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Intra-group interaction and the development of norms which promote inter-group hostility

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Abstract

Research suggests there is more inter-group discrimination when rewards rather than punishments are distributed between groups (the positive-negative asymmetry effect). This study investigated whether intra-group interaction and the obstruction of in-group advancement moderate this finding. Participants were twice asked to divide monetary resources—individually (pre-consensus) and in interactive groups (consensus). Results confirmed that there was more discrimination when rewards were allocated. Although this replicates the PNAE overall, there were two moderators. First, there was no asymmetry when the out-group obstructed in-group advancement: obstruction was sufficient to legitimise punishment. Second, after group interaction the PNAE reversed so that there was more discrimination when punishments were administered. The severity of discrimination was contingent upon group norms that endorsed inter-group hostility. It is argued that norms changed as a function of group interaction, and so did patterns of discrimination. The results suggest that the intra- and inter-group context combined to cause in-group favouritism to slide towards inter-group hostility.

Social psychological research has demonstrated a robust tendency for humans to favour the in-group over out-group(s) (Allport, 1954; Tajfel, Billig, Bundy, & Flament, 1971). However, while in-group favouritism is commonplace, action to deliberately harm or disadvantage an out-group in laboratory research is relatively rare (Bettencourt, Dorr, Charlton, & Hume, 2001). This is corroborated by research on the positive-negative asymmetry effect (PNAE), which demonstrates that the tendency to favour one's in-group over an out-group when making 'positive' allocations (such as distributing rewards) is strongly attenuated when people are asked to make 'negative' allocations (such as punishments or fines, Mummendey et al., 1992; Struch & Schwartz, 1989). However at the same time, it is undeniable that out-group punishment does occur and is not uncommon outside of the laboratory. In order to address this incongruity, the present paper investigates the conditions under which a tendency to favour one's in-group can be transformed into 'out-group hate' (Brewer, 1999). Specifically, the research seeks to identify conditions and processes that foster the development of socially shared ideas that it is acceptable or even desirable (i.e. normative) to punish the out-group.

THE PNAE AND ITS CAUSES

The asymmetry in allocations of positive and negative resources has been widely replicated and several explanations for it have been advanced (Mummendey & Otten, 1998, for a review). One explanation is that divisions of rewards and fines are

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not likely to be psychologically equivalent acts. Psychologically, favouring the in-group is clearly very different to punishing the out-group: Punishment is a hostile act and requires considerable justification. By comparison, favouritism is generally less frowned upon and more easily justified. As a result, punishment may be undesirable according to generic social norms, and in-group favouritism relatively more appropriate and normative (Mummendey & Otten, 1998).

However, in light of the blood-ridden history of the human race, the concept of a generic social norm against out-group punishment appears rather questionable. At various points in history, the 'fundamental unwillingness' to harm others seems to have been replaced by a profound and widely shared willingness to inflict harm (e.g. Goldhagen, 1997; Hobsbawn, 1995). Indeed, the traditional PNAE has not always been replicated (Amiot & Bourhis, 2003). In fact, a *reversal* of the PNAE has been demonstrated through a simple re-framing of the allocation task (Sassenberg, Kessler, & Mummendey, 2003).

Therefore, it appears there are certain conditions under which group ideologies may come to *legitimise* and *justify* out-group punishment (Amiot & Bourhis, 2003). What we do not know is *when* and *why* it can become acceptable or desirable to harm the out-group. Against this backdrop, the present research examines how norms develop which legitimize such punishment.

CONSENSUALIZATION AND NORM FORMATION

Although there may be norms that support a fundamental unwillingness to harm out-groups (e.g. Mummendey & Otten, 1998), it is also possible that norms could develop which are then *used* by groups to legitimise and coordinate behaviour in a particular inter-group context (see also Amiot & Bourhis, 2005). In normal cases, direct negative action towards an out-group may not be required, and may even be counterproductive (see also Turner, 2005). However in some cases, such as when the out-group explicitly obstructs the advancement of perceived in-group interests (Sherif, 1967), there can be an emergent intra-group consensus which justifies that the in-group protect their interests 'at all costs' (Haslam, 2004, p. 111; Turner, Pratkanis, & Samuels, 2003). This process of reaching a shared group perspective appears to be more than a process of cognitive inference (or 'deduction') by individuals. Many studies suggest that social interaction plays a central part in the process of reaching consensus, and that it is related to the formation (or articulation) of a sense of shared identity and in-group norms (Postmes, Haslam, & Swaab, 2005; Postmes, Spears, Novak, & Lee, 2005; Swaab, Postmes, van Beest, & Spears, 2007).

So the question is, what occurs during this 'consensualization' process to mobilise hostile inter-group action? There is evidence that in-group and out-group stereotypes become more consensual through interaction (Haslam, Turner, Oakes, McGarty, & Reynolds, 1998), and this has been shown to impact upon inter-group behaviour (Haslam et al., 1998; Smith & Postmes, in preparation). Furthermore, Stott and Drury (2004) demonstrated that consensualization around negative stereotypes fed preferences for conflict. This may be related to the phenomenon that intra-group interaction tends to make individuals' views more extreme in whichever direction they are already tending (group polarisation; Moscovici & Zavalloni, 1969).

Intra-group interaction is likely to bring about more than the development of individuals' perceptions of inter-group stereotypes, however. For example, if the group reaches consensus on a viewpoint, this carries with it a sense of social validation (Smith & Postmes, in preparation). Social validation has normative implications for group members: if consensus can be attained about how to, say, punish an out-group member, the very fact that agreement can be reached about this action can be perceived as a signal that it is justifiable (Postmes, Haslam et al., 2005; Turner, 1991). Furthermore, consensus and social validation serve as strong indicators that other in-group members would support the action, which is an important consideration when it comes to deciding to engage in inter-group hostility (van Zomeren, Spears, & Leach, 2005). Through these processes, intra-group consensualization can mobilise group members above and beyond the extent to which individual thought processes could do this alone.

Therefore, group discussion is a vehicle through which in-group members not only gain the knowledge and validation that they are experiencing a situation in the same way, but can explicitly develop an articulate, consensual in-group norm for inter-group behaviour. This level of consciously validated, shared in-group meaning is achievable through the sharing of views in discussion, but of course, intra-group interaction may not be not the only way in which consensualization can occur. Alternatives include exposure to mass media messages, consensus feedback, exposure to behavioural models and so

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on. This is not inconsistent with our argument that interaction is a key process in the formation of norms that promote hostility. After all, these alternative ways of exerting social influence are not unrelated to the interactive processes in small dynamic groups, although the functional origins of the process must lie in the simple exchange of viewpoints within a group (see also Caporael, 2001; Postmes, Baray, Haslam, Morton, & Swaab, 2006; Richerson, 2004).

This focus on interaction within small groups is consistent with metatheoretical assumptions made by Asch (1958) and J. C. Turner (1987) and resonate with the arguments made by Reicher and colleagues concerning the relationships between (inter)group dynamics and social identity (e.g. Reicher, 1996; Stott & Drury, 2000) and social stereotypes (Stott & Drury, 2004). Furthermore, it emphasizes that in-group members orient their actions towards other in-group members as much as towards the out-group. Only in the rare case of complete social isolation do people orient themselves only towards generic social norms. More commonly, people attend to more local (emergent) in-group norms, which may on occasion deviate sharply from general social standards (Postmes & Spears, 1998). Removing this localised intra-group dynamic can seriously alter the social conditions which can give rise to discrimination. It is argued therefore, that hostile group behaviour and thus phenomena such as the PNAE cannot be understood or adequately theorized outside the intra- (and inter-) group context within which they occur, i.e. inter-group behaviour becomes dependent on the intra-group dynamic.

This theoretical background leads us to the central prediction in this paper: that intra-group interaction has the potential to overcome generic norms against out-group punishment in minimal group settings. More specifically, if there is a reluctance to administer punishments in inter-group allocation tasks, then intra-group discussion should be a vehicle that can help group members create a normative climate in which such punishments are justified.

IN-GROUP OBSTRUCTION AS AN AGGRAVATING CONDITION

It should be stressed that intra-group processes are contingent on the inter-group environment. When groups discuss inter-group issues, socio-structural conditions will mark the boundaries of what social constructions are possible (i.e. as reality constraints). Inter-group relations will thus influence the norms that emerge within groups during intra-group interaction.

The design of this research therefore took into account that an antagonistic inter-group setting may be required before punishments could begin to be legitimized. Thus we created an experimental situation in which the out-group would be perceived to obstruct the advancement of in-group interest (i.e. similar to negative interdependence, see Ellemers, 1993; Sherif, 1967; Wright, Taylor, & Moghaddam, 1990). Obstruction is about the clashing of group trajectories—not a static social context but one in which both groups are on a path of action. Implicit in the manipulation of obstruction is that action is necessary to restore the inter-group balance. This inter-group dynamic would provide arguments to justify, and therefore legitimise, the out-group punishment, i.e. provide 'fodder' for intra-group consensualization around an aggressive norm. Thus, we reasoned that if the out-group were perceived as an obstacle, the process of consensualization around a hostile norm would be accelerated.

In sum, we predicted that if the in-group is obstructed by the out-group, they would display discrimination to redress the balance of power. In the context of this research therefore, obstruction elaborates the concept of negative interdependence (cf. Sherif, 1967). It guides 'who we are' and 'who we want to be' in relation to an out-group. In this way, obstruction may shape in-group identity via intra-group consensualization, and thus also normative group behaviour.

PILOT STUDY

The significance of the current research hinges on the psychological perceptions of positive and negative allocations. Our assumption (and that in the PNAE) was that these are perceived as *rewards* and *punishments,* respectively. In order to test this base-rate assumption, a pilot study was conducted. It was hypothesized that negative allocations would be perceived as having a more negative impact on the recipient than positive allocations, and they would be less pleasant to allocate in a minimal group context.

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METHOD

Participants were 20 volunteers ($M_{age} = 24.14$, 11 females). The pilot had a two-condition (valence of monetary allocation: positive vs. negative) within-subjects design. Participants were asked to imagine that they were members of group A, and were given a sum of money to allocate to members of group A and members of another group (group B). Monetary allocations were made through four examples of the Tajfel matrices (Bourhis, Sachdev, & Gagnon, 1994; Turner, 1983). Each matrix contained seven different pairs of numbers. Participants were asked to choose one pair of numbers per matrix to represent the amount they would like to allocate as a reward to an anonymous member of the in-group (group A) and an anonymous member of the out-group (group B). Participants then completed the questionnaire, which measured how they felt about the task. Participants were subsequently presented with the matrices again, but asked to allocate the money as a fine, instead of a reward. They were then asked to complete the questionnaire again.

Dependent Measures

The total amount of money allocated to the in-group was collapsed across the Tajfel matrices to provide an overall measure of inter-group discrimination (negative allocations were reverse-coded). However, for the purposes of this pilot study, the primary dependent variables measured participants' emotions resulting from the two allocation tasks and their perceptions of the tasks. Items measured the extent to which allocating rewards was a pleasant act, 'The allocation task was pleasant' and 'It was a nice thing to do', and the perceived impact of allocations on recipients, 'The allocation would have a positive impact on recipients' and 'The allocation would have a negative effect on recipients'. A single item was included to measure the perceived legitimacy of the allocation task: 'I felt I was taking legitimate action whilst allocating the money'. Each item was answered on a 7-point scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree.

In order to measure the level of personal satisfaction and/or distress the tasks caused, adapted versions of the positive and negative affect scales (PANAS) were included (Watson, Clark, & Tellegen, 1988), in which participants rated the extent to which they experienced emotions that were positive (8 items, $\alpha = .81$ for reward allocations and $\alpha = .79$ for fine allocations) and negative (16 items, $\alpha = .93$ for reward allocations and $\alpha = .96$ for fine allocations) on a scale of 1 = not at all to 5 = extremely. Listed positive emotion words were: determined, excited, comfortable, enthusiastic, pleased, legitimate, happy and interested. Negative emotion words were: distressed, guilty, hostile, illegitimate, ashamed, jittery, upset, nervous, afraid, uncomfortable, tense, anxious, angry, worried, awkward and uneasy.

RESULTS AND DISCUSSION

Repeated measures ANOVA showed that participants displayed more inter-group discrimination when allocating rewards ($M = 176.00$, SD = 29.02) than fines ($M = 138.00$, SD = 37.34), F (1, 19) = 8.16, $p = .01$, $\eta^2 = .30$, replicating the traditional PNAE. Participants also felt that allocating rewards was marginally more legitimate ($M = 4.65$, SD = 1.63) than allocating fines ($M = 3.95$, SD = 1.67) F (1, 19) = 3.86, $p = .06$, $\eta^2 = .17$.

Participants agreed significantly more with the item, 'The allocation would have a positive impact on recipients' in the reward allocation condition ($M = 5.45$, SD = 1.54) compared to the fine allocation condition ($M = 2.60$, SD = 1.82) F (1, 19) = 21.06, $p < .001$, $\eta^2 = .53$. Conversely, participants agreed that 'The allocation would have a negative effect on recipients' more when allocating fines ($M = 4.50$, SD = 2.09) than allocating rewards ($M = 2.80$, SD = 1.40) F (1, 19) = 8.06, $p = .01$, $\eta^2 = .30$. They also agreed that 'It was a nice thing to do' more in the reward condition ($M = 5.35$, SD = 1.60) than the fine condition ($M = 2.60$, SD = 1.93) F (1, 19) = 14.68, $p = .001$, $\eta^2 = .44$. Agreement with the item, 'The allocation task was pleasant' was also significantly higher when allocating rewards ($M = 4.50$, SD = 1.318) compared to allocating fines ($M = 3.10$, SD = 1.59) F (1, 19) = 9.00, $p = .007$, $\eta^2 = .32$.

Results for the experienced emotions also corroborated the assumptions. Participants felt significantly more positive about allocating rewards ($M = 2.83$, SD = 0.71) than allocating fines ($M = 2.08$, SD = 0.66) F (1, 19) = 21.37, $p < .001$,

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$\eta^2 = .53$. Conversely, participants felt significantly more negative about allocating fines ($M = 1.88$, SD = 0.74) than allocating rewards ($M = 1.47$, SD = 0.51) F (1, 19) = 9.79, $p = .006$, $\eta^2 = .34$.

In sum, results confirm that participants were more likely to discriminate on rewards than fines, found allocating rewards to be a more legitimate and pleasant act than allocating fines and believed that reward allocation would have a more positive impact on recipients than fine allocation. Conversely, participants thought allocating fines would have a more negative effect on recipients and felt more negative about allocating fines than rewards. Therefore, it can be concluded that the allocation of fines and rewards are not equivalent. Psychologically, allocation of positive resources is experienced as administering *a reward*, allocation of negative resources a *punishment*.

MAIN STUDY

Having established that allocating negative resources was considered to have a negative impact on recipients, the main study was designed to test four hypotheses, that: (a) perceived obstruction would reduce or remove the illegitimacy of punishing the out-group in this way; (b) the PNAE would be replicated before interaction took place; (c) intra-group interaction should have a transformative effect on discrimination and (d) discrimination would be mediated by a hostile group norm. It was thus predicted that when groups felt unobstructed by the out-group, the PNAE would be replicated—discrimination only being displayed when positive outcomes were allocated. In groups that were obstructed, however, discrimination should be displayed on both positive and negative allocations. Furthermore, interaction would serve to formulate and focus in-group norms that guide future behaviour.

METHOD

Participants and Design

Participants were 102 volunteers from a sixth-form college. Participants were recruited as part of an educational visit to the institution. The mean age was 16.7 years and 53 participants were male. All participants were unpaid and naive as to the purposes of the study. The design was a 2 (valence of monetary allocation: reward vs. fine) × 2 (group advancement: obstructed vs. not-obstructed) × 2 (phase: pre-consensus, consensus) mixed factorial design, with repeated measures on the phase factor. Participants were randomly allocated to conditions, and within that to small three-person discussion groups ($N = 34$).

Independent Variables

Participants were asked to decide upon a suitable monetary allocation for the out-group. This task was carried out twice—once individually (pre-consensus) and once after a group decision (consensus). Measures taken before and after group discussion constituted the repeated measures factor phase in the design. One between-subjects independent variable was the valence of the allocations. Participants were asked to allocate monetary rewards (positive) or to administer fines (negative 'punishments') to the in-group and out-group. The second between-subjects independent variable was whether the out-group obstructed the future advancement of the in-group, or not. In one condition, participants were given feedback that suggested that the out-group deliberately obstructed the in-group's opportunities to carry out a subsequent 'survival' task successfully. In the other condition, feedback suggested that the out-group did not obstruct the in-group.

Dependent Measures

The main dependent variable was discrimination. As before, monetary allocations were made through the Tajfel matrices[1] (Bourhis et al., 1994; Turner, 1983). Measures used were identical to those of Amiot and Bourhis (2005). There were seven

[1]The full range of allocation strategies detectable in the matrices were measured, but were not considered to add anything of value in terms of the analyses reported here. The results are available from the author on request.

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matrices, each containing seven different pairs of numbers. As before, for each matrix participants were asked to choose one pair of numbers, which represented the amount allocated (or fine awarded) to an anonymous member of the in-group and an anonymous member of the out-group. The total amount allocated (or fined) to the in-group was used as the main dependent measure. The total allocations were collapsed across matrices and standardised. Negative allocations (fines) were reverse-coded. The inter-group discrimination measure reflects the total monetary allocation to the in-group over the out-group (i.e. the net in-group gain), such that zero indicates that money was distributed equally between the in-group and out-group.

Two further measures were included as process variables. These scales consisted of statements to which participants indicated agreement on 7-point scales (1 = 'strongly disagree', 7 = 'strongly agree'). A 9-item 'hostile norm' scale was designed to measure the extent to which participants felt the group norm legitimised hostility, which had good reliability ($\alpha = .89$). This scale was included as a potential mediator of allocations. Example items in this scale were, 'I feel it would be justified to take money away from the other group'; 'I think it would be ok to favour my group'; 'I think it would be ok to punish the other group' and 'Disadvantaging the other group is the right thing to do'. The hostile norm measure includes statements both about the legitimacy of favouring the in-group and punishing the out-group in order to be relevant to both reward and fine allocation. This was included at both the pre-consensus and consensus phases to measure what the in-group considered legitimate and appropriate inter-group behaviour before and after discussion.

Ellemers, Kortekaas, and Ouwerkerk's (1999) three-component measure of identification was included at the consensus phase (10 items, $\alpha = .86$). Within the overall measure of identification, the three sub-scale components differentiated between social self-categorization (3 items, $\alpha = .66$), 'I identify with the other members of group A'; 'I am like other members of group A' and 'Group A is a reflection of who I am'; group commitment (3 items, $\alpha = .78$), 'I would like to continue working with group A'; 'I dislike being a member of group A'(reverse-coded) and 'I would rather belong to group B' (reverse-coded); and group self-esteem (4 items, $\alpha = .79$), 'I think group A has little to be proud of' (reverse-coded); 'I feel good about group A'; 'I have little respect for group A' (reverse-coded) and 'I would rather not tell that I belong to group A' (reverse-coded). The measure of identification was included to counter alternative explanations of result in terms of group discussion galvanizing social identity.

Procedure

All participants were presented with a consent form, which stated that this was an experiment on group survival. The experiment consisted of two phases. During the pre-consensus phase, participants were informed that they would carry out a (theoretical) survival task, and in that context they divided money between in- and out-group. The second (consensus) phase consisted of a group discussion during which groups were asked to reach consensus about the allocations and the other dependent variables.

Pre-consensus Phase This phase started with allocation to conditions and groups. Participants were seated at classroom desks and read consent forms. The experimenter presented herself as a psychologist conducting research into the psychology of group survival. All consenting participants were randomly and equally allocated to one of two groups (ostensibly group A or B). Participants were placed in an isolated room with their team, and from that moment on treatments were identical except for the manipulations of independent variables. All participants were informed that they were allocated to group A, and that group B was in an adjacent room. Participants were then seated at individual desks. They were asked to read feedback about the tasks they were going to carry out, and fill out some matrices. This was all done in silence to ensure that all questions were answered individually at this phase.

The feedback then informed participants that their group A was going to compete against group B in a theoretical 'jungle-survival competition'. In order to beat group B, they were told that they must perform better than them at a survival task. Furthermore, in order to complete the survival task, it was essential that they had certain named items of equipment: a torch, matches, a tent, food, water, a knife and a first aid kit. Participants were not given any specific information about the nature of the task yet (although it was clear to them that this was an exercise rather than life or death situation).

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Participants were then asked to indicate which items they would like in their group's kit by ticking boxes that corresponded to those items. They were also told that group B was given the opportunity to divide the kits between groups A and B. After a brief wait, during which the experimenter ostensibly collected group B's proposed division, participants in the obstructed condition were told that group B did not allocate certain named essential items to group A, but allocated these items to themselves instead. This was done to give participants the impression that the out-group was an obstruction to their group's progress in the survival task. In the non-obstructed condition, the feedback was that group B allocated items equally between A and B, and so appeared fair.

Next, the distribution of money was justified by informing participants that such distributions took place within the context of the jungle survival task. Participants were told that in order to supplement the jungle survival kit, they had £500 to buy extra items. Critically, they were made aware that they would not be able to use this money to buy essential items (i.e. they could not use the money to undo the out-group's obstruction). Participants were instructed to divide an unspecified amount of this £500 between members of their group and the out-group, either by a reward system or fining system, using the Tajfel matrices. Thus, if money was allocated as a fine, participants would have *X* amount less to spend on extra items of kit. This design ensured that the operationalisation of the monetary allocation and the manipulation of obstruction were unconfounded. It was assumed that fining the out-group was judged to be a more negative behaviour than was rewarding the in-group. After making the allocations, participants were asked to complete the hostile norm scale.

Consensus Phase Following instructions from the experimenter, participants were placed into smaller discussion groups of three participants, within the superordinate 'Group A' category. Participants were asked first to discuss their 'jungle survival plan', with particular reference to how they would use their survival kit in order to be more successful than Group B. This was done to make the obstruction salient. They were then instructed by the experimenter to discuss the matrices in their groups until they reached consensus on the allocation of the valued outcomes. They then recorded their allocation decisions individually, and completed the social identification and hostile norm scales independently. The content of the group interaction was not recorded, but the experimenter and her assistants remained in the room and unobtrusively monitored the discussion during the study to ensure groups kept to the intended topic. Participants were then debriefed.

Analytic Strategy

Condition Effects

Considering that the responses to the measures at the consensus phase were shaped by the intra-group interaction, this data is interdependent. To address this issue, mixed design hierarchical linear modelling (HLM) analyses were performed in HLM for Windows 6.03 (Raudenbush & Bryk, 2002) on the data. Mixed design HLM analyses are appropriate for repeated measures data (level 1) in which one level of analysis (individuals, level 2) is nested within another (groups, level 3). This procedure examined the behaviour of the level 2 outcome (discrimination and the hostile norm) at both the pre-consensus and consensus phase as a function of both level 1, level 2 and level 3 predictors. Dummy variables were created to represent the independent variables (i.e. a multilevel equivalent of the General Linear Model approach). The estimated models were:

Level-1 Model: $Y = {}_{\Pi}\, 0 + {}_{\Pi}\, 1(\text{phase}) + E$
Level-2 Model: $\beta_0 + R$
Level-3 Model: $\beta_0 = \gamma_{00} + \gamma_{01} * (\text{obstruction}) + \gamma_{02} * (\text{valence of monetary allocation}) + \gamma_{03} * (2\text{−way interaction}) + U_0$

In these models, *Y* represents the dependent variable of interest (either discrimination or the hostile norm), *E*, *R* and *U* the errors at the intra-individual, individual and group levels, respectively, and ${}_{\prod}$, β and γ are regression coefficients at the intra-individual, individual and group levels, respectively.

Tests of Specific Hypotheses

Tests of specific hypotheses for the allocations within each condition were carried out by means of contrasts (Judd, McClelland, & Culhane, 1995; Rosenthal & Rosnow, 1985; Wilkinson et al., 1999), separately in the pre-consensus

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Table 1. Coding of contrast variables for HLM

Condition		Contrast variables for Contrast A: obstructed vs. not-obstructed conditions			Contrast variables for Contrast B: reward vs. punishment conditions		
		C1	C2	C3	C1	C2	C3
Reward	Not obstructed	1/2	1/2	0	1/2	1/2	0
	Obstructed	−1/2	0	1/2	1/2	−1/2	0
Punishment	Not obstructed	1/2	−1/2	0	−1/2	0	1/2
	Obstructed	−1/2	0	−1/2	−1/2	0	−1/2

and consensus phases. Recommendations were followed for contrast analysis in the testing of regression models by Cohen, Cohen, Aiken, and West (2003, pp. 332–341). Table 1 provides the coding of the contrast variables to aid interpretation. Four hypotheses were tested: (a) that there would be more discrimination when participants were obstructed relative to when they were not obstructed; (b) that allocating rewards would increase discrimination relative to allocating fines (the PNAE); (c) that interaction would transform the discriminatory behaviour exhibited and (d) that these effects would be mediated by the group norm. Level 1 contains the individual level variables and the group-level contrast variables were entered as uncentred variables at level 2. The estimated models were:

Level-1 Model: $Y = \beta_0 + R$
Level-2 Model: $\beta_0 = \gamma_{00} + \gamma_{01} * (\text{contrast1}) + \gamma_{02} * (\text{contrast2}) + \gamma_{03} * (\text{contrast3}) + U_0$

In these models, Y represents the dependent variable, R and U the errors at the individual and group level, respectively and β and γ are regression coefficients at the individual and group levels, respectively. In the results section, t and p values are reported as a direct test of the relation between the independent (via dummy and contrast variables) and dependent variables. Means and standard deviations are reported in Table 2.

Table 2. Mean scores for the not obstructed ($N = 46$) and obstructed ($N = 56$), reward ($N = 59$) and punishment ($N = 43$) conditions at pre-consensus and consensus

		Rewards		Punishments	
		Not obstructed	Obstructed	Not obstructed	Obstructed
Discrimination, pre-consensus	*M*	0.56	0.76	0.16	0.57
	SD	0.62	0.62	0.46	0.48
Discrimination, consensus	*M*	0.12	0.70	0.52	0.53
	SD	0.29	0.72	0.57	0.39
Hostile norm, pre-consensus	*M*	3.74	3.86	3.54	4.46
	SD	1.30	1.20	1.21	0.73
Hostile norm, consensus	*M*	3.37	3.90	4.37	4.43
	SD	0.92	1.19	1.63	0.58
Overall social identification	*M*	4.99	4.65	5.01	4.71
	SD	1.02	1.19	0.80	0.78
Social self-categorisation	*M*	4.29	4.10	4.22	3.83
	SD	1.35	1.28	.53	1.15
Group commitment	*M*	5.54	4.77	5.33	4.94
	SD	1.06	1.50	1.10	1.05
Group self-esteem	*M*	5.10	4.96	5.35	5.19
	SD	1.27	1.22	1.14	1.03

Note: The total sum of money allocated to the in-group at each phase (where zero is equivalent to no discrimination, or equal distribution of money between groups), was standardised. For the standardised scales, a higher number indicates a higher propensity on that measure.

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RESULTS

Discrimination

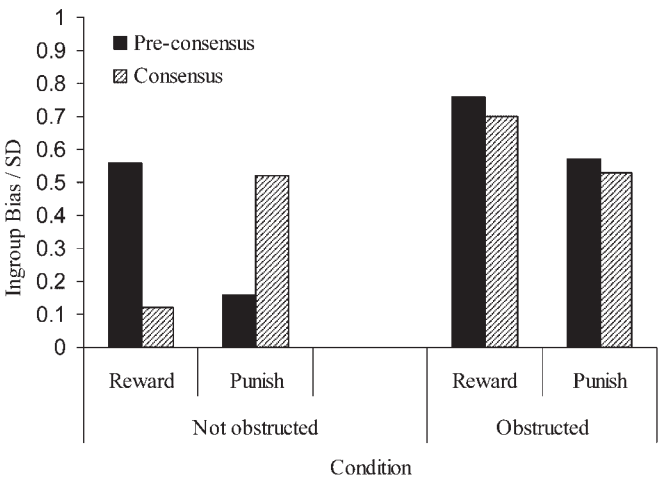
Condition Effects

A three-way mixed HLM analysis (obstruction of in-group advancement × valence of monetary allocation × phase) examined discrimination scores. There was a main effect for the valence of monetary allocation, $t\,(28) = -3.36$, $p = .003$, with significantly more discrimination on rewards than fines. There was also a phase main effect, with more discrimination prior to discussion ($M = 0.56$, SD = 0.59) than after discussion ($M = 0.45$, SD = 0.55), $t\,(194) = -5.20$, $p = .001$. There was a significant interaction between the valence of monetary allocation and phase: prior to discussion, there was more discrimination on rewards than fines. But after discussion, there was much more discrimination on the fines (Table 2), $t\,(194) = 3.41$, $p = .001$. However, these effects were qualified by a significant three-way interaction, $t\,(194) = -1.96$, $p = .05$. Examination of means suggests that, prior to interaction, all cells show relatively equal levels of discrimination, except for participants in the non-obstructed condition who allocated (negative) fines. After interaction however, the least discrimination is displayed by participants in the non-obstructed condition who allocated (positive) rewards (Figure 1).

Specific Hypotheses

Pre-consensus Phase At pre-consensus, there was a significant main effect for obstruction, $t\,(98) = -2.54$, $p = .01$, with more discrimination when participants were obstructed ($M = 0.67$, SD = 0.56) than not obstructed ($M = 0.43$, SD = 0.60). The main effect for valence of monetary allocation was also significant, $t\,(98) = 2.25$, $p = .03$, with more discrimination overall on the rewards ($M = 0.66$, SD = 0.62) than fines ($M = 0.43$, SD = 0.51). This finding confirms that overall, we found evidence for the PNAE, as predicted by hypothesis (b).

The PNAE was then explored in the non-obstructed and obstructed conditions separately, using contrast tests. In the non-obstructed condition there was a PNAE, with significantly more discrimination when money was allocated as rewards ($M = 0.56$, SD = 0.62) than as fines ($M = 0.16$, SD = 0.46), $t\,(98) = 2.22$, $p = .03$. In the obstructed condition however, the PNAE was eliminated. Discrimination here was equal in the reward ($M = 0.76$, SD = 0.62) and punishment ($M = 0.57$, SD = 0.48) conditions, $t\,(98) = 1.04$, $p = .30$, supporting hypothesis (a).



Note. The total sum of money allocated to the ingroup at each phase (standardized values, with zero equivalent to no discrimination).

Figure 1. Mean discrimination scores in the not obstructed ($N = 46$) and obstructed ($N = 56$), reward ($N = 59$) and punishment ($N = 43$) conditions at pre-consensus and consensus

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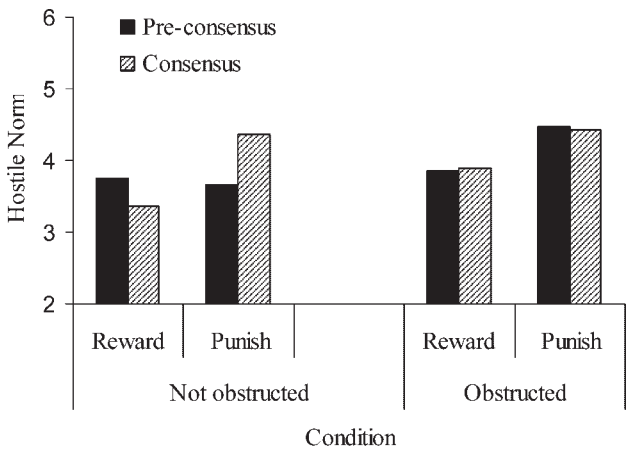
Consensus phase After group consensus had been reached, there was a significant main effect of obstruction on discrimination, t (98) = 4.48, p = .001, with greater discrimination when participants were obstructed (M = 0.62, SD = 0.58) than when they were not obstructed (M = 0.25, SD = 0.44). There was also a significant main effect of valence of the monetary allocation on discrimination, t (98) = 2.26, p = .03, with more discrimination when allocating fines (M = 0.53, SD = 0.45) than rewards (M = 0.40, SD = 0.61). This shows that consensual discussion resulted, overall, in a significant *reversal* of the PNAE, which provides evidence for hypothesis (c).

These effects were further explored in the non-obstructed and obstructed conditions separately, using the contrasts. In the non-obstructed condition the reverse PNAE was significant: there was more discrimination on fines (M = 0.52, SD = 0.57) than on the rewards (M = 0.12, SD = 0.29), t (98) = −2.26, p = .03. In the obstructed condition there was no significant difference between reward and punishment conditions, t (98) = 1.102, p = .27. Therefore, perceived obstruction eliminated the PNAE also after consensus, which was further support for hypothesis (b). Positive-negative asymmetries were found in the non-obstructed conditions *only*: means were in the direction of the traditionally reported PNAE at pre-consensus, but the effect *reversed* as a result of group discussion.

Hostile Norm

Condition Effects

As before, a three-way HLM (obstruction of in-group advancement × valence of monetary allocation × phase) examined effects on the hostile norm. There was no main effect for the obstruction of in-group advancement, t (26) = −1.08, p = .29, although the means suggest that the norm legitimised somewhat more hostility when participants felt obstructed by the out-group than when they did not feel obstructed (Table 2). There was a main effect for the valence of monetary allocation, t (26) = −3.32, p = .003, with a more hostile norm when allocating fines than rewards (Table 2). Furthermore, there was an interaction between the valence of monetary allocation and phase, t (178) = 2.88, p = .005: There was a more hostile norm on the fines both prior to and after discussion, but the norm became more hostile in the punishment condition overall, and less hostile in the reward condition, which may partly explain the reversal of discrimination behaviour. However, these results were qualified by a significant three-way interaction, t (178) = −2.83, p = .006 (Figure 2). Examination of means in the obstructed condition suggests that there was a more hostile norm in the punishment condition compared to the reward condition, and interaction had little effect on this norm. In contrast, in the not obstructed condition, the norm was similar for rewards and fines *prior* to interaction. After interaction however, the pattern changes, and the norm is much more hostile in the punishment conditions than in the reward conditions.



Note. A higher number on the *y* axis indicates a more hostile norm, on a scale of 1-7.

Figure 2. Mean hostile norm scores for the not obstructed (N = 46) and obstructed (N = 56), reward (N = 59) and punishment (N = 43) conditions at pre-consensus and consensus

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Specific Hypotheses

Pre-consensus Phase A 2 (obstruction of in-group advancement: obstructed vs. not obstructed) × 2 (valence of monetary allocation: reward vs. fine) HLM analysis was conducted on the hostile norm scores in the pre-consensus phase. The main effect for valence of monetary allocation was not significant, $t\,(98) = 0.12$, $p = .91$, neither was the obstruction main effect, $t\,(98) = 0.44$, $p = .67$, nor the 2-way interaction, $t\,(98) = 1.04$, $p = .30$. However, contrast tests performed within the obstructed condition showed that there was a significantly more hostile norm when money was allocated as a fine ($M = 4.46$, SD = 0.73) than when it was allocated as a reward ($M = 3.86$, SD = 1.20), $t\,(90) = -2.05$, $p = .05$. There was no valence of monetary allocation main effect in the non-obstructed condition, $t\,(90) = .49$, $p = .62$.

Consensus Phase Hostile norm scores from the consensus phase were entered as the dependent variable at level one and the dummy variables were entered at level two. There was no main effect of obstruction on the hostile norm, $t\,(28) = 1.31$, $p = .20$. There was however, a main effect of valence of the monetary allocation on the hostile norm, $t\,(28) = 2.06$, $p = .05$, with more hostility when allocating fines ($M = 4.41$, SD = 1.01) than rewards ($M = 3.62$, SD = 1.08).

The norm was then explored in the non-obstructed and obstructed conditions separately, using the contrast variables. There was more hostility in the unobstructed conditions when money was allocated as fines ($M = 4.37$, SD = 1.63) than as rewards ($M = 3.37$, SD = 0.92), $t\,(90) = -2.54$, $p = .01$. There was no effect of valence of the monetary allocation on the hostile norm in the obstructed conditions, $t\,(90) = -1.50$, $p = .14$.

Mediation

A three-way mixed HLM analysis (obstruction of in-group advancement × monetary allocation × phase) was conducted to examine hypothesis (d): that changes in the group norm could account for the discrimination effects. This was done by adding the group norm as a level-1 predictor to the model examining condition effects (i.e. as if it were a covariate). In this mediational analysis, the norm was indeed a very significant predictor of the degree to which discrimination occurred, $t\,(191) = 6.60$, $p = .001$. Looking at the condition effects, the main effect for the valence of monetary allocation remained, $t\,(28) = -2.92$, $p = .01$; as did the phase main effect, $t\,(194) = -4.24$, $p = .001$ and the interaction between the valence of monetary allocation and phase, $t\,(191) = 2.72$, $p = .01$. However, the three-way interaction which previously qualified these effects became non-significant, $t\,(191) = -1.47$, $p = .14$. The fact that the Sobel test also showed that the reduction in effects was significant, $Z = -2.62$, $p = .01$, demonstrates that the group norm fully mediated this effect, providing evidence for hypothesis (d).

Social Identification

Overall social identification scores from the consensus phase were entered as the dependent variable at level 1 and the dummy variables were entered at level 2. There was neither a main effect of obstruction on social identification, $t\,(28) = -0.81$, $p = .43$; a main effect for valence of monetary allocation, $t\,(28) = -0.19$, $p = .86$; nor a 2-way interaction, $t\,(28) = 0.24$, $p = .81$. Social identification also did not significantly predict discrimination scores, $t\,(100) = .12$, $p = .91$ when added as a predictor at level 1, with discrimination as the dependent variable. This suggests that changes in identification cannot explain the condition effects reported above for discrimination and the hostile norm.

Each of the identification sub-scales were then analysed for condition effects. There was no main effect of obstruction on social self-categorisation, $t\,(28) = -0.39$, $p = .70$; neither was there a main effect for valence of monetary allocation, $t\,(28) = -0.20$, $p = .85$; nor a 2-way interaction, $t\,(28) = 0.10$, $p = .92$. For group self-esteem there was also no main effect of obstruction, $t\,(28) = -0.29$, $p = .77$; or valence of monetary allocation, $t\,(28) = 0.37$, $p = .71$; nor a 2-way interaction, $t\,(28) = 0.16$, $p = .87$. Please refer to Table 2 for means.

For group commitment, there was a main effect of obstruction, $t\,(28) = -2.12$, $p = .04$, with greater commitment when participants felt unobstructed ($M = 5.47$, SD = 1.06) than when they felt obstructed ($M = 4.86$, SD = 1.29). There was no valence of monetary allocation main effect, $t\,(28) = -0.93$, $p = .36$, however, nor a 2-way interaction, $t\,(28) = 0.83$,

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Table 3. *N* participants choosing to distribute resources equally between groups

	Rewards	Punishments
Equal distribution	22	6
Unequal distribution	37	37

$p = .42$. Neither self-categorisation, $t\ (100) = -0.73$, $p = .47$; group self-esteem, $t\ (100) = .36$, $p = .72$; nor group commitment, $t\ (100) = 0.17$, $p = .87$ significantly predicted discrimination.

Proportion of Respondents Behaving Fairly

The finding that group discussion produced a complete *reversal* of the PNAE in the non-obstructed condition was unexpected. In order to explore why consensualization could have produced this particular effect, we examined the distribution of pre-discussion responses. It has been found in the minimal group paradigm that a substantial proportion of respondents choose to distribute resources equally (e.g. Bornstein, Crum, Wittenbraker, Harring, Insko, & Thibaut, 1983). A typical finding in the small group decision-making literature is that if a majority of people support a particular viewpoint in a group discussion, this majority viewpoint tends to be adopted by the whole group (Hastie & Kameda, 2005). We reasoned that the 'majority wins' rule could have something to do with this reversal. We calculated how many participants had allocated money equally between the in-group and out-group. An analysis of the number of participants distributing equally versus those displaying discrimination showed, somewhat unexpectedly, that a larger proportion of participants distributed money equally in the positive reward condition ($N = 22$ or 37%) than in the punishment condition ($N = 6$ or 14%; $\chi^2 = 45.87$, $p = .007$, Table 3). This, in conjunction with the finding that group norms mediated the discrimination effects, suggests that a different intra-group dynamic may have occurred in this condition, with majority opinion leading to the inference of a norm for equality, driving the group averages down.

GENERAL DISCUSSION

Previous research has shown that whilst in-group members are happy to display in-group favouritism whilst allocating rewards between groups, they are generally reluctant to punish out-group members by allocating them higher fines than they allocate to the in-group. The pilot study conducted here suggests that this may be because negative allocations are considered to have a negative impact on recipients and this is perceived to be illegitimate behaviour. The purpose of the main study was to examine the impact of intra-group discussion and the obstruction of in-group advancement on this phenomenon. First, it was hypothesised (a) that perceived obstruction would reduce or remove the illegitimacy of punishing the out-group (and therefore, the PNAE). Results supported this hypothesis. There was more discrimination when participants felt obstructed than when they did not feel obstructed. This effect was in evidence before consensus and after group discussion. Moreover, at the pre-consensus phase the traditional PNAE was replicated in the non-obstructed conditions, with more discrimination displayed when participants allocated rewards than punishments. This provides evidence to support our second hypothesis (b), that the PNAE would be replicated prior to interaction. Yet in the obstructed conditions, the PNAE was eliminated. This finding is consistent with the more general finding that socio-structural conditions can directly impact upon inter-group behaviour (Ellemers, 1993; Sherif, 1967; Wright et al., 1990).

Indeed, this is not the first time that research demonstrates that there are conditions under which the PNAE is attenuated (e.g. Sassenberg et al., 2003). However, the present results are nonetheless of interest. In particular, unlike previous research the present findings suggest that the PNAE may be particular to experimentation on 'minimal groups' which, by definition, do not include socio-structural conditions. The conceptualization of the PNAE within a richer than minimal context, i.e. against a backdrop of a competitive socio-structural context, is a small step towards increasing the ecological validity of this line of research.

The third prediction (c) was that intra-group interaction should have a transformative effect on discrimination. There was no evidence for this prediction in the condition where participants were obstructed by the out-group. Here, the in-group displayed high levels of discrimination across the board. But in the condition where there was no such

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obstruction, intra-group interaction did indeed *reverse* the traditional PNAE. Thus, after group discussion and reaching consensus, there was less discrimination when rewards were allocated, and significantly more discrimination when fines (punishments) were being handed out.

Finally, it was predicted (d) that the reason for this transformative effect of intra-group interaction would be related to the formation of in-group norms that justified hostile treatment of the out-group. Thus, the group norm should mediate the effect of intra-group interaction on discrimination. Indeed, the pattern of effects for the group norm of hostility largely mirrored those of discrimination. In the *unobstructed* condition, there was no difference in the norm for allocating rewards and for punishments prior to discussion (although the pattern appeared to echo that of the discrimination results). After interaction, the pattern reverses in the same way as the discrimination scores do: the norm is more hostile in the *punishment* condition than in the reward condition. There was one difference between the discrimination and norm results: In the obstructed conditions, the norm was more hostile in the punishment condition than in reward condition. And yet, discrimination was equally strong in both conditions. This deviation between norms and discrimination is interesting in light of the mediation analysis.

In line with the prediction, the changes in discrimination exhibited in the non-obstructed conditions were fully mediated by the in-group norm. Indeed, in the consensus phase, when participants had had the opportunity to interact, the norm becomes more hostile on punishments than rewards, following the same pattern as discrimination scores. This suggests that the norm explains behaviour in the non-obstructed conditions. But evidence for mediation was less obvious in the conditions where the group was obstructed (indeed the obstruction and obstruction by phase interaction effects did not show evidence of full mediation). A sense of obstruction appears to have (at least partially) overridden normative influence on behaviour. Retrospectively, this is perhaps not surprising: in these conditions, the obstruction itself may have carried sufficient weight to render the process of consensualization and norm formation of secondary importance. Here, the nature of inter-group relations, in themselves, would appear to have been sufficient to legitimate punishments. Nevertheless, the in-group norm did fully mediate the remaining condition effects.

These findings confirm the transforming effect that group interaction can have on perceptions of legitimacy of in- and out-group actions (see also Stott & Drury, 2004). It appears that consensualization can work both for and against the legitimisation of hostile norms, contingent upon the generic norm in place at the beginning of the interaction and the nature of the social context. This finding is consistent with Mummendey and Otten's (1998) suggestion that norms are an important factor in the occurrence of the PNAE. But the nature of these norms is in no sense fixed and generic: intra-group interaction can override and thus *qualitatively transform* any generic norms for equality and against administering harm to an out-group. The meaning of what is legitimate, or *normative*, inter-group behaviour can easily change as a function of intra-group debate (see also Amiot & Bourhis, 2003, 2005). In this way, consensualization processes informed the in-group's identity by shaping its normative content.

Whilst the results suggested that neither group discussion nor valence of allocation appeared to change in-group identification *per se* (there being no change in identification across conditions), it is possible that with the normative shift, the meaning of the in-group (as well as the out-group) changed in the non-obstructed conditions. In other words, the meaning of being an in-group member may have changed according to the valence of the allocation and before and after discussion because of the shift in the in-group norm. This is consistent with previous research on identity content and inter-group relations (Haslam et al., 1998; Reicher, 1996; Stott & Drury, 2000; Stott & Drury, 2004).

Although the complete reversal of the PNAE (as opposed to its mere elimination) as a result of intra-group interaction was somewhat unexpected, this does confirm the assertion that intra-group interactions are not neutral (or merely amplificatory, cf. Allport, 1924; Moscovici & Zavalloni, 1969) with respect to inter-group behaviour. Results confirm that intra-group dynamics have the capacity to transform inter-group behaviour. This reversal may be explained by the resource distribution choices of participants before interaction. Paradoxically, while the level of *discrimination* was on average higher when the monetary allocation was framed as a reward, there were also more individual participants who chose to divide resources *equally* in the same condition. The traditional normative account of the PNAE (i.e. in terms of general norms against negative discrimination; Mummendey & Otten, 1998) would be more consistent with the finding that more participants make equal distributions when allocating punishments. A further inspection of the distribution of allocation responses showed that when rewards were allocated there was the bimodal distribution that is typically found in studies of discrimination, with a large group of participants choosing equality, and another (somewhat smaller) group displaying a substantial amount of discrimination in favour of the in-group. In the case of allocating punishments, the range of allocations was greater.

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These differences in the distributions of allocations potentially explain the reversal of the PNAE in the non-obstructed groups. To the extent that groups followed the commonly applied 'majority rule' in their decision making (Hastie & Kameda, 2005), groups in the positive reward conditions should have shifted more toward equality norms. After all, here the majority unequivocally chose to allocate equally. In the punishment condition, there was no majority for any course of action, and hence the majority rule could not be applied. In a context where fining was the only form of inter-group differentiation, the groups converged on the consensus that hostility would be legitimate. This is a well-known finding: group norm formation tends to accentuate inter-group differences (see also Postmes, Spears et al., 2005). Hence intra-group interaction led to the endorsement of the hostile norm and a shift toward 'punishment'. The data support this *post-hoc* analysis.

CONCLUSION

Results suggest that there are two qualifications to the PNAE. First, when in-group advancement is obstructed, no PNAE was found: groups felt sufficiently justified to punish the out-group. Second, when in-group advancement was not obstructed, the PNAE reversed after group discussion, such that more hostility occurred when participants administered punishments than when they awarded prizes. Because this reversal was mediated by processes of consensualization and norm formation, the proposal that intra-group interactive processes can qualitatively transform the nature of inter-group behaviour was supported.

In sum, the PNAE appears to be restricted to particular conditions of making allocations to in- and out-groups. The PNAE would appear to be contingent upon both the intra-group and inter-group dynamic, which in turn affect each other. With the inclusion of consensualization processes within a study on inter-group behaviour, we hoped to make a small step towards redressing the lack of ecological resonance between research on in-group bias and inter-group discrimination and the prejudices that are prevalent in contemporary society. Moreover, the perception of inter-group relations and the (lack of) correspondence of group trajectories (i.e. the anticipation of future conflict or the experience of current obstruction) are important factors in the occurrence of discrimination. Perceived inter-group relations and intra-group dynamics are both important elements of how insidious cycles of wrongdoing come into being and why they continue.

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REFERENCES

Allport, F. H. (1924). *Social psychology.* New York: Houghton Mifflin.

Allport, G. W. (1954). *The nature of prejudice*. Cambridge, MA: Addison-Wesley.

Amiot, C. E., & Bourhis, R. Y. (2003). Discrimination and the positive-negative asymmetry effect: Ideological and normative processes. *Personality and Social Psychology Bulletin*, *29*, 597–608.

Amiot, C. E., & Bourhis, R. Y. (2005). Discrimination between dominant and subordinate groups: The positive-negative asymmetry effect and normative processes. *British Journal of Social Psychology*, *44*, 289–308.

Bettencourt, B. A., Dorr, N., Charlton, K., & Hume, D. L. (2001). Status differences and discrimination: A meta-analytic examination of the effects of status stability, status legitimacy and group permeability. *Psychological Bulletin*, *24*, 520–542.

Bourhis, R. Y., Sachdev, I., & Gagnon, A. (1994). Intergroup research with the Tajfel matrices: Methodological notes. In M. P. Zanna, & J. M. Olsen (Eds.), *The social psychology of prejudice: The ontario symposium* (Vol. 7, pp. 209–232). Hillsdale, NJ: Lawrence Erlbaum.

Bornstein, G., Crum, L., Wittenbraker, J., Harring, K., Insko, C. A., & Thibaut, J. (1983). On the measurement of social orientations in the minimal group paradigm. *European Journal of Social Psychology*, *13*, 321–350.

Brewer, M. B. (1999). The psychology of prejudice: Ingroup love or outgroup hate? *Journal of Social Issues*, *55*, 429–444.

Caporael, L. R. (2001). Parts and wholes: The evolutionary importance of groups. In C. Sedikides, & M. B. Brewer (Eds.), *Individual self, relational self, collective self* (pp. 241–258). Philadelphia, PA, US: Psychology Press.

DOI: 10.1002/ejsp

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Hillsdale, NJ: Erlbaum.
Ellemers, N. (1993). The influence of socio-structural variables on identity management strategies. In W. Stroebe, & M. Hewstone (Eds.), *European review of social psychology* (Vol. 4, pp. 27–57). Hilsdale, NJ: Erlbaum.
Ellemers, N., Kortekaas, P., & Ouwerkerk, J. (1999). Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity. *European Journal of Social Psychology*, *29*, 371–389.
Goldhagen, D. J. (1997). *Hitler's willing executioners: Ordinary Germans and the Holocaust*. London: Abacus.
Haslam, S. A. (2004). *Psychology in organisations: The social identity approach* (2nd ed.). London: Sage Publications.
Haslam, S. A., Turner, J. C., Oakes, P. J., McGarty, C., & Reynolds, K. J. (1998). The group as a basis for emergent stereotype consensus. *European Review of Social Psychology*, *28*, 755–776.
Hastie, R., & Kameda, T. (2005). The robust beauty of majority rules in group decisions. *Psychological Review*, *112*, 494–508.
Hobsbawn, E. J. (1995). *The age of extremes: The short twentieth century 1914–1991*. London: Abacus.
Judd, C. M., McClelland, G. H., & Culhane, S. C. (1995). Data analysis: Continuing issues in the everyday analysis of psychological data. *Annual Review of Psychology*, *46*, 433–465.
Moscovici, S., & Zavalloni, M. (1969). The group as a polarizer of attitudes. *Journal of Personality and Social Psychology*, *12*, 125–135.
Mummendey, A., & Otten, S. (1998). Positive-negative asymmetry in social discrimination. In W. Stroebe, & M. Hewstone (Eds.), *European review of social psychology*, *9*, 107–143.
Mummendey, A., Simon, B., Dietze, C., Grünert, M., Haeger, G., Kessler, S., et al. (1992). Categorization is not enough: Intergroup discrimination in negative outcome allocation. *Journal of Experimental Social Psychology*, *28*, 125–144.
Postmes, T., Baray, G., Haslam, S. A., Morton, T., & Swaab, R. I. (2006). The dynamics of personal and social identity formation. In T. Postmes, & J. Jetten (Eds.), *Individuality and the group: Advances in social identity* (pp. 215–236). London: Sage.
Postmes, T., Haslam, S. A., & Swaab, R. (2005). Social influence in small groups: An interaction model of social identity formation. *European Review of Social Psychology*, *16*, 1–42.
Postmes, T., & Spears, R. (1998). Deindividuation and anti-normative behaviour: A meta-analysis. *Psychological Bulletin*, *123*, 238–259.
Postmes, T., Spears, R., Lee, T., & Novak, R. (2005). Individuality and social influence in groups: Inductive and deductive routes to group identity. *Journal of Personality and Social Psychology*, *89*, 747–763.
Reicher, S. (1996). ''The battle of Westminster:'' Developing the social identity model of crowd behaviour in order to explain the initiation and development of collective conflict. *European Journal of Social Psychology*, *26*, 115–134.
Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
Richerson, P. J. (2004). *Not by genes alone: How culture transformed human evolution*. Chicago: University of Chicago Press.
Rosenthal, R., & Rosnow, R. L. (1985). *Contrast analyses: Focused comparisons in the analysis of variance*. Cambridge: Cambridge University Press.
Sassenberg, K., Kessler, T., & Mummendey, A. (2003). Less negative = more positive? Social discrimination as avoidance or approach. *Journal of Experimental Social Psychology*, *39*, 48–58.
Sherif, M. (1967). *Group conflict and cooperation: Their social psychology.* London: Routledge and Kegan Paul.
Smith, L. G. E., & Postmes, T. (in preparation). The power of talk: Legitimising hostile social action.
Stott, C., & Drury, J. (2000). Crowds, context and identity: Dynamic categorization processes in the 'poll tax riot'. *Human Relations*, *53*, 247–273.
Stott, C., & Drury, J. (2004). The importance of social structure and social interaction in stereotype consensus and content: Is the whole greater than the sum of its parts? *European Journal of Social Psychology*, *34*, 11–24.
Struch, N., & Schwartz, S. H. (1989). Intergroup aggression: Its predictors and distinctness from in-group bias. *Journal of Personality and Social Psychology*, *56*, 364–373.
Swaab, R., Postmes, T., van Beest, I., & Spears, R. (2007). Shared cognition as a product of, and precursor to, shared identity in negotiations. *Personality And Social Psychology Bulletin*, *33*, 187–199.
Tajfel, H., Billig, M., Bundy, R., & Flament, C. (1971). Social categorization and intergroup behaviour. *European Journal of Social Psychology*, *1*, 149–178.
Turner, J. C. (1983). The measurement of social orientations in the minimal group paradigm—Some comments. *European Journal of Social Psychology*, *13*, 351–367.
Turner, J. C. (1991). *Social influence*. Milton Keynes, UK: Open University Press.
Turner, J. C. (2005). Explaining the nature of power: A three-process theory. *European Journal of Social Psychology*, *35*, 1–22.
Turner, M. E., Pratkanis, A. R., & Samuels, T. (2003). Identity metamorphosis and groupthink prevention: Examining Intel's departure from the DRAM industry. In S. A. Haslam, D. van Knippenberg, M. J. Platow, & N. Ellemers (Eds.), *Social identity at work: Developing theory for organisational practice* (pp. 117–136). Philadelphia, PA: Psychology Press.
Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063–1070.
Wilkinson, L., & The APA Task Force on Statistical Inference. (1999). Statistical methods in psychology journals: Guidelines and explanations. *American Psychologist*, *54*, 594–604.
Wright, S. C., Taylor, D. M., & Moghaddam, F. M. (1990). Responding to membership in a disadvantaged group: From acceptance to collective protest. *Journal of Personality and Social Psychology*, *58*, 994–1003.

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