Holier-Than-Thou: Can Contextual Information About Minimal Groups Modulate the Robust Ingroup Bias Effect?

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Abstract

Evolutionary accounts suggest that individuals readily categorize other individuals into an ingroup and an outgroup, and consequently display a strong preference for positive behaviors towards the members of the ingroup relative to the outgroup. In the current study, we tested whether the robust ingroup bias could be modulated at the perceptual level based upon differential contextual information about group characteristics and group relations. Across the four experiments, participants performed a social associative matching task within the minimal group framework. We found that while the ingroup bias is certainly robust, it gets attenuated if the outgroup is portrayed positively and also when the ingroup is depicted negatively. This may have consequences for researchers studying intergroup conflict and consequent policy-making.

Keywords: perceptual matching task; minimal group paradigm; social groups; information dynamics

Introduction

An essential feature for humans' successful adaptation and propagation through millions of years of evolution has been their ability to live in large groups (Van Vugt & Kameda, 2012). Darwin (1871) points out that living in groups offered individuals access to shared resources such as food, water, sexual partners as well as protection against hostile animals and antagonistic groups. However, in order to enjoy the benefits of group living, individuals constantly need to categorize other individuals into members of an ingroup or an outgroup. Sumner (1906) coined the term 'ethnocentrism' based on the observation that humans readily organize their social worlds into ingroups and outgroups, which allows them to determine the nature of their behaviors towards other individuals; for instance, loyalty & cooperation for members of the ingroup whereas discrimination and prejudice for those belonging to the outgroup (Brewer, 2012).

Indeed, this *ingroup bias* referred to as a difference in mental processing of members from the ingroup in comparison to outgroups, may manifest in explicit or implicit ways (Amodio, & Mendoza, 2010), and has been touted as the main source of social discrimination across different types of social groups based on gender, caste, nationality, ethnicity (Greenwald & Pettigrew, 2014). Some instances of ingroup bias are, making favorable moral decisions towards the ingroup (Cadsby et al., 2016), higher prosocial behaviour towards ingroup compared to outgroup members (Fiedler et al., 2018). Other ways in which ingroup bias manifests would be prejudice or negative evaluations or affective responses towards members of an outgroup (Amodio, 2014), that may even culminate in physical violence (Sherif et al., 1961; see Dunham, 2008 for a full review). These examples of ingroup bias are not merely manifested in overt behaviour but also have specific neural underpinnings (Molenberghs, 2013; Saarinen et al., 2021).

The *social identity theory* (Tajfel, 1974; Tajfel & Turner, 1979;1986) demonstrates that mere categorization of individuals into different groups, i.e., minimal groups is sufficient to invoke strong ingroup biases and negative attitudes towards an outgroup (Tafel, 1970; Brewer, 1981, 1986, 2012). More recently, researchers have utilized the minimal group paradigm to demonstrate a significant overlap between self- and in-group biases during an associative matching task (Enock, Hewstone, Lockwood, & Sui, 2020).

In summary, it has been implied that the social categorization of individuals into ingroups and outgroups has consequences for how we process information about them and their actions (Hastorf & Cantril, 1954; Gutsell & Inzlicht, 2010; Molenberghs et al., 2012; Molenberghs 2013, Dunbar 2018). For instance, Hastorf & Cantril (1954) made participants from two different football teams view a controversial football game and asked them to report on which team indulged in more rough play, and expectedly participants of both the teams blames the rival team for rough play. Similarly, participants in a study conducted by Molenberghs et al., (2012) concluded that members of their ingroup pressed buttons faster than members of the outgroup, despite the fact that in the video both teams pressed the buttons equally fast and that the participants were randomly divided into an ingroup and an outgroup. Finally, in an EEG study, Gutsell & Inzlicht (2010) showed increased perception – action coupling for observing actions of members of the ingroup vs. the outgroup, wherein participants simulated the actions of their ingroup members but not of the members of the outgroup.

Based on these and other previous findings, the authors of the current study were curious about whether the robust ingroup bias demonstrated in several studies could be influenced by contextual information about the minimal groups they had already been assigned to as per Tajfel

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(1970,1971). To investigate the same, in Experiment 1 we established the ingroup bias for a set of participants assigned to two minimal groups (without any information), using an associative matching paradigm on the lines of Enock, Hewstone, Lockwood & Sui, (2020) (Experiment 1). However, in the next set of experiments (Experiments 2a – 2c) we manipulated the nature of contextual information available to the participants about the minimal groups. In experiment 2A, we provided the participants with a positive narrative about both, the ingroup and the outgroup; in experiment 2B, we provided the participants with a positive narrative about the members of the ingroup but a negative one for the outgroup; finally, in experiment 2C, we provided the participants with a negative narrative about the ingroup and a positive one about the outgroup. We expected that the ingroup bias would be attenuated to a certain degree in experiment 2A as both the groups are being depicted in equally positive light and get strengthened in Experiment 2B given that the narrative paints the ingroup in positive light and disparages the outgroup. In Experiment 2c, as we presented the ingroup in a bad light compared to a positively attributed outgroup, we expected the ingroup bias to stay robust because participants may choose to ignore the negative information about the ingroup as shown in Hastorf & Cantril (1954).

Experiment 1

In Experiment 1 we randomly assigned our participants to two minimal groups as per Tajfel (1970,1971) and tested for ingroup bias using an associative matching task used by Enock et al., (2020). To elaborate, participants were arbitrarily assigned to two imaginary groups, GHLEN and PHINS, where the group names were English non-words (matched on word length), with no meaning of their own and thus, novel for each participant. Also, instead of one single geometrical shape to denote a group, as in Enock et al., (2020), we used 10 exemplars of the shapes (stars & crosses), varying in orientation, angle, and skewness, to represent a community comprising of different members but essentially of the same category on the lines of Roy, Karnick & Verma (2022) (see Figure 1).

Figure 1: Associated star shapes and cross shapes for the two categories.

Methods

Participants The sample size for an effect size of 0.65 (Moradi et al., 2015), power = 0.95, $\alpha = .05$, was calculated to be 33 using G*Power 3.1 software (Faul et al., 2009). Following that, a total of 33 participants (13 female, mean age = 23.54 ± 3.59) from the Indian Institute of Technology Kanpur completed the experiment. The participants were all right-handed and had normal or corrected-to-normal vision. Informed consent was obtained from all participants prior to the experiment. All participants were duly compensated for taking part in the experiment.

Stimuli Two geometrical shapes (stars and crosses) each 4.8x4.8° of visual angle were presented above a central white fixation dot (0.8x0.8°) against a grey background. There were 10 possible variations each for the two shapes, differing in their orientation, angle, and skewness but could essentially be categorized as a star or a cross, representing the two groups, i.e., GHLEN & PHINS. The group names were displayed below the fixation dot. The distance between the fixation dot and the centre of the shape or the label was about 3.7°. The participants were seated 60 cm from the screen. The experiment was run on a PC using PsychoPy software (version 2022.2.1) and displayed on a 24-inch monitor with a refresh rate of 100 Hz and a resolution of 1920x1080.

Procedure The experiment was conducted in the following stages:

a) Participants arriving in an odd-numbered sequence were allocated to the GHLEN group and those arriving in an even-numbered sequence were allocated to the PHINS group.
b) Next, the participants were provided with on-screen instructions about their group memberships. More specifically, participants were asked to associate 10 exemplars from the category of stars & crosses, representing the two groups, GHLEN & PHINS, respectively (counterbalanced). These associations & instructions stayed on until the participants pressed the spacebar to move on to the main experiment (see Figure 2, below).
c) To ascertain that the participants remembered the formed associations, they participated in a practice block where they were presented with an exemplar of the shape category signifying a particular group and the corresponding group label (as in Enock et al., 2020), and were asked to respond if the exemplar – group label pair were a match or not (see Figure 2, above). Following the practice block, there was a reminder page for the participants where they again saw the associations learned for the ingroup and outgroup shape-label pairs along with response instructions. The reminder page remained on screen until the participants pressed the spacebar, and then a 1-s central fixation dot indicated the start of the main experiment. Note that only those participants with an accuracy higher than 60% in the practice block proceeded to the main experimental block.
d) In the experimental block, each trial consisted of a randomly generated shape-label pair shown on screen for 100 ms. Participants had an 1100 ms

blank response window where they indicated whether the shape-label pair was a match/mismatch by pressing *m* or *n*, counterbalanced for *yes* or *no*. Feedback was provided for 500 ms after the response for each trial.

e) The main experiment had a total of 320 trials spread over 4 blocks (80 trials per block). Accuracy was provided at the end of each block along with a 7-s break. The next block started immediately after the break. There were four conditions: two match conditions (matched/mismatched); and two shape conditions (ingroup and outgroup), with 80 trials per condition. The associations between the shapes and the labels were counterbalanced across participants.

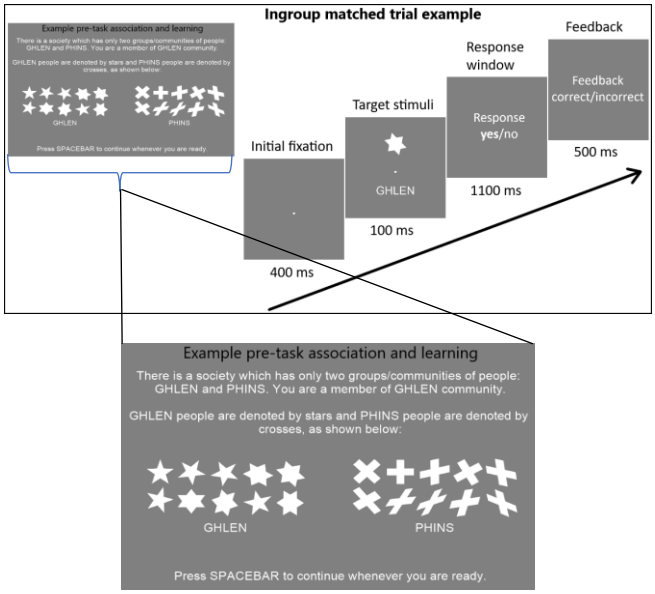


Figure 2: Experiment flow chart.

Statistical Analyses Only correct responses were included for all response time analyses, and RTs higher or lower than 2.5 standard deviations from the mean response time for each participant under each condition were excluded. Consequently, less than 5% of each dataset was excluded and analysis was performed on the remaining trials. We also calculated d-prime and response criterion scores, to check for changes in perceptual sensitivity or any discernible response biases from the participants (Stanislaw & Todorov, 1999).

Results

Participants were faster with a mean RT of 585 ms (SD = 74 ms) and more accurate at 89.4% (10.1%) for the matched-ingroup condition compared to the mean RT of 629 ms (SD = 76) and 78.9 % (13.9%) accuracy for matched-outgroup condition. Table 1 reports the mean RTs and accuracy data for Experiment 1.

We carried out paired samples t-tests on the RT and Accuracy data. In the matched condition, there was a significant difference between the mean RTs for ingroup and outgroup in favour of the ingroup, t (32) = 2.865, p = 0.007, d = 0.499. Accuracy data was also significantly different, again showing a preference for ingroup, t (32) = 3.139, p = 0.004, d = 0.546. Further, ingroup shapes were responded to with greater sensitivity than outgroup shapes, t (32) = 2.565, p = 0.015, d = 0.447. Additionally, response criterion scores were significantly lower for ingroup than outgroup shapes, t (32) = 3.107, p = 0.004, d = 0.541. Similar to reaction time and accuracy data, the d' and RC scores demonstrated performance advantages for the ingroup compared to an outgroup. Figure 3 shows the four parameters of comparison for experiment 1.

Table 1: Experiment 1.

Condition	Shape Category	Mean RT (s) SD (s)	Accuracy (%) SD (%)
Matched	Ingroup	0.585 (0.074)	89.4 (10.1)
	Outgroup	0.629 (0.076)	78.9 (13.9)
Unmatched	Ingroup	0.666 (0.064)	78.0 (11.6)
	Outgroup	0.654 (0.068)	78.9 (13.0)

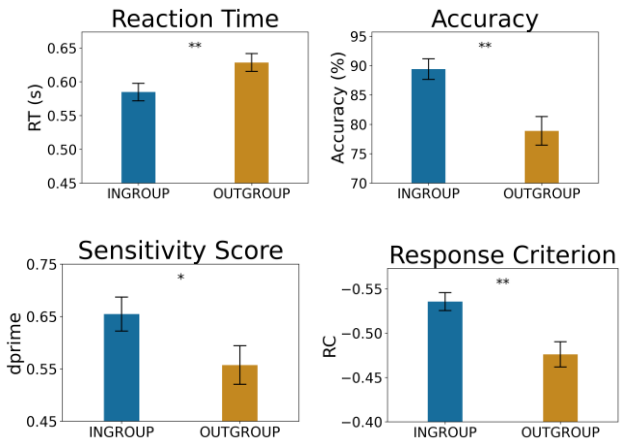


Figure 3: Experiment 1 results. Error bars represent standard errors of the mean. ** p < 0.01, * p < 0.05

Discussion

As expected, based on the results from previous studies (for instance, Enock et al., 2020), we replicated a robust ingroup advantage for all dependent variables. Note that participants were assigned to minimal groups as per Tajfel (1970) and the participants had no information about these two groups. The findings are in line with the predictions of the Social Identity Theory (Tajfel, 1974) in that just the categorization into two different groups is sufficient to elicit favoritism towards own group.

Experiment 2a-2c

In these set of experiments, we manipulated the information presented about the groups and their relations, after the participants had already been divided into minimal groups. Using the same experimental setup and the same sample size of 33 as in experiment 1, experiments 2A – 2C were conducted with the only difference being the narrative delivered about the two groups. All four experiments had different sets of 33 participants.

Experiment 2a

For experiment 2a, we provided the participants (9 female, mean age = 25.06 ± 2.82, all right-handed with normal or corrected-to-normal vision) with a positive narrative about the group characteristics and group relations (see in appendix). The participants then proceeded to the association block, practice block, and main experimental block in exactly the same fashion as in Experiment 1.

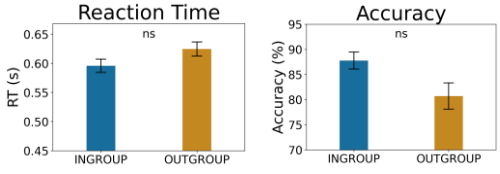
Results

Table 2 reports the mean RTs and accuracy data for Experiment 2a. Participants were faster with a mean RT of 596 ms (SD = 66 ms) and more accurate at 87.8% (9.7%) for the matched-ingroup condition compared to the mean RT of 625 ms (SD = 69) and 80.7 % (15.0%) accuracy for matched-outgroup condition.

Table 2: Experiment 2a.

Condition	Shape Category	Mean RT (s) SD (s)	Accuracy (%) SD (%)
Matched	Ingroup	0.596 (0.066)	87.8 (09.7)
	Outgroup	0.625 (0.069)	80.7 (15.0)
Unmatched	Ingroup	0.674 (0.051)	80.5 (10.7)
	Outgroup	0.663 (0.055)	80.1 (10.7)

We carried out paired samples t-tests on the RT and Accuracy data. Interestingly, in the matched condition, there was no significant difference between the mean RTs for ingroup vs. outgroup, t (32) = 1.801, p = 0.081, d = 0.313. Accuracy data was also not significantly different, again showing a reduction in ingroup preference, t (32) = 1.952, p = 0.060, d = 0.340. However, ingroup shapes were responded to with greater sensitivity than outgroup shapes, t (32) = 2.446, p = 0.020, d = 0.426. The response criterion was not significantly different for the ingroup shapes compared to the outgroup shapes, t (32) = 1.286, p = 0.208, d = 0.224. Figure 4 shows the results of experiment 2a.



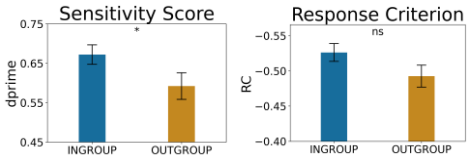


Figure 4: Experiment 2a results. Error bars represent standard errors of the mean. * p < 0.05, ns p > 0.05

Discussion

As seen earlier, ingroup bias in the perceptual matching task has been shown to be a robust effect (Moradi et al., 2015, Enock et al., 2017, Enock et al., 2020). However, upon providing a positive narrative about both the ingroup and outgroup and their mutual relations, we find that though there is a marginal preference for ingroups over outgroups in terms of faster RTs and higher accuracies, the perceptual benefits are no longer significant. In essence, the findings are in line with our expectations, that given a positive narrative about the outgroup the relative preference for the ingroup gets attenuated.

Experiment 2b

In experiment 2b, we provided the participants (10 female, mean age = 23.36 ± 4.73, 32 right-handed, all normal or corrected-to-normal vision) with a polarizing narrative wherein the ingroup has positive attributes, while the outgroup is depicted as having negative attributes, and the two groups are in a conflicted relationship with each other (narrative available in appendix). Following this, the participants carried on with the association block, practice block, and main experimental block, again same as in Experiment 1.

Results

Table 3 reports the mean RTs and accuracy data for Experiment 2b. Participants were faster with a mean RT of 562 ms (SD = 58 ms) and more accurate at 89.7% (7.5%) for the matched-ingroup condition compared to the mean RT of 609 ms (SD = 79) and 79.1 % (13.5%) accuracy for matched-outgroup condition.

Table 3: Experiment 2b.

Condition	Shape Category	Mean RT (s) SD (s)	Accuracy (%) SD (%)
Matched	Ingroup	0.562 (0.058)	89.7 (07.5)
	Outgroup	0.609 (0.079)	79.1 (13.5)
Unmatched	Ingroup	0.646 (0.073)	76.1 (13.5)
	Outgroup	0.639 (0.068)	77.8 (11.0)

As earlier, we carried out paired samples t-tests on the RT and Accuracy data. In the matched condition, there was a significant difference between the mean RTs for ingroup and outgroup, with the ingroup matches being faster, t (32) = 3.841, p < 0.001, d = 0.669. Accuracy data was also

significantly different, again showing ingroup preference, t (32) = 4.058, p < 0.001, d = 0.706. Further, ingroup shapes were responded to with greater sensitivity than outgroup shapes, t (32) = 3.121, p = 0.004, d = 0.543. The response criterion was also significantly different for ingroup compared to outgroup shapes, t (32) = 4.185, p < 0.001, d = 0.729. The results of experiment 2b is demonstrated in Figure 5.

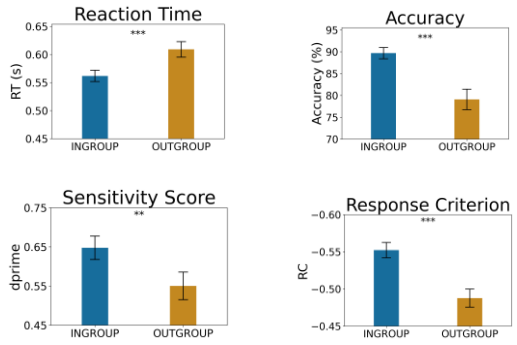


Figure 5: Experiment 2b results. Error bars represent standard errors of the mean. *** p < 0.001, ** p < 0.01

Discussion

As expected, a positive narrative favoring the ingroup aligns with the predispositions to positively evaluate them relative to the outgroup. Such a narrative translates into a strong ingroup bias in the current experiment across all dependent variables. Certainly, these findings are in line with previous research (for e.g., in Saarinen et al., 2021).

Experiment 2c

For experiment 2c, we provided the participants (15 female, mean age = 21.67 ± 1.84, 31 right-handed, all normal or corrected-to-normal vision) with a narrative wherein the ingroup is negatively depicted and the outgroup is positively depicted, and the groups are in conflict with each other (narrative in appendix). The participants then proceeded with the association block, practice block, and main experimental block, again same as in Experiment 1.

Results

Table 4 reports the mean RTs and accuracy data for Experiment 2c. In this experiment, participants were faster with a mean RT of 575 ms (SD = 83 ms) and more accurate at 87.9% (12.9%) for the matched-ingroup condition compared to the mean RT of 611 ms (SD = 72) and 81.7 % (14.9%) accuracy for matched-outgroup condition.

Table 4: Experiment 2c.

Condition	Shape Category	Mean RT (s) SD (s)	Accuracy (%) SD (%)
Matched	Ingroup	0.575 (0.083)	87.9 (12.9)
	Outgroup	0.611 (0.072)	81.7 (14.9)
Unmatched	Ingroup	0.651 (0.066)	78.9 (13.1)
	Outgroup	0.653 (0.064)	80.5 (11.9)

A paired samples t-tests on the RT and Accuracy data in the matched condition showed that though the participants were faster for the ingroup matches relative to the outgroup matches, the difference only just reached significance, t (32) = 2.039, p = 0.050, d = 0.355. Also, the accuracy data did not differ significantly, t (32) = 1.579, p = 0.124, d = 0.275. Moreover, the sensitivity and the response criterion scores for the ingroup and the outgroup shapes also didn't differ significantly, t (32) = 1.284, p = 0.208, d = 0.224 and t (32) = 1.680, p = 0.103, d = 0.293, respectively. Figure 6 shows the results of experiment 2c.

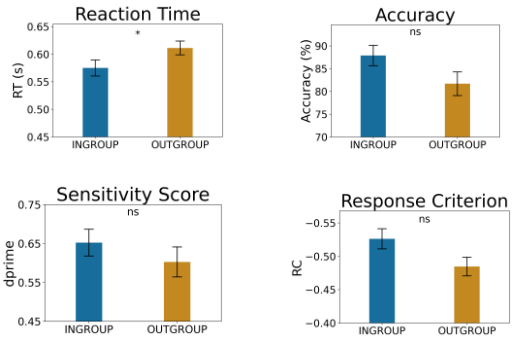


Figure 6: Experiment 2c results. Error bars represent standard errors of the mean. * p < 0.05, ns p > 0.05

Discussion

The results of this experiment are interesting on at least two accounts. Firstly, despite negative attributes for the ingroup and positive attributes of the outgroup, the ingroup bias does not get eliminated completely, as we expected. Secondly, as the participants were presented with negative information about their ingroup, which violates the earlier predisposition of evaluating the ingroups positively, the expected ingroup bias as indexed in the performance on the associative matching task seems to have reduced slightly. Certainly, these results are in line with previous studies (Hastorf & Cantril, 1954, Molenberghs, 2012) that individuals discount even negative information about the members of their ingroup in the interests of serving their ingroup bias.

Group Affinity Scores

Finally, we asked the participants in experiment 2b and 2c to fill out a questionnaire at the end of the experiment, aimed at examining the strength of participants' associations with their ingroup in face of positive (2b) and negative information (2c). The questionnaire consisted of seven questions (attached in appendix) and the affinity scores were calculated using the table provided in appendix.

Interestingly, an independent samples t-test revealed a significant difference between the two scores, t (64) = 5.114, p < 0.001, indicating that the participants showed higher

group affinity when they were associated to a positively described ingroup (Exp 2b) compared to when they associated themselves with a negative ingroup (Exp 2c). These findings are in line with our hypotheses that contextual information does indeed have a moderating influence on the robust ingroup bias effect. Figure 7 shows a descriptive plot for the same.

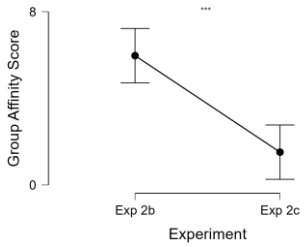


Figure 7: Group affinity scores for experiments 2b and 2c. Error bars represent standard errors of the mean. *** p < 0.001

General Discussion

In the current study, across the four experiments, we examined the effects of contextual information on the robust ingroup biases observed in a range of previous studies (for instance, Enock et al., 2020; Molenberghs, 2013, etc.). Figure 8 provides an overview of the four experiments and the contrasting perceptual responses of the participants across the four experiments using bootstrapped means (combining RTs & accuracy). Indeed, it can be observed that while for Experiment 1, the means for ingroup and outgroup are clearly separated; the distinction reduces in Experiment 2A (when both groups are depicted positively); then resurfaces in Experiment 2B (when ingroup is depicted positively relative to the outgroup); and decreases again in Experiment 2C (when the ingroup is depicted negatively relative to the outgroup).

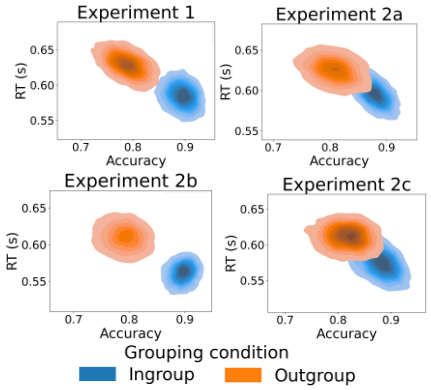


Figure 8: 95% KDE plot of the bootstrapped means using the RT and Accuracy data for the four experiments.

All in all, these findings are in line with previous research, for instance, the results of Experiment 1 demonstrate that individuals can show a high degree of ingroup bias even when they have just been arbitrarily assigned into different groups (Tajfel, 1970, 1971). In-group biases have been found to be rooted in evolution and manifest from an innate affiliation motive which has been identified by some as a core human need (Baumeister & Leary, 1995; see Van Vugt & Kameda, 2012, for a discussion). The results from Experiment 1 & 2B fall broadly along these lines. It is interesting to note that while the ingroup bias was already present in Experiment 1 without any contextual knowledge about the two groups, it gets magnified in face of positive information about the ingroup and negative for the outgroup in Experiment 2B. Indeed, this tendency translates into biases in decision making (Balliet, Wu, & De Dreu, 2014), stereotyping & discrimination (Abbink & Harris, 2019; Lane, 2016; & Li, 2020), even for real or historically established groups, as pointed out by Dunham (2018).

Interesting results were obtained from experiments 2A and 2C, as well. Firstly, in Experiment 2A, an equally positive portrayal of the outgroup, leads to the attenuation of the deeply ingrained ingroup bias; and secondly, in Experiment 2C, a negative portrayal of the ingroup also reduces the ingroup bias although the biases do not entirely fade away. These findings are in line with the previous proposal (Joyce & Harwood, 2014) that narratives certainly possess the potential to shape the way we may perceive and feel about other groups. Indeed, it has been demonstrated that positive portrayals of the outgroup through narratives could lead to more positive attitudes towards these groups & consequently reduce the highly polarized ingroup bias (Joyce & Harwood, 2104). Also, Knobloch-Westerwick, Mothes and Polavin (2020) demonstrate selective consumption of information from the media, wherein readers read more attitude consistent information to foster positive attitudes towards the ingroup and negative attitude towards the outgroup. These factors together indicate that while the negative portrayal of the ingroup members in Experiment 2C would have created a degree of cognitive dissonance amongst the participants, which reflects in their relatively higher RTs in 2C than 2B; however, the effects were not strong enough to wipe off the ingroup bias completely.

Finally, the group affinity scores calculated for participants from Experiments 2B & 2C also indicate that participants indeed were affected with the negative portrayal of the ingroup as their overall affinity for ingroup reduces significantly in Experiment 2C as compared to Experiment 2B.

Conclusion

In the current study we investigated the effects of varying contextual information about the minimal groups available to participants and the corresponding ingroup bias. Through a series of four experiments, we find that although the ingroup bias effect is robust indeed, it may still be vulnerable to influence of contextual information favoring either the ingroup or the outgroup. These results may have implications for intergroup conflict research wherein narratives have typically been used to alleviate polarization amongst antagonistic groups (Dunham, 2018, Joyce & Harwood, 2014).

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Appendix

Narratives for experiments 2a – 2c.

Experiment 2a

Participants belonging to GHLEN community read the following story on the starting screen of the experiment:

There is a society which has only two groups/communities of people: GHLEN and PHINS. You are a member of GHLEN community.

People from both the communities are equally hardworking, sincere and benevolent in nature. There is a sense of welfare and well being amongst the people from both communities, and the society fluorishes through both groups' collaborative efforts.

The instruction for participants belonging to the PHINS community was changed accordingly.

Experiment 2b

Participants belonging to GHLEN community read the following story on the starting screen of the experiment:

There is a society which has only two groups/communities of people: GHLEN and PHINS. You are a member of GHLEN community.

In earlier times both GHLEN and PHINS people used to live together harmoniously. The business was blooming and people were sincere in their efforts to make the society a better place for future generations. Over the years, it so happened that the PHINS people started becoming more power-hungry. Gradually, they corrupted the system and started exploiting their power against the GHLEN members, discriminating against them in various aspects of day-to-day life.

With time, the differences between the groups have grown even larger. PHINS people of your generation believe they are a superior race above you and your fellow GHLEN members, and they deem themselves as an entitled member of the society. People from the GHLEN community, including your family have suffered due to the atrocities of the PHINS people.

Many extremists in PHINS community even want to eradicate the GHLEN community from the society. Due to these extremist ideals, there have been increased instances of riots between the GHLEN and the PHINS people, resulting in deaths overall but more serious casualties from your group.

The instruction for participants belonging to the PHINS community was changed accordingly.

Experiment 2c

Participants belonging to GHLEN community read the following story on the starting screen of the experiment:

There is a society which has only two groups/communities of people: GHLEN and PHINS. You are a member of GHLEN community.
In earlier times both GHLEN and PHINS people used to live together harmoniously. The business was blooming and people were sincere in their efforts to make the society a better place for future generations. Over the years, it so happened that the people from your community started becoming more power hungry. Gradually, they corrupted the system and started exploiting their power against the PHINS members, discriminating against them in various aspects of day-to-day life.
With time, the differences between the groups have grown even larger. GHLEN people of your generation believe they are a superior race above the PHINS people, and they deem themselves as an entitled member of the society. Many people from the PHINS community have suffered due to the atrocities of your people.
Many extremists in your community even want to eradicate the PHINS community from the society. Due to these extremist ideals, there have been increased instances of riots between the GHLEN and the PHINS people, resulting in deaths overall but more serious casualties from the PHINS group.

The instruction for participants belonging to the PHINS community was changed accordingly.

Questionnaire:

Qn 1. How likely would you be willing to change your group affiliation?
Qn 2. In a competitive match between GHLEN and PHINS, which team would you support?
Qn 3. If you were to buy a house, which community would you prefer your locality to be inhabited by?
Qn 4. Which community member would you vote to be the ruling member of the society?
Qn 5. If a person from your community has to give out charitable money to 10 GHLEN people and 10 PHINS people, keeping none for themselves, how would he/she most likely allocate the money?
Qn 6. Imagine your house has recently been looted and many precious things are missing. Which community member(s) do you think could have committed this crime?
Qn 7. Which community do you think you associate yourself with the most?

The group affinity score was calculated using the following table:

Table A1: Scoring for the questionnaire data.

Questions	**Slider Options**	**Ingroup GHLEN**	**Ingroup PHINS**
		Score	Score
Qn 1	Very Unlikely	2	2
	Somewhat Unlikely	1	1
	Undecided	0	0
	Somewhat Likely	-1	-1
	Very Likely	-2	-2
Qns 2, 3, 4, 7	Mostly GHLEN	2	-2
	Somewhat GHLEN	1	-1
	Undecided	0	0
	Somewhat PHINS	-1	1
	Mostly PHINS	-2	2
Qn 5	20% to GHLEN, 80% to PHINS	-2	2
	40% to GHLEN, 60% to PHINS	-1	1
	Equally (50%) to both	0	0
	60% to GHLEN, 40% to PHINS	1	-1
	80% to GHLEN, 20% to PHINS	2	-2
Qn 6	Mostly GHLEN	-2	2
	Somewhat GHLEN	-1	1
	Undecided	0	0
	Somewhat PHINS	1	-1
	Mostly PHINS	2	-2