization and human-
85 animal divide.

86 **Supplementary results**

87 The distribution of demographic variables is illustrated in Supplementary Figure 2. Ordinal
88 logistic regressions are reported in Supplementary Table 17. Results suggest that children who
89 dehumanized more also rated the divide between humans and animals wider.

Validity assessment of SDO-c

SDO-c (see Appendix 2 for standardized rating items) is adapted from SDO 7¹. For use with school-age children, the scale is shortened to 4 items allowing participants to agree or disagree with statements suggesting the Slug group is inferior to their ingroup. Predictive variables of SDO in adults include harsh punishment and the legitimization of inequality^{3,4}, so we tested criterion validity of SDO-c by assessing its associations with outgroup punishment and outgroup sharing.

Analysis

Cronbach's α was calculated to measure the internal consistency of the 4 items. Bivariate associations between SDO-c and predictive variables, including outgroup punishment and outgroup sharing were measured using Pearson's correlation coefficients. Correlation tests were two-tailed and adjusted using Holm-Bonferroni method.

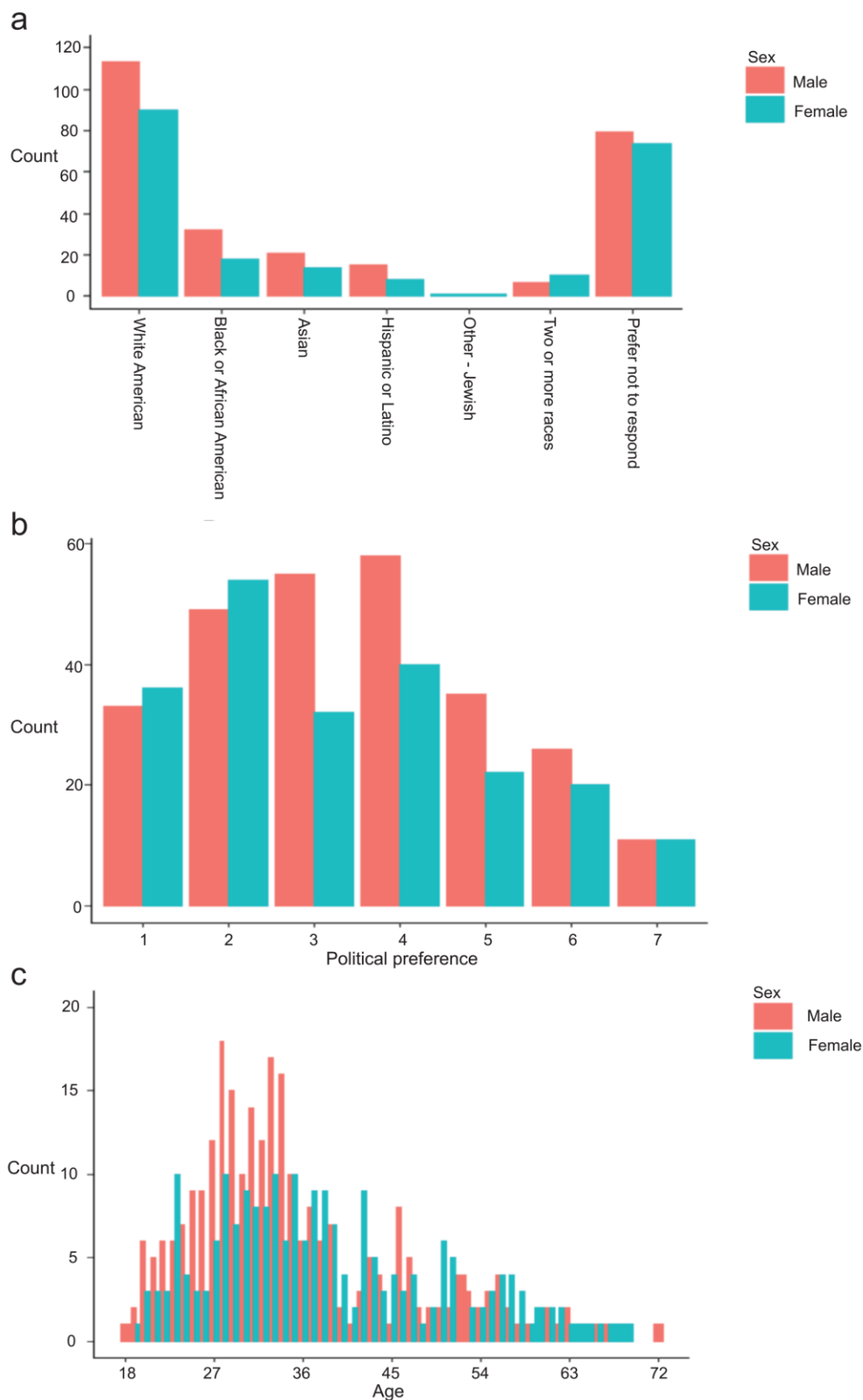
Results

Cronbach's α coefficient (.66) suggests acceptable internal consistency. Descriptive statistics of SDO-c and predictive variables were reported in Table 12. Similar to the previously investigated links in adults, SDO-c was found to be moderately correlated with outgroup punishment ($r(55) = .32, p = .03$) and outgroup sharing ($r(83) = -.31, p = .01$) respectively.

107 **Reference**

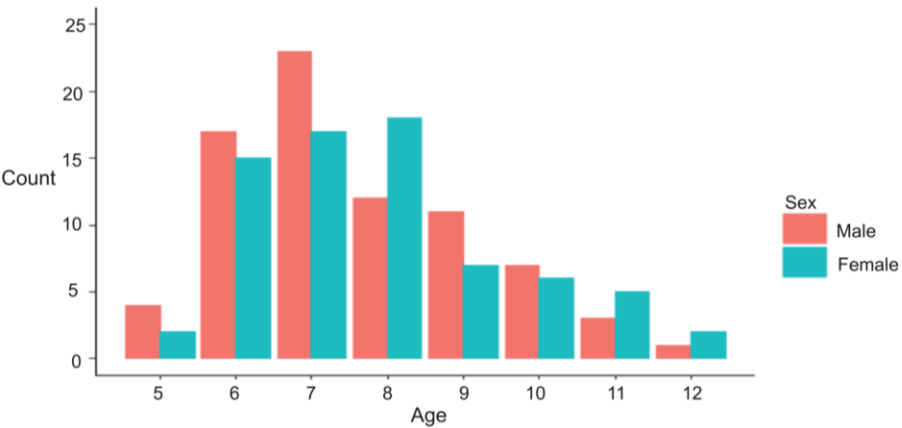
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119 **Supplementary Figures**



Supplementary Figure 1. Distribution of demographic variables of each sex group in Study 1

a. Distribution of race/ethnic groups; b. political preference; c. Age.



Supplementary Figure 2. Distribution of age and gender of children participants in Study 2

Supplementary Tables

Supplementary Table 1. Variance of humanness ratings in adults

	Ascent of Man		Face Continuum		Human Silhouette	
	Ingroup	Outgroup	Ingroup	Outgroup	Ingroup	Outgroup
Variance	0.05	0.18	0.34	0.70	0.03	0.18

N of data points: 482

Supplementary Table 2. Descriptive statistics of SDO and supplementary measures of group-based beliefs in adults

	Range	Mean±SE
SDO	16-112	38.76±1.01
BDO	4-28	12.40±0.25
Human-animal divide	1 (the narrowest) -13 (the widest)	8.58±0.14
Human intergroup divide	1 (the narrowest) -13 (the widest)	3.01±0.14
Group expansion	1-5	3.37±0.06

N of data points: 482

Supplementary Table 3. Comparison of intergroup difference in humanness ratings across the three humanness measures in adults

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	10.13	4.45	23.10	5.51	< .001***
Measure	Face - Ascent	16.75	7.32	38.31	6.68	< .001***
Measure	Silhouette - Ascent	0.84	0.29	2.40	-0.33	n.s.
Group * Measure	Outgroup - Ingroup	0.58	0.23	1.44	-1.18	n.s.
	Face - Ascent					
Group * Measure	Outgroup - Ingroup	0.96	0.30	3.10	-0.07	n.s.
	Silhouette - Ascent					

N of data points: 482

***: p < .001

n.s.: non-significant

Supplementary Table 4. The relationship between humanness ratings and SDO in adults

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	1.53	0.80	2.93	1.29	n.s.
SDO		1.02	1.00	1.03	2.17	n.s.
Group * SDO	Outgroup - Ingroup	1.02	1.01	1.04	3.70	< .001***

N of data points: 482

***: p < .001

n.s.: non-significant

Supplementary Table 5. The relationship between humanness ratings and outgroup prosociality in adults

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	8.71	5.42	14.00	0.71	< .001***
Outgroup prosociality		0.87	0.73	1.04	2.46	n.s.
Group * Outgroup prosociality	Outgroup - Ingroup	0.73	0.61	0.86	2.91	< .001***

N of data points: 482

***: p < .001.

n.s.: non-significant.

Supplementary Table 6. The relationship between humanness ratings and BDO in adults

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	1.37	0.57	3.28	0.71	.48
BDO		1.08	1.02	1.15	2.46	.03*
Group * BDO	Outgroup - Ingroup	1.09	1.03	1.16	2.91	.01*

N of data points: 482

*: p < .05.

Supplementary Table 7. The relationship between humanness ratings and human-animal divide in adults

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	2.14	0.92	4.97	1.76	n.s.
Human-animal divide		0.94	0.85	1.05	-1.08	n.s.
Group * Human-animal divide	Outgroup - Ingroup	1.10	1.00	1.1 [^]	1.96	n.s.

N of data points: 482

n.s.: non-significant.

Supplementary Table 8. The relationship between humanness ratings and human intergroup divide in adults

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	1.91	1.18	3.09	2.65	.01
Human intergroup divide		1.20	1.10	1.31	4.03	< .001***
Group * Human intergroup divide	Outgroup - Ingroup	1.22	1.12	1.33	4.48	<.001***

N of data points: 482

***: p < .001.

Supplementary Table 9. The relationship between humanness ratings and group expansion in adults

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	44.04	19.51	99.42	9.11	<.001***
Group expansion		0.77	0.61	0.98	-2.08	.04*
Group * Group expansion	Outgroup - Ingroup	0.45	0.35	0.58	-6.20	<.001***

N of data points: 482

***: p < .001.

Supplementary Table 10. Predictors of intergroup difference in humanness ratings in adults

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	1.96	0.46	8.25	0.91	n.s.
Age		1.02	0.99	1.05	1.62	n.s.
Sex	Female - Male	0.89	0.46	1.74	-0.34	n.s.
Political preference		1.06	0.87	1.29	0.60	n.s.
Group * Age	Outgroup - Ingroup	1.00	0.97	1.03	0.03	n.s.
Group * Sex	Outgroup - Ingroup	0.79	0.42	1.49	-0.73	n.s.
	Female - Male					
Group * Political preference	Outgroup - Ingroup	1.37	1.14	1.65	3.39	.005**

N of data points: 482

**: p < .01

n.s.: non-significant

Supplementary Table 11. Variance of humanness ratings in children

	Ascent of Man		Face Continuum		Human Silhouette	
	Ingroup	Outgroup	Ingroup	Outgroup	Ingroup	Outgroup
Variance	0.49	1.39	0.40	1.55	0.25	1.36

N of data points: 150

Supplementary Table 12. Descriptive statistics of SDO-c and behavioral outcomes in children

	Range	Mean±SE
SDO-c	4-28	13.18±3.83
Outgroup punishment	1-5	3.86±1.70
Outgroup sharing	0-5	1.46±1.78
Social acceptance	1-7	3.72±2.20
Human-animal divide	1-13	6.90±2.39

N of data points: 150

Supplementary Table 13. Comparison of intergroup difference in humanness ratings across the three humanness measures in children

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	54.47	27.88	106.40	11.70	<.001***
Measure	Face - Ascent	0.79	0.40	1.58	-0.66	n.s.
Measure	Silhouette - Ascent	0.31	0.14	0.69	-2.85	.02*
Group * Measure	Outgroup - Ingroup	2.19	0.95	5.06	1.84	n.s.
	Face - Ascent					
Group * Measure	Outgroup - Ingroup	3.25	1.28	8.22	2.48	.04*
	Silhouette - Ascent					

N of data points: 150

*: p < .05

***: p < .001

n.s.: non-significant

Supplementary Table 14. The relationship between humanness ratings and SDO-c in children

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	5.90	1.43	24.26	2.46	.03*
SDO-c		0.97	0.86	1.08	-0.60	n.s.
Group * SDO-c	Outgroup - Ingroup	1.24	1.12	1.38	3.99	< .001***

N of data points: 150

*: p < .05.

***: p < .001.

n.s.: non-significant

Supplementary Table 15. The relationship between humanness ratings and social acceptance in children

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	120.10	51.10	282.23	10.98	< .001***
Social acceptance		1.07	0.88	1.30	0.70	n.s.
Group * Social acceptance	Outgroup - Ingroup	0.91	0.76	1.07	-1.13	n.s.

N of data points: 145

***: p < .001.

n.s.: non-significant.

Supplementary Table 16. The relationship between humanness ratings and outgroup punishment in children

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	19.66	4.50	85.90	3.96	<.001***
Outgroup punishment		0.47	0.27	0.83	-2.62	.03*
Group * Outgroup punishment	Outgroup - Ingroup	2.95	1.90	4.57	4.83	<.001***

N of data points: 58

***: p < .001.

Supplementary Table 17. The relationship between humanness ratings and outgroup sharing in children

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	500.73	183.32	1367.73	12.12	<.001***
Outgroup sharing		1.07	0.76	1.52	0.39	n.s.
Group * Outgroup sharing	Outgroup - Ingroup	0.73	0.54	0.97	-2.14	.06

N of data points: 87

***: p < .001.

n.s.: non-significant.

Supplementary Table 18. Relationship between dehumanization and human-animal divide in children

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	57.37	8.61	382.21	4.19	<.001***
Human-animal divide		1.17	0.86	1.60	1.01	n.s.
Group * Human-animal divide	Outgroup - Ingroup	1.41	1.08	1.83	2.53	.02*

N of data points: 63

*: p < .05

***: p < .001

n.s.: non-significant.

Supplementary Table 19. Predictors of intergroup difference in humanness ratings in children

Predictor of humanness rating	Comparison	Odds ratio	CI for odds ratio		Z	Adjusted p
			2.5%	97.5%		
Group	Outgroup - Ingroup	12.54	1.28	122.96	2.17	n.s.
Age		0.81	0.61	1.07	-1.49	n.s.
Sex	Female - Male	0.91	0.38	2.17	-0.21	n.s.
Group * Age	Outgroup - Ingroup	1.14	0.88	1.46	0.98	n.s.
Group * Sex	Outgroup - Ingroup	1.96	0.90	4.28	1.70	n.s.
	Female - Male					

N of data points: 150

n.s.: non-significant

Appendix 1: Survey of Study 1

Race/ethnic group

With what race/ethnic group do you most strongly identify?

- American Indian or Alaskan Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White American, European American, or Middle Eastern American
- Two or more races (please identify the races) :_____
- Other: _____
- Prefer not to respond

Humanness

Participants were presented the humanness measures in Figure 1 of the main text one by one.

Using each measure, participants rated the ingroup following the instruction: “Please choose the image which you think best describes your race/ethnic group” and rated the outgroup following the instruction “Please choose the image which you think best describes Muslims”.

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SDO 7 Scale ¹

Instructions: Show how much you favor or oppose each idea below by selecting a number from 1 to 7 on the scale below. You can work quickly; your first feeling is generally best.

1	2	3	4	5	6	7
Strongly	Somewhat	Slightly	Neutral	Slightly	Somewhat	Strongly
oppose	oppose	oppose		favor	favor	favor

- 1) Some groups of people must be kept in their place.
- 2) It's probably a good thing that certain groups are at the top and other groups are at the bottom.
- 3) An ideal society requires some groups to be on top and others to be on the bottom.
- 4) Some groups of people are simply inferior to other groups.
- 5) Groups at the bottom are just as deserving as groups at the top.
- 6) No one group should dominate in society.
- 7) Groups at the bottom should not have to stay in their place.
- 8) Group dominance is a poor principle.
- 9) We should not push for group equality.
- 10) We shouldn't try to guarantee that every group has the same quality of life.
- 11) It is unjust to try to make groups equal.
- 12) Group equality should not be our primary goal.
- 13) We should work to give all groups an equal chance to succeed.
- 14) We should do what we can to equalize conditions for different groups.
- 15) No matter how much effort it takes, we ought to strive to ensure that all groups have the same chance in life.

16) Group equality should be our ideal.

Outgroup prosociality (hypothetical)

Now you are given an opportunity to distribute a \$0.5 bonus between the Santa Fe Strong Fund and the Afghan Relief Fund which are described below.



The lives of 8 children were taken and many others were injured in the Santa Fe High School shooting on May 18. Donations will help meet the immediate and long-term needs of the child victims. Your gift will provide critical support, and 100% of funds received will go directly to the victims.



Two decades of war in Afghanistan has left one million orphans and abandoned children across the country. We strive to provide health care and education opportunities to the child victims. Your support will continue to make a difference. Donations will go directly to supporting the victims.

The more similar you think your race/ethnic group and Muslims are, the closer you will mark a bubble (using the corresponding letter) to the human image.

How much would you distribute to the **Santa Fe Strong Fund**? The rest will be distributed to the Afghan Relief Fund.

0) Give all the 0.5 dollar to the American fund

1) 0.4 dollar to the American fund, 0.1 dollar to the Afghanistan fund

2) 0.3 dollar to the American fund, 0.2 dollar to the Afghanistan fund

3) 0.2 dollar to the American fund, 0.3 dollar to the Afghanistan fund

4) 0.1 dollar to the American fund, 0.4 dollar to the Afghanistan fund

5) Give all the 0.5 dollar to the Afghanistan fund

273 Human-animal divide

274 How similar or how different do you think humans and animals are? Mark the bubble where you
275 think animals belong on this scale.



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277 Human intergroup divide

278 How similar or how different do you think your race/ethnic group and Muslims are? Mark the
279 bubble where you think Muslims belong on this scale.

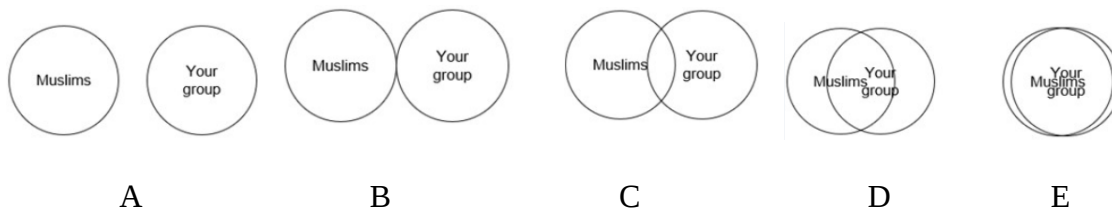


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282 Group expansion

283 Please choose the image which best describes the relationship between your race/ethnic group
284 and Muslims.



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Political preference

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Here is a 7-point scale on which the political views that people might hold are arranged from

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extremely liberal (left) to extremely conservative (right). Where would you place yourself on this

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scale?

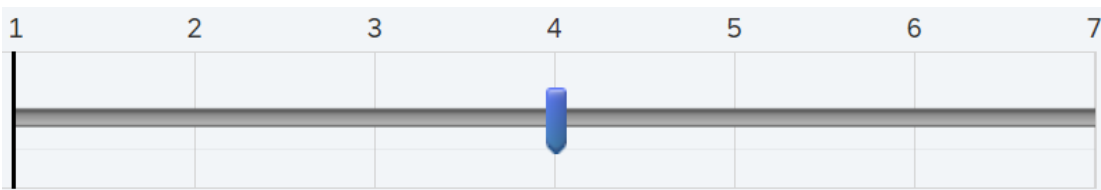
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Extremely liberal

Extremely

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conservative



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Sex

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What is your sex?

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Male/Female/Other: _____

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Age

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What is your year of birth? _____

Appendix 2. Procedure, scripts, and survey questions of Study 2

Pre-test

Each child was handed a 3-page package, illustrating Ascent of Man, Face Continuum, and Human Silhouette on each page. Then the experimenter read the following instruction:

“Hi everyone! Today we will be done some fun activities and first can each of you help me with this first activity? Does everyone have a package?”

(Waiting for responses)

Can everyone focus on the first page?

(Showing Ascent of Man)

Great! On your own, can everyone pick out the picture that looks the most human-like and silently write the number 1 on top of it?

(Waiting for completion)

Now can you find the picture that is the second most human-like and write a number 2 on top of it?

(Waiting for completion)

Then can everyone silently find the 3rd most human-like picture and write a 3 on top of it?

(Waiting for completion)

Finally, can everyone silently find the least human-like picture and write a 4 on top of it?”

(Waiting for completion)

The script from line 212 to 220 were repeated to test the comprehension of Face continuum and Human silhouette. The responses were later coded as 1 (correctly order the different items according to the degree of humanness they illustrated) or 0 (not correct) for each scale. Children who could not rank the scale items in the comprehension pre-test still participated in the main experiment, but their responses were excluded from the final dataset.

After the pre-test was done, children were handed the physical paper-pencil surveys and started the main experiment following the instruction of the experimenter.

Priming

Experimenter instructs: *"We're going to start an activity that looks at how good your memory is. You'll need to listen closely to what I say and try to remember as much information as you can. But here's the important thing--we're going to be competing against another team to see who has the best memory. We're going to be competing against another group of kids at another zoo camp. The other group isn't in Zoo Atlanta. It's in another city. The group call themselves the Slug Group! We're going to compete to see whether our team, the super awesome _____ (group name) Team, has a better memory than the Slug Team. But unlike you guys, the kids on the Slug Team are impolite, selfish, and sloppy. They're uneasy around others, and they don't work well together. I hear from their instructor that they act like they're from another planet! It's like they don't even speak the same language as we do! Do you guys have a better memory than the kids on the Slug Team? I know you guys are all kind, polite, and you work well together, so I definitely think we can show the other team that we're better. What you do you think?"*
(Waiting for participants' responses)
Now we're going to start! Try to remember as much as you can! "

Tests

After introducing some animal knowledge, the experimenter gave the following instruction and started the tests. *"Before I test to see if you all have a better memory than the Slug Group, I have a few other activities for us to do first. Can everyone turn to the NEXT page of the packet?"*

348 Human-animal divide

349 Experimenter instructed: “How similar or how different do you think human and animal are?”

350 Mark the bubble where you believe animal belongs on this scale.”



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352 Animal conservation

353 The experimenter read a few statements about animal conservation and instructed participants to

354 circle whether they agree with the statements. The responses were not included in the analyses in

355 the current project because this measure does not directly test MDH or SAH.

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357 Humanness

358 Th experimenter showed the humanness measures in Figure 1 of the main text one by one, and

359 gave the following instruction after presenting each measure:

360 *“Please circle where you think the campers in your group belong on this scale.”*

361 (Wait the participants finish)

362 *“Please circle where you think the kids in the Slug Group belong on this scale.”*

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364 SDO-c

365 Experimenter introduced the scale from “strongly disagree” to “strongly agree”, and said:

366 *“Please circle how much you agree or disagree with each idea.”*



Strongly Disagree Disagree Neutral Agree Strongly Agree

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369 1 The kids in our group are simply better than the kids in the Slug group.

370 2 The Slug group does not deserve a chance to succeed as kids in our group.

371 3 We should guarantee that the Slug group and our group have the same quality of life.

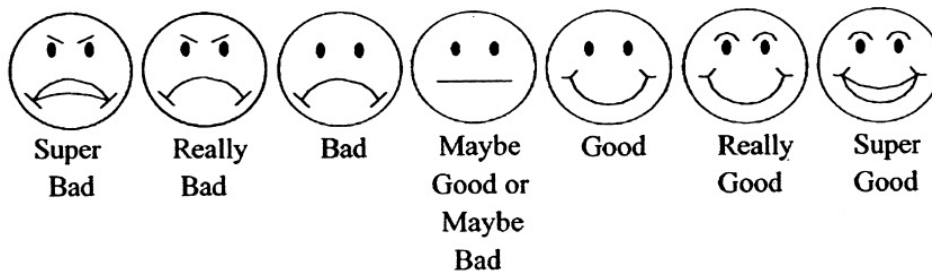
372 4 Kids in the Slug group should be allowed to change their name because they deserve the same
373 treatment as everyone else.

374

375 Social acceptance

376 The experimenter instructed the participants to respond to the following question by circling the
377 item which best describes their feelings:

378 *If a Slug group member joins our group, I will feel:*



379

380

381

382 Outgroup punishment

383 Experimenter: " Now, I'd like to tell you a little story. This morning, the Slug group and other

384 groups were drawing pictures of things they did at that zoo. Stacey is a girl from the Slug group.

385 *Lily is a girl from another group. Lily was done with her drawing and had to go to the bathroom,*
386 *so she gave Stacey her picture to hold for her until she came back. However, Stacey crumpled*
387 *the picture and threw it on the ground.”*

388 Then, the experimenter asked the following questions for probing kids’ understanding of the
389 situation:

390 *Did Stacey do a terrible thing?*

391 *Do you remember which group Stacey is from?*

392 *Is Lily also from the Slug group?*

393 Then, each participant responded to the following question for measuring the intention of
394 punishment:

395 *After ruining the picture, Stacey wants to visit animals in the zoo. We can punish Stacey by*
396 *letting her wait before she can visit animals. How long do you want Stacey to wait as the*
397 *punishment?*

398 Choices: 0h/1h/2h/3h/4h/5h

399

400 Outgroup sharing

401 The experimenter showed the participants a bag of stickers and said: *“Please choose 5 of your*
402 *favorite stickers.”*

403 After each participant had 5 stickers in hand, the experimenter said: *“Now you can share some of*
404 *your stickers with the Slug group. Please write down the number of the stickers you would like to*
405 *give to the Slug group. I will collect them at the end of the game and transfer them to the Slug*
406 *group.”*

407

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408 The test ended by asking children to mark their age and gender on the survey.