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This research examines for the 1st time the effects of relative deprivation and relative gratification, based on social comparison, on implicit and overt forms of discrimination toward the outgroup in a minimal group setting. Study 1 showed that compared to a control condition, relative deprivation and relative gratification enhanced implicit discrimination—measured through variations of linguistic abstraction in intergroup descriptions. Whereas both relative deprivation and relative gratification produced linguistic ingroup favoritism, linguistic productions of relatively deprived groups also conveyed outgroup derogation. Study 2 showed that relatively deprived and relatively gratified groups were overtly discriminatory in intergroup allocations of negative outcomes. The effects of relative deprivation were mediated by perceived intergroup rivalry and, in part, by perceived common fate. Perceived common fate partly accounted for the effects of relative gratification. Study 3 focused on mediators of relative gratification. First, members of relatively gratified (vs. control) groups worried about losing the ingroup advantage, which together worked as sequential mediators of discrimination. Second, relatively gratified groups reported higher existential guilt, which, in turn, was related to expectations of discrimination by the relatively deprived outgroup, and these sequentially mediated the effects of relative gratification. Overall, these studies highlight that both relative deprivation and relative gratification enhance intergroup discrimination and contribute to the understanding of the underlying processes.

Keywords: relative deprivation, relative gratification, intergroup discrimination, group-based emotions

The global financial crisis that has been affecting Western countries' economy since 2007 has increased the difference between advantaged and disadvantaged groups (e.g., Organisation for Economic Co-operation and Development, 2011). Scientists, politicians, and lay people are still trying to understand this phenomenon and find reasonable means to deal with it. From a social-psychological point of view, such a situation is a breeding ground for feelings of relative deprivation (RD) and relative gratification (RG) by the groups involved. Indeed, relative deprivation arises when group members perceive a violation of their expectations on what should be granted to the ingroup, along with feelings of discontentment, dissatisfaction, and injustice (Runciman, 1966; Smith, Cronin, & Kessler, 2008). Expectations can originate from either the comparison with other groups' achievements or the comparison between the present situation of the ingroup and its past or expected future situation (Davies, 1969; Walker & Pettigrew, 1984). Relative gratification—the opposite of relative deprivation—results from the awareness that the ingroup has a favorable position on some dimension of comparison (Grofman & Muller, 1973; Guimond & Dambrun, 2002).

Research has pointed out that both relative deprivation and relative gratification represent antecedents of intergroup hostility (Dambrun, Guimond, & Taylor, 2006; Dambrun, Taylor, McDonald, Crush, & Méot, 2006; Guimond & Dambrun, 2002). However, very few studies have experimentally tested the effects of RD and RG on intergroup discrimination, and the minimal conditions under which these phenomena can be observed are unknown. More importantly, previous research has almost exclusively focused on "distal" consequences of RD and RG such as ethnocentrism, generalized prejudice toward groups that are common targets of hostility within a given society, or support for anti-immigration policies (e.g., Guimond & Dambrun, 2002). Little research has considered that there are more "proximal" consequences of RD/RG experiences which involve the relatively advantaged/disadvantaged outgroup (e.g., Grant & Brown, 1995). To put it differently, would members of deprived groups discriminate against the outgroup that is apparently enjoying all the privileges they have been denied? Would advantaged group members refrain from showing bias against the disadvantaged ones, or would they discriminate as well? Moreover, to date little is known about the underlying mechanisms of RD and above all RG. Why would (dis)advantaged groups discriminate against outgroups? To what extent are perceived common fate and intergroup rivalry responsible for discrimination, and what role do intergroup emotions play?

In this article, we address these issues by experimentally manipulating RD and RG under minimal conditions (Tajfel, Billig, Bundy, & Flament, 1971). This was done in order to isolate the "pure" effects of relative deprivation and relative gratification vis-à-vis the outgroup—without possible confusion due to previous intergroup interactions and social status. The effects of RD/RG on attitudes toward the outgroup were examined both for implicit and more explicit forms of intergroup discrimination (Maass, Castelli, & Arcuri, 2000). First, we examine how members of RD and RG groups use linguistic abstraction and valence of terms (Maass, 1999; Rubini & Semin, 1994) to express ingroup favoritism and outgroup derogation in a spontaneous and unintentional fashion (Study 1). Second, we examine whether RD and RG experiences are powerful enough to elicit explicit discrimination in behavioral decision. To clarify how RD and RG affect intergroup discrimination, we analyze the mediating role of perceived common fate and rivalry (Study 2), as well as the emotional reactions among members of RG groups (Study 3).

Relative Deprivation and Relative Gratification

Relative deprivation has important consequences in the intergroup arena. Indeed, it represents a powerful motive for social protest against the status quo (Grant, 2008; Guimond & Dubé-Simard, 1983; Wright & Tropp, 2002). However, even relative gratification can lead to collective actions aimed at protecting ingroup interests as long as advantaged group members see their privilege as legitimate and do not perceive violation to important moral convictions (Harth, Kessler, & Leach, 2008; van Zomeren, Postmes, Spears, & Bettache, 2011).

Another crucial consequence of relative deprivation is intergroup hostility. A large corpus of research, mostly of a correlational nature, has demonstrated that the more individuals feel collectively deprived, the more they show prejudice against minority or stigmatized outgroups (Dambrun, Taylor, et al., 2006; Vanneman & Pettigrew, 1972). Moreover, relative deprivation leads members to engage in intergroup competition to a considerable extent (Halevy, Chou, Cohen, & Bornstein, 2010). Nevertheless, the few studies including relative gratification and relative deprivation in the same design have revealed that the relationship between deprivation/gratification and intergroup attitudes is not linear (a phenomenon named the "V-curve" effect; Dambrun & Taylor, 2013; Dambrun, Taylor, et al., 2006; Grofman & Muller, 1973). For instance, Guimond and Dambrun (2002), who manipulated RD and RG of psychology students by employing a combination of temporal and intergroup comparison, found that both RD and RG enhanced individuals' level of prejudice against stigmatized groups compared to a control condition.

Implicit and Explicit Intergroup Discrimination

Individuals continuously express their intergroup attitudes through communication. Studies on linguistic intergroup bias (for a review, see Wigboldus & Douglas, 2007) have shown that individuals vary systematically linguistic abstraction in communicating about ingroup and outgroup members (Maass, 1999; Rubini & Menegatti, 2008; Semin & Fiedler, 1988), with neither communicators nor recipients being aware of such a strategic use of language (Franco & Maass, 1999; Maass et al., 2000). In general terms, the linguistic intergroup bias reflects the tendency to describe ingroup desirable behaviors and outgroup undesirable behaviors in more abstract terms than ingroup undesirable and outgroup desirable behaviors. Rubini, Moscatelli, and Palmonari (2007), for example, found that individuals described resource allocations performed by ingroup members with more abstract positive terms and more concrete negative terms than the same behaviors performed by outgroup members. This linguistic pattern implies the high generalizability of ingroup positive features and of outgroup negative features across different situations and time. Importantly, linguistic discrimination is sensitive to variations in socio-structural characteristics of groups and intergroup relations. For instance, groups having a superior/inferior position to the outgroup in terms of power or status use language in a more discriminatory fashion than equal power/equal status groups (Moscatelli, Albarello, & Rubini, 2008; Rubini, Moscatelli, Albarello, & Palmonari, 2007).

By varying abstractness and valence of linguistic terms, individuals can tailor biased intergroup representations that may result in ingroup favoritism or outgroup derogation. Namely, through language they can easily convey "ingroup love" but also "outgroup hate" (Brewer, 1999; Moscatelli & Rubini, 2011). As reported by Moscatelli, Albarello, and Rubini (2008), groups of high and low status provided descriptions of ingroup members that were as favorable as those of equal status groups. However, high status groups described outgroup members with negative terms to a higher level of abstraction—thus revealing higher outgroup derogation—than the low status ones.

Overall, previous studies pointed out that asymmetries between groups enhance linguistic discrimination (Moscatelli, Albarello, & Rubini, 2008; Rubini, Moscatelli, Albarello, & Palmonari, 2007). Although RD and RG have more to do with the material attainments of groups than with their status (Ellemers & Barreto, 2001) or their degree of power (Jones, 1972), it follows that both relatively deprived (RD) and relatively gratified (RG) groups will show linguistic ingroup favoritism and/or linguistic outgroup derogation. This possibility was tested in Study 1.

Relative deprivation and relative gratification have pervasive consequences on individuals' attitudes against minority groups (e.g., Guimond & Dambrun, 2002). Do RD and RG legitimate discrimination even when this implies explicit and highly counter-normative behaviors against the outgroup? As shown by studies on the positive-negative asymmetry effect (e.g., Otten & Mummendey, 2000), individuals usually refrain from being discriminatory when this means burdening outgroup members—for instance, by allocating them more negative outcomes. Whereas group members choose quite mindlessly to favor ingroup members over outgroup members in distributing positive resources, discrimination on negative outcome allocations occurs especially when categorization is "aggravated" by differences in group status, group size, or group power (Moscatelli & Rubini, 2013; Otten & Mummendey, 2000; Rubini, Moscatelli, Albarello, & Palmonari, 2007). It follows that both relatively deprived and relatively gratified groups will show discrimination in negative outcome allocations. This possibility was tested in Study 2.

Why Do Relative Deprivation and Relative Gratification Affect Intergroup Discrimination?

The few studies testing mediation of RD/RG effects have highlighted that different processes are involved. Guimond and Dambrun (2002) found that cognitive processes (in their study, perceived intergroup improvement over time) accounted for the level of prejudice expressed by the relatively gratified groups, whereas negative emotions mediated the impact of relative deprivation. In a survey conducted in South Africa, Dambrun, Taylor, et al. (2006) also showed that ethnic identification partially mediated the impact of RG—but not of RD—on prejudice.

In this work, we argued that the experiences of relative deprivation and relative gratification engender the perception of sharing a common fate with ingroup members (i.e., positive intragroup interdependence; e.g., Cartwright & Zander, 1968; Lewin, 1948) and of high rivalry with the outgroup (i.e., negative intergroup interdependence; Sherif, 1966). Common fate is a powerful antecedent of group entitativity (Campbell, 1958; Lickel et al., 2000), and it is connected to intergroup bias (Insko, Wildschut, & Cohen, 2013; Moscatelli & Rubini, 2011, 2013; Rabbie & Horwitz, 1969). Intergroup rivalry, too, is an important predictor of intergroup discrimination (e.g., Esses, Jackson, & Armstrong, 1998; Sassenberg, Moskowitz, Jacoby, & Hansen, 2007; Sherif, 1966). Notably, Rubini, Moscatelli, Albarello, and Palmonari (2007) demonstrated that power asymmetries between groups enhanced members' perception of interdependence and this in turn accounted for the effects of power on intergroup discrimination. However, in that study no distinction was made between the intragroup (i.e., common fate) and the intergroup (i.e., rivalry) facet of interdependence.

Considering RD and RG experiences, it is likely that members will perceive that they are "in the same boat" of fellow ingroup members since they clearly share the same fate (being deprived or being rewarded because of their group membership). They should also be aware that their fate is interconnected with the fate of an outgroup with whom they somehow compete for resources. Following this reasoning, we can advance the general prediction that experiences of relative deprivation and relative gratification would enhance members' perception of common fate and intergroup rivalry, which, in turn, should explain the impact of RD and RG on intergroup behavior. The role of common fate and perceived rivalry as mediators of RD/RG effects on discrimination was tested in Study 2.

Further insights into the understanding of the processes underlying RG come from theorization on group-based emotions (e.g., Mackie, Devos, & Smith, 2000). Both the experience of RG and that of RD trigger intense emotional reactions (e.g., Leach, Snider, & Iyer, 2002; Smith et al., 2008). Whereas there is robust evidence that feelings of dissatisfaction, discontent, or anger elicited by RD are related to prejudice (De La Rey & Raju, 1996; Grant & Brown, 1995; Guimond & Dambrun, 2002; Guimond & Dubé-Simard, 1983), less is known about the role of emotions in accounting for discrimination by RG groups (e.g., Harth et al., 2008). According to Leach et al. (2002), the awareness that one's own group is privileged compared to an outgroup will engender different emotions depending on specific characteristics of intergroup inequality. When intergroup inequality is perceived as illegitimate and unstable—such as when RG arises from a violation of expectation

in comparison with the RD outgroup—two emotional reactions are plausible: fear of losing the ingroup advantage, and existential guilt due to recognition that this advantage is based on the losses of the unfortunate outgroup. How do RG members deal with these unpleasant emotions? They probably start wondering about how other ingroup and outgroup members would behave. In Study 3, we examined the interplay between emotions and expectations about ingroup and outgroup behavior in accounting for discrimination by RG groups.

Research Overview

The first aim of the present studies was to examine the impact of relative deprivation and relative gratification—based on social comparison—in a controlled, minimal group-like setting. Unlike past research (e.g., Guimond & Dambrun, 2002), these studies considered discrimination against the outgroup involved in the comparison process. Furthermore, they focused on implicit and explicit forms of discrimination. Study 1 investigated whether RD and RG influence the two facets of linguistic bias, namely, ingroup favoritism and outgroup derogation. Study 2 focused on explicit discrimination by considering intergroup allocations of negative outcomes, and examined whether perceived common fate and intergroup rivalry accounted for RD/RG effects. Study 3 focused on RG and examined the role of specific emotional reactions, together with expectations about ingroup and outgroup allocation behavior, as possible mediators of the effects of RG on intergroup discrimination. We return to this after the first two studies have been reported.

Study 1

We predicted that both relative gratification and relative deprivation would enhance linguistic discrimination compared to a control condition. Specifically, in the RG and RD conditions, ingroup members should be described with more positive abstract terms and more concrete negative terms than in control condition (*Hypothesis 1a*). Outgroup descriptions should be characterized by the opposite pattern (*Hypothesis 1b*). Considering Halevy et al.'s (2010) claim that relative deprivation might push members to display aversive discrimination against the outgroup (rather than just ingroup bias), it is also possible that RD members would show linguistic outgroup derogation. If true, in the RD condition, descriptions of outgroup members should be characterized by negative terms at a higher level of abstraction, and positive terms at a lower level of abstraction, than descriptions of ingroup members (*Hypothesis 2*).

Method

Participants and design. One hundred and thirty-nine students (79.9% females, 20.1% males,[1] $M_{age} = 21.7$ years) participated in this study on a voluntary basis. They were tested in groups of approximately 14 persons. The study manipulated the group condition (control, relative deprivation, relative gratification) and

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[1] Because preliminary analyses showed no difference between males and females on discrimination, gender was not further considered as an independent variable. The same applies to Studies 2 and 3.

the group membership (ingroup, outgroup) of the person described (the "target").

Procedure. The experimenter explained that the study was about problem solving and decision making, and announced that participants would be randomly divided in two groups of equal size (Alpha and Omega). Participants were distributed a booklet where they found their personal code and the group they had been assigned to. The experimenter announced that participants would start working individually on a problem solving task (i.e., recognition of the logical relation between couples of words). A grade would then be assigned to the performance of each group as a whole. To create expectations of proportionality between group performance and attainments, participants were told that they would be given a monetary reward proportional to the grade assigned to their group. Afterwards, a co-experimenter collected all booklets and allegedly started grading the problem solving task.

In the meantime, the experimenter explained that the study would take place in two sessions. In the current one, participants would work under "normal" conditions, whereas in a second session (scheduled for 2 weeks later), they would complete similar tasks while listening to an unpleasant noise (the sound of the dentist's drill). Participants were asked to distribute seconds of noise to ingroup and outgroup members by means of an allocation matrix. The manipulation of RD/RG took place just before the allocation task. The co-experimenter announced she had just finished grading the problem solving task. In the control condition, she explained that the performance of the two groups was very similar (respectively, 62 out of 100 and 60 out of 100) and gave each participant a 6-euro coupon. In the other two conditions, the co-experimenter made clear that despite the very similar marks obtained by the groups, the research budget was unexpectedly insufficient to give them the same reward. Members of the group that had obtained 62 out of 100 were then given 6-euro coupons (RG), whereas members of the other group (obtaining 60 out of 100) were given 1-euro coupons (RD). Afterward, each participant filled out a single allocation matrix, which consisted of 13 boxes. Each box contained two numbers: one standing for the seconds of noise to be allocated to a member of the ingroup (top row) and the other for the outgroup (bottom row). The boxes on the two ends of the matrix represented the choices of parity (14/14) and maximum ingroup favoritism (2/26). Participants reported their identification code at the top of the page.

At the end of the task, matrices were collected and placed on a table, where the co-experimenter was allegedly preparing new booklets by adding a matrix to each of them. Booklets were then distributed. Each participant was presented with a matrix allegedly completed by either an ingroup or an outgroup member, who had favored his/her group by circling the 2/26 box. On a separate page, participants were provided with five lines of space where they could explain the target's allocation choice. Finally, they filled out the manipulation checks. A collective debriefing session took place at the end of all experimental sessions.

Dependent variables. The main dependent variables were the positive and negative abstraction scores obtained by coding participants' descriptions. Following Semin and Fiedler's (1988) linguistic category model, two independent coders blind to experimental conditions coded each sentence distinguishing between descriptive action verbs (DAVs; e.g., "He/she *circled* the 2/26 choice"), interpretative action verbs (IAVs; e.g., "He/she *favored*

the member of his/her group"), state verbs (SVs; e.g., "He/she *preferred* the member of his/her group"), and adjectives (ADJs; e.g., "He/she was *unfair*"). The semantic valence of the predicates (positive vs. negative) was also coded. The inter-coder agreement was high as indicated by Cohen's $\kappa = .90$ for predicate categorization and $\kappa = .92$ for predicate valence.

Although the allocation task was just a means to obtain linguistic production, participants' choices were scored 1 (*parity*) to 13 (*maximum ingroup favoritism*). To check for the effectiveness of the experimental manipulation, measures of cognitive and affective reactions were included (cf. Guimond & Dambrun, 2002). Participants rated whether the reward given to their group was lower/higher than expected on the basis of their group performance (expectation violation) and whether it was too low/too high in comparison with the reward given to the outgroup. They also reported how much they felt dissatisfied/satisfied (satisfaction) as well as gratified/frustrated and happy/unhappy because of the reward allocation (negative emotions; $\alpha = .81$). In order to check for possible overlap between the RD/RG manipulation and group status, participants were also asked whether the performance of their group in the problem solving task had been worse/better than that of the outgroup. All measures had a 7-point scale.

Results

Manipulation checks. A series of 3 (group condition) $\times$ 2 (target group membership) analyses of variance (ANOVAs) on the manipulation checks supported the effectiveness of RD/RG manipulation. First, the analyses showed a main effect of group condition on expectation violation, $F(2, 133) = 11.16$, $p < .001$, $\eta^2 = .144$. In RD condition, scores were lower than in the other conditions ($M_{\text{control}} = 5.23$, $SD = 1.65$; $M_{\text{RG}} = 4.99$, $SD = 1.69$; $M_{\text{RD}} = 3.72$, $SD = 1.50$), $ps < .002$ at the post hoc Scheffé test. No other main or interaction effect was significant, $Fs < 0.123$, $ps > .884$. Members of RG groups recognized that the reward received by the ingroup was too high compared to that of the outgroup ($M = 5.61$, $SD = 1.54$), whereas members of RD groups rated their reward as too low compared to that of the outgroup ($M = 2.86$, $SD = 1.73$), $F(2, 133) = 43.01$, $p < .001$, $\eta^2 = .390$. In control condition, scores were in-between ($M = 3.96$, $SD = 0.85$). Each condition differed from the others, $ps < .001$. No other effect was significant, $Fs < 0.295$, $ps > .745$.

Group condition affected participants' satisfaction, $F(2, 133) = 20.35$, $p < .001$, $\eta^2 = .234$, and negative emotions, $F(2, 133) = 18.42$, $p < .001$, $\eta^2 = .217$. In comparison with members of RG and control groups, members of RD groups were less satisfied, $ps < .001$ ($M_{\text{control}} = 5.68$, $SD = 1.37$; $M_{\text{RG}} = 5.84$, $SD = 1.25$; $M_{\text{RD}} = 4.17$, $SD = 1.51$), and they reported stronger negative emotions, $ps < .001$ ($M_{\text{control}} = 2.12$, $SD = 1.07$; $M_{\text{RG}} = 2.41$, $SD = 1.23$; $M_{\text{RD}} = 3.63$, $SD = 1.41$). No other effect was found, $Fs < 1.13$, $ps > .325$. There was no main or interaction effect on perceived group status, $Fs < 1.60$, $ps > .205$ ($M_{\text{control}} = 4.04$, $SD = 2.05$; $M_{\text{RG}} = 4.30$, $SD = 1.78$; $M_{\text{RD}} = 3.84$, $SD = 1.93$).

Linguistic abstraction. For each participant, positive and negative abstraction indexes were computed. Considering positive and negative terms separately, weights of 1, 2, 3, and 4 were assigned to DAVs, IAVs, SVs, and ADJs, respectively. The summed weights were then divided by the total number of terms used. Scores on each index ranged from 1 to 4: The higher the

score, the greater the linguistic abstraction. A 3 (group condition) $\times$ 2 (target group membership) $\times$ 2 (valence of language: positive, negative) mixed model ANOVA showed a significant interaction between target group membership and valence of language, $F(1, 133) = 15.57$, $p < .001$, $\eta^2 = .105$, which was qualified by a significant group condition $\times$ target group membership $\times$ valence of language interaction, $F(1, 133) = 6.07$, $p = .003$, $\eta^2 = .084$ (see Figure 1).

Pairwise comparisons based on the least significant difference (LSD) test revealed that in RD condition, positive terms used to describe ingroup members were more abstract than in RG and control conditions, $ps < .025$ ($M_{control} = 2.04$, $SD = 0.61$; $M_{RG} = 2.03$, $SD = 0.63$; $M_{RD} = 2.47$, $SD = 0.86$). There was no difference among group conditions for negative abstraction scores, $ps > .325$ ($M_{control} = 1.72$, $SD = 0.93$; $M_{RG} = 1.84$, $SD = 0.93$; $M_{RD} = 1.59$, $SD = 0.57$). As for descriptions of outgroup members, participants in the RD and RG conditions used more abstract negative terms than those in control condition, $ps < .009$ ($M_{control} = 1.56$, $SD = 0.84$; $M_{RG} = 2.07$, $SD = 0.95$; $M_{RD} = 2.36$, $SD = 0.90$). RD and RG did not differ from one another, $p = .256$. Descriptions did not differ for positive abstraction scores, $ps > .611$ ($M_{control} = 1.76$, $SD = 0.54$; $M_{RG} = 1.67$, $SD = 0.64$; $M_{RD} = 1.76$, $SD = 0.49$). Thus, RD and RG affected linguistic abstraction in the expected direction (Hypotheses 1a and 1b).

Further pairwise comparisons were run to assess whether linguistic discrimination did occur—and whether it took the form of ingroup favoritism or outgroup derogation—within each experimental condition. They revealed linguistic ingroup favoritism in the RG and RD conditions, where positive terms used to describe the ingroup were more abstract than those used to describe the outgroup, respectively, $p = .051$ and $p < .001$. Additionally, in the RD conditions, positive terms referring to the ingroup were significantly more abstract than negative terms, $p < .001$. In line with Hypothesis 2, in the RD condition, participants also expressed linguistic outgroup derogation by using more abstract negative terms to describe outgroup members than to describe ingroup members, $p = .003$. Moreover, in this condition, descriptions of outgroup members were characterized by negative terms at a higher level of abstraction than positive terms, $p = .007$.

The above analyses considered positive and negative abstraction scores separately in order to provide a detailed picture of linguistic patterns under RD/RG conditions. An alternative is to calculate a unique linguistic discrimination index for each participant by subtracting the average abstraction of negative terms from the average abstraction of positive terms. The resulting index ranged from -3 (maximum linguistic discrimination against the group described) to $+3$ (maximum linguistic discrimination in favor of the group described). Variations in this index provide a more immediate profile of the overall favorability/negativity of intergroup attitudes (cf. Moscatelli, Albarello, & Rubini, 2008). A 3 (group condition) $\times$ 2 (target group membership) ANOVA on the linguistic discrimination index revealed a main effect of target group membership, $F(1, 117) = 15.38$, $p < .001$, $\eta^2 = .116$. The discrimination index was higher for ingroup members ($M = 0.51$, $SD = 1.65$) than for outgroup members ($M = -0.22$, $SD = 1.05$), indicating the overall occurrence of linguistic discrimination in favor of the ingroup. The two-way interaction was also significant, $F(1, 117) = 4.91$, $p = .001$, $\eta^2 = .007$. Pairwise comparisons showed that ingroup and outgroup descriptions did not differ in the control condition, $p = .852$ ($M_{ingroup} = 0.37$, $SD = 1.24$;
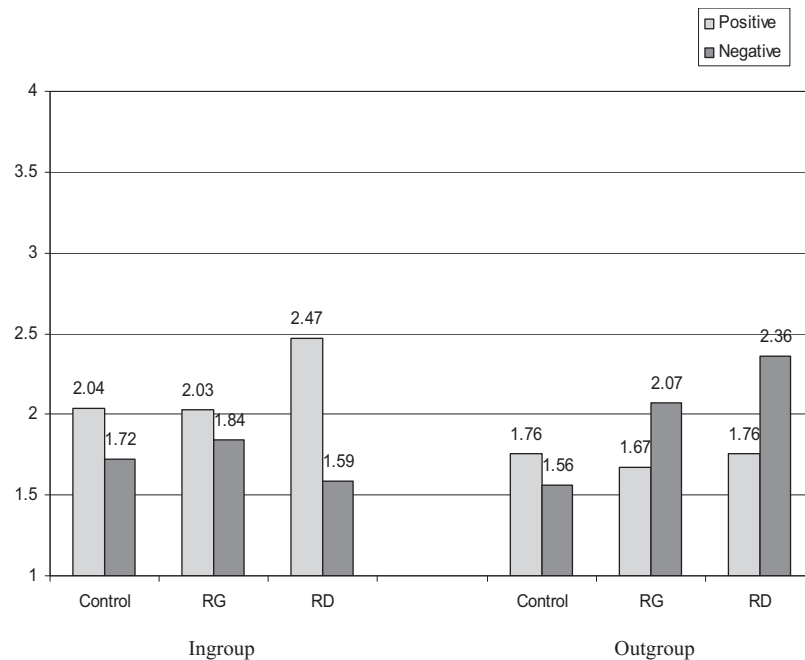

Figure 1. Positive and negative abstraction scores as a function of group condition and target group membership (Study 1). RG = relative gratification; RD = relative deprivation.

$M_{outgroup} = 0.31$, $SD = 0.87$). However, the discrimination index was higher for ingroup than for outgroup descriptions in the RG condition, $p = .047$ ($M_{ingroup} = 0.23$, $SD = 1.12$; $M_{outgroup} = -0.44$, $SD = 1.03$) and the RD condition, $p < .001$ ($M_{ingroup} = 0.92$, $SD = 1.07$; $M_{outgroup} = -0.61$, $SD = 1.06$). Finally, comparisons between group conditions revealed that with respect to ingroup descriptions, the linguistic discrimination index was higher in the RD condition than in the RG condition, $p = .036$. No other comparison was significant, $ps >$ .109. Both the RG and RD conditions differed from the control condition with respect to outgroup descriptions, $ps < .026$. Overall, these additional analyses supported the conclusion that both RG and RD elicited a biased use of language, but also highlighted the particularly powerful role of RD in enhancing linguistic discrimination.

Proportions of positive and negative terms. Whereas the analyses above considered the weighted abstraction scores, a different way of analyzing the data is to examine how RD/RG influence overall use of positive and negative terms. Table 1 shows the mean numbers of positive and negative terms used in ingroup and outgroup descriptions by control, RG, and RD groups.

The proportions of positive and negative terms were computed and were then subjected to an arcsine transformation to normalize the data and to remove the intercell dependencies (cf. Menegatti & Rubini, 2012, in press). The arcsine-transformed proportions were submitted to a 3 (group condition) $\times$ 2 (target group membership) $\times$ 2 (valence) ANOVA, with the last factor as within participants. The analysis showed a significant three-way interaction, $F(2, 133) = 3.29$, $p = .040$, $\eta^2 = .047$. LSD pairwise comparisons revealed that in both the RG and RD conditions, participants used more positive terms in descriptions of ingroup than outgroup targets, $ps < .004$. Conversely, in both the RG and RD conditions, participants used less negative terms for ingroup than for outgroup targets, $ps < .003$. There were also significant differences between proportions of positive and negative terms used to describe the ingroup in the RG and RD conditions, $ps = .003$. Noteworthy, participants who described the outgroup made lower use of positive terms, and made higher use of negative terms, in RG (respectively, $p = .043$ and $p = .032$) and RD (respectively, $p = .019$ and $p = .013$) than in the control condition. Thus, even considering a more explicit index such as the proportions of positive and negative terms, findings revealed a more

biased use of language in the RG and RD conditions in comparison with control condition.

Finally, it is interesting that the arcsine proportions of positive and negative terms correlated significantly with the abstraction scores. As regards descriptions of ingroup members, the arcsine proportion of positive terms correlated with the negative abstraction index, $r = -.302$, $p = .012$, whereas correlation with the positive abstraction index did not reach statistical significance, $r = .228$, $p = .060$. The arcsine proportion of negative terms correlated with the negative abstraction index, $r = .300$, $p = .012$, and with the positive one, $r = -.243$, $p = .044$. If we consider the descriptions of outgroup members, the arcsine proportion of positive terms correlated with the negative abstraction index, $r = -.549$, $p < .001$, but it did not correlate with the positive one, $r = .213$, $p = .077$. The arcsine proportion of negative terms correlated with the negative abstraction index, $r = .553$, $p < .001$, but not with the positive one, $r = -.205$, $p = .089$.

Allocation matrix. The ANOVA on allocation scores was significant, $F(2, 136) = 8.80$, $p < .001$. In the RD condition, scores were higher than in the control condition, $p < .001$. RG did not differ from either the control or RD conditions, $ps > .107$ ($M_{control} = 2.81$, $SD = 3.27$; $M_{RG} = 4.51$, $SD = 4.04$; $M_{RD} = 6.22$, $SD = 4.34$). Correlation analyses conducted to examine possible relations between the linguistic abstraction indexes and the allocation scores did not produce significant results, $ps > .265$.

Discussion

Study 1 showed that members of relatively deprived and relatively gratified groups used language in a more discriminatory fashion than those of control groups. These findings are in line with those on the V-curve effect (Dambrun, Guimond, & Taylor, 2006; Guimond & Dambrun, 2002) as well as those on group power and group status (Moscatelli, Albarello, & Rubini, 2008; Rubini, Moscatelli, Albarello, & Palmonari, 2007). Moreover, this study reveals that members of RD and RG groups expressed ingroup favoritism, with ingroup members being described with positive terms to a higher level of abstraction than outgroup members. RD groups also showed outgroup derogation by describing outgroup members with negative terms to a higher level of abstraction.

Findings on linguistic abstraction were paralleled by results on the proportions of positive and negative terms used in descriptions of ingroup and outgroup members. We advanced no hypotheses in this respect, since we were interested in the abstraction of terms as a crucial index of individual's image of ingroup and outgroup. In this respect, a single negative adjective (the most abstract category in the linguistic category model; Semin & Fiedler, 1988) has a stronger impact than, for example, three negative descriptive action verbs (the most concrete category in the linguistic category model) in depicting a negative image of the target. Nevertheless, even when we considered the proportions of positive and negative terms rather than their abstraction, findings supported the prediction that RD and RG trigger more favorable attitudes toward the ingroup—and less favorable attitudes toward the outgroup—in comparison with the control condition. Since individuals can easily control the valence of the terms they use, we may conclude that our hypotheses were supported at the more implicit level of linguistic abstraction as well as at the more explicit level of the amount of

Table 1

Frequencies of Positive and Negative Terms in Ingroup and Outgroup Descriptions (Study 1)

Condition	Ingroup	Outgroup	Total
Control			
Positive	2.04 (1.11)	1.84 (0.94)	1.94 (1.02)
Negative	1.48 (0.67)	1.44 (0.82)	1.46 (0.82)
RG			
Positive	2.50 (1.47)	1.48 (0.73)	2.00 (1.27)
Negative	1.54 (0.88)	1.87 (1.10)	1.70 (1.00)
RD			
Positive	2.36 (0.95)	1.82 (0.73)	2.09 (0.88)
Negative	1.55 (0.60)	2.64 (1.33)	2.09 (1.16)

Note. Standard deviations are in parentheses. RG = relative gratification; RD = relative deprivation.

positive and negative terms. The correlations between the abstraction scores and the proportions of positive and negative terms also supported this claim.

Study 2

Study 2 extends the research on the consequences of relative deprivation and relative gratification by examining whether they influence an explicit and highly counter-normative form of intergroup discrimination against an outgroup, that is, discrimination in intergroup allocations of negative outcomes (Otten & Mummendey, 2000). Second, this study aims to clarify the processes underlying RD/RG effects by analyzing the mediating role of perceived common fate with ingroup members and perceived intergroup rivalry. We hypothesized that in comparison with control groups, both RD and RG groups would show higher levels of discrimination by pursuing the strategies of maximum ingroup profit and maximum differentiation in favor of the ingroup to a higher existent (*Hypothesis 1a*) as well as by pursuing parity and maximum joint profit strategies to a lower extent (*Hypothesis 1b*). Considering the findings of Study 1, members of RD groups should show higher intergroup discrimination (*Hypothesis 2a*) and should employ cooperative strategies to a lower extent (*Hypothesis 2b*) than members of RG groups. Finally, we argued that members of RD/RG groups would report higher perceived common fate (*Hypothesis 3a*) and higher intergroup rivalry (*Hypothesis 3b*) than members of groups in the control condition. Perceived common fate (*Hypothesis 4a*) and intergroup rivalry (*Hypothesis 4b*) should mediate the effects of RD/RG on intergroup discrimination.

Method

Participants and design. One hundred and twenty-three university students (76.4% females, 23.6% males) participated in the study to fulfill a course requirement. They were tested in groups of approximately 14 persons, randomly assigned to group conditions (control, relative gratification, relative deprivation).

Procedure. The manipulation of RG/RD and the cover story were identical to those of Study 1. Participants were provided with 12 allocation matrices in order to distribute time of unpleasant noise to ingroup and outgroup members. They listened to a sample of the noise and were shown a sample of matrix. Afterward, participants completed the allocation task and filled out a questionnaire with the measure of perceived common fate, intergroup rivalry, and the manipulation checks. Debriefing took place at the end of all experimental sessions.

Dependent variables. Three matrices were used to measure the relative strength of the different allocation strategies. Each matrix consisted of 13 boxes, with each box containing two numbers. Numbers in each box represented the seconds of noise to be allocated to an ingroup and an outgroup member. By choosing one box, participants allocated the corresponding amounts of seconds to specific individuals (identified by numbers), one belonging to the ingroup, and one to the outgroup. By reversing the position of ingroup and outgroup, relevant strategies are pitted against each other or are presented as being together. For instance, for the matrix contrasting parity versus ingroup favoritism, the boxes at the two extremes are represented by the choices of 14/14 and 26/2. This kind of matrix produces two pull scores: one that indicates

maximum ingroup favoritism (FAV) and the other that indicates maximum parity (P). When the ingroup member is on the bottom row and the outgroup member is on the top row, participants may choose between giving exactly the same amount to ingroup and outgroup members, or favoring the ingroup member by giving him/her less seconds of noise. When the position of ingroup and outgroup is reversed, the choices of parity and ingroup favoritism coincide at the extreme 14/14, since by circling 26/2 participants favor the outgroup over the ingroup. Comparing participants' responses on matrices where two strategies are opposed with their responses on matrices where strategies are together, it is possible to calculate pull scores indicating the extent to which one strategy dominates over the other (for further methodological details on pull score calculation, see Bourhis, Sachdev, & Gagnon, 1994). Accordingly, in this study each matrix was presented once with an ingroup member and once with an outgroup member in the top row. Since all six matrices were presented with columns and rows reversed, each participant filled in 12 matrices, in randomized order.

Six specific intergroup allocation strategies were analyzed. First, two strategies represented participants' orientation to maximum ingroup profit: (a) ingroup favoritism at the expense of maximum joint profit (FAV on MJP) and (b) ingroup favoritism at the expense of parity (FAV on P). A further discriminatory strategy was examined: (c) maximum difference in favor of the ingroup at the expense of maximum ingroup profit and maximum joint profit (MD on MIP + MJP). The following cooperative strategies were also analyzed: (d) maximum joint profit at the expense of ingroup favoritism (MJP on FAV), (e) maximum ingroup profit and maximum joint profit at the expense of maximum difference between ingroup and outgroup (MIP + MJP on MD), and (f) parity at the expense of ingroup favoritism (P on FAV). Mean pull scores for each strategy could range from -12 to $+12$.

Two items ("During the research I thought that my personal results were tied to those of my group"; "I believe that in this study we group members had a common goal to achieve") measured perceived common fate ($\alpha = .87$), and two items ("I have the impression there was a certain rivalry between my group and the other group"; "During the distribution of the seconds of noise I thought that the two groups were, under certain aspects, in competition"; cf. Rubini, Moscatelli, Albarello, & Palmonari, 2007) measured perceived rivalry ($\alpha = .78$). Scales ranged from 1 (*totally disagree*) to 7 (*totally agree*). Measures of expectation violation, satisfaction for the reward given to the ingroup, and perceived group status were identical to those of Study 1. Participants also reported how much they found unpleasant to listen to the noise (1 = *not at all*, 7 = *very much*).

Results

Manipulation checks. Group condition affected expectation violation, $F(2, 120) = 10.86$, $p < .001$, $\eta^2 = .153$, as well as participants' satisfaction, $F(2, 120) = 21.28$, $p < .001$, $\eta^2 = .262$. In the RD condition, participants correctly rated that the reward given to their group was lower than expected ($M = 3.34$, $SD = 1.33$). RD significantly differed from RG ($M = 4.68$, $SD = 1.35$) at post hoc Scheffé test, $p < .001$. The comparison between RD and the control condition ($M = 4.05$, $SD = 1.22$) was near significant, $p = .053$, whereas RG and control did not

differ, $p = .093$. Participants in the RG and control conditions were more satisfied than those in the RD condition, $ps < .017$ ($M_{control} = 4.78$, $SD = 1.11$; $M_{RG} = 5.78$, $SD = 1.21$; $M_{RD} = 3.98$, $SD = 1.42$). RG and control also differed from each other, $p = .002$. Group condition did not influence perceived group status ($M_{control} = 4.16$, $SD = 1.11$; $M_{RG} = 4.27$, $SD = 1.03$; $M_{RD} = 4.04$, $SD = 1.00$), $F(1, 120) = 0.48$, $p = .620$, or the unpleasantness of the noise ($M_{control} = 4.98$, $SD = 1.68$; $M_{RG} = 4.70$, $SD = 1.31$; $M_{RD} = 5.00$, $SD = 1.52$), $F(1, 120) = 0.47$, $p = .623$.

Allocation strategies. Paired t-tests comparing participants' decisions from the ingroup/outgroup version of a specific matrix with those of the complementary outgroup/ingroup version were employed to determine the statistical significance of each one of the six pull scores. As shown in Table 2, in the control condition, only P on FAV pull scores were significant, meaning that participants relied on parity in their allocations. Conversely, participants in the RD and RG conditions made discriminatory allocations, as shown by the significant pull scores of all discriminatory strategies. In the RD and RG conditions, P on FAV pull scores were also significant, whereas the other cooperative strategies were not.

One-way ANOVAs performed on the pull scores of each allocation strategy showed significant effects of group condition on the discriminatory strategies of FAV on MJP, $F(2, 120) = 17.89$, $p < .001$, $\eta^2 = .230$; MD on MIP + MJP, $F(2, 120) = 9.94$, $p < .001$, $\eta^2 = .142$; and FAV on P, $F(2, 120) = 16.09$, $p < .001$, $\eta^2 = .211$. Supporting Hypothesis 1a, post hoc Scheffé comparisons revealed that in the RD and RG conditions, means of all discriminatory strategies were significantly higher than in the control condition, $ps < .008$. RD and RG did not differ from one another, $ps > .114$. Thus, Hypothesis 2a was not supported.

Table 2
Mean Pull Scores, Standard Deviations, and Statistical Significance of Matrix Distribution Strategies (Study 2)

Strategy	Control	RG	RD	Total
FAV on MJP	0.89	4.40***	6.11***	3.80***
	(3.42)	(4.35)	(4.25)	(4.55)
MD on MIP + MJP	0.72	3.01***	3.82***	2.52***
	(2.66)	(3.71)	(3.36)	(3.50)
FAV on P	0.91	4.06***	5.95***	3.64***
	(3.35)	(4.02)	(4.72)	(4.54)
MJP on FAV	0.43	0.13	0.04	0.20
	(1.72)	(1.64)	(1.94)	(1.77)
MIP + MJP on MD	−0.03	−0.28	−0.01	−0.11
	(2.76)	(2.90)	(3.20)	(2.94)
P on FAV	8.33***	6.28***	5.02***	6.54***
	(5.04)	(4.32)	(4.40)	(4.76)

Note. Standard deviations are in parentheses. RG = relative gratification; RD = relative deprivation; FAV on MJP = ingroup favoritism at the expense of maximum joint profit; MD on MIP + MJP = maximum difference in favor of the ingroup at the expense of maximum ingroup profit and maximum joint profit; FAV on P = ingroup favoritism at the expense of parity; MJP on FAV = maximum joint profit at the expense of ingroup favoritism; MIP + MJP on MD = maximum ingroup profit and maximum joint profit at the expense of maximum difference between ingroup and outgroup; P on FAV = parity at the expense of ingroup favoritism.
*** $p < .001$ (two-tailed t tests comparing the decisions from the ingroup/outgroup version of a specific matrix with those of the complementary outgroup/ingroup version).

Considering cooperative strategies, there was just partial support for Hypothesis 1b in that the significant ANOVA on P on FAV pull scores, $F(2, 120) = 5.39$, $p = .006$, $\eta^2 = .082$, revealed a lower reliance on parity in the RD condition than in the control condition, $p = .006$. No other comparison was significant, $ps > .136$. Thus, Hypothesis 2b was not supported. Group condition did not affect the strategies of MJP on FAV and MIP + MJP on MD, $Fs < .538$, $ps > .585$.[2]

Perceived common fate and intergroup rivalry. The analysis of variance on the composite index of perceived common fate was significant, $F(2, 120) = 9.78$, $p < .001$, $\eta^2 = .140$. Supporting Hypothesis 3a, in the conditions of RD and RG means were higher than in control condition ($M_{control} = 3.82$, $SD = 1.69$; $M_{RG} = 4.63$, $SD = 1.45$; $M_{RD} = 5.22$, $SD = 1.12$), $ps < .041$. Conditions of RG and RD did not differ from each other, $p = .187$. The ANOVA on intergroup rivalry was also significant, $F(2, 120) = 13.35$, $p < .001$, $\eta^2 = .182$. In the RD condition, means were higher than in the other conditions, $ps < .009$ ($M_{control} = 3.91$, $SD = 1.46$; $M_{RG} = 4.44$, $SD = 1.13$; $M_{RD} = 5.30$, $SD = 1.04$). RG and control did not differ, $p = .144$. Hypothesis 3b was therefore partially supported.

Mediation analyses. Multiple mediation analyses were performed on each pull strategy to examine whether perceived common fate and intergroup rivalry mediated the effects of group condition. Bootstrapping analyses (5,000 re-samples) were conducted using the methods described by Hayes and Preacher (2013) for mediation models employing multicategorical independent variables. The independent variable was recoded in two dummy variables: D_1 expressed the comparison between the control and RG conditions (control condition coded 0, RG coded 1, RD coded 0), D_2 compared the control and RD conditions (control condition coded 0, RG coded 0, RD coded 1). These variables were entered simultaneously as independent variables in the regression model. The MEDIATE macro for SPSS was employed, because it produces omnibus tests (indicating whether there is an effect of the independent variables on the outcome variable without specifying which dummy variable is responsible for the effect) of total, direct, and indirect effects. To test our hypotheses, we were interested in specific indirect effects of D_1 and D_2. Perceived common fate and rivalry were entered simultaneously in the analysis as mediators.

First of all, both D_1 ($B = 0.90$, $SE = 0.28$) and D_2 ($B = 1.39$, $SE = 0.28$) significantly affected common fate, $ps < .002$. D_1 ($B = 0.54$, $SE = 0.27$) and D_2 ($B = 1.38$, $SE = 0.27$) also

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[2] To rule out the possibility that the absolute amount of money received by participants (1 euro vs. 6 euro) might have affected the degree of discrimination shown by groups in different conditions, we ran an additional control condition ($N = 47$) where participants received 6 euro (like those in RG condition) rather than 1-euro coupons. We obtained the following pull scores: FAV on MJP, $M = 0.71$, $SD = 2.28$; MD on MIP + MJP, $M = 0.93$, $SD = 2.33$; FAV on P, $M = 0.26$, $SD = 2.29$; MJP on FAV, $M = −0.22$, $SD = 1.95$; MIP + MJP on MD, $M = 0.88$, $SD = 3.84$; P on FAV, $M = 7.32$, $SD = 4.62$. Comparisons between the "6-euro" and the "1-euro" control conditions showed no significant difference in the strength of allocation strategies, $ts < 1.65$, $p > .103$. The 6-euro control condition significantly differed from both the RG and RD conditions on the three discriminatory strategies, $ts > 3.21$, $p < .002$. It also differed from the RD condition as for P on FAV, $t(86) = 2.38$, $p = .020$, and MIP + MJP on MD, $t(86) = −3.52$, $p < .001$. No other comparison was significant. These analyses made us confident that our findings were not influenced by participants' absolute payoff.

predicted rivalry, $ps < .049$. The omnibus test of total effects was significant for the three discriminatory strategies, $ps < .001$, and for P on FAV, $p = .006$. As shown in Table 3, the total effects of D_1 and D_2 were significant for the strategies of FAV on MJP, MD on MIP + MJP, FAV on P, and P on FAV. Because D_1 and D_2 did not affect MJP on FAV and MIP + MJP on MD, $ps > .585$, results for these strategies were not reported.

When the mediators were included in the model, the omnibus test of direct effect of D_1 and D_2 was significant for all discriminatory strategies, $ps < .023$, whereas it was not significant for P on FAV, $p = .298$. With respect to the proposed mediators, common fate significantly predicted FAV on P ($B = 0.64$, $SE = 0.32$), $p = .049$, whereas it did not predict FAV on MJP ($B = 0.45$, $SE = 0.32$), MD on MIP + MJP ($B = -0.15$, $SE = 0.27$), or P on FAV ($B = 0.16$, $SE = 0.39$), $ps > .161$. Intergroup rivalry significantly predicted FAV on MJP ($B = 1.36$, $SE = 0.33$), MD on MIP + MJP ($B = 1.19$, $SE = 0.29$), FAV on P ($B = 1.15$, $SE = 0.34$), and P on FAV ($B = -1.51$, $SE = 0.41$), $ps < .001$. As shown in Table 3, the direct effects of both D_1 and D_2 were significant for FAV on MJP, MD on MJP + MIP, and FAV on P strategies, whereas they were not significant for P on FAV. The omnibus indirect effect through common fate was significant for the strategy of FAV on P, given that the 95% confidence interval (CI) $[-0.01, 0.31]$ included zero, whereas it was not significant for the strategies of FAV on MJP, MD on MIP + MJP, and P on FAV: 95% CIs $[-0.02, 0.25]$, $[-0.12, 0.07]$, and $[-0.16, 0.23]$, respectively. As showed in Table 3, the specific indirect effects of D_1 and D_2 through common fate were significant for FAV on P only. The omnibus indirect effects through perceived rivalry was significant for the strategies of FAV on MJP, MD on MIP + MJP, FAV on P, and P on FAV: 95% CIs $[0.07, 0.48]$, $[0.07, 0.40]$, $[0.05, 0.44]$, and $[-0.56, -0.07]$, respectively. As shown in Table 3, there was no indirect effect of D_1 through perceived rivalry. However, the specific indirect effect of D_2 through rivalry was significant for all strategies. Overall, these analyses showed that common fate partially mediated the effect of RD and RG on FAV on P strategy. Rivalry partially mediated the effects of D_2 on the three discriminatory strategies, and fully mediated the effect of D_2 on P on FAV.

Because perceived common fate and rivalry were measured after the allocation task, we tested an alternative mediation model whereby the pull scores of the six allocation strategies were entered as mediators of common fate and rivalry. The analyses showed non-significant omnibus tests of direct effects on either common fate or rivalry, $p > .060$. Moreover, there were neither significant omnibus indirect effects nor specific indirect effects of D_1 and D_2 on the dependent variables.

Discussion

Study 2 showed that relative deprivation and relative gratification cause intergroup discrimination even when an explicit and normatively inappropriate form of discrimination is considered. It also revealed that the effects of RD can in part be explained in terms of perceived common fate and rivalry. Indeed, RD experience led group members to feel that they shared a common fate, as well as to perceive high rivalry with the outgroup. Common fate accounted for intergroup discrimination albeit on the strategy of ingroup favoritism at the expense of parity. Intergroup rivalry turned out to be a more powerful mediator of RD, as it accounted for discrimination on all the discriminatory strategies, as well as for the lower adoption of parity-oriented choices. Conversely, little evidence was found with respect to mediators of RG. Perceived common fate partly explained discrimination by RG groups on the FAV on P strategy. However, RG groups did not differ from control groups on perceived intergroup rivalry, and rivalry did not work as a mediator of discrimination. Therefore, this study highlighted that RG enhances intergroup discrimination on negative outcome allocations, but it did not clarify why RG members actually discriminate. To address this issue, in Study 3 we tested the role of group-based emotions.

In Study 1 and Study 2, the manipulation of RD/RG involved scarcity, as the violation of expectations about group rewards was

Table 3

Total, Direct, and Indirect Effects of Relative Gratification and Relative Deprivation Through Mediators on Pull Strategies (Study 2)

		Total effect			Direct effect			Indirect effect			
								Through common fate		Through negative interdependence	
								95% CI		95% CI	
Strategy	Condition	B	SE	p	B	SE	p	LL	UL	LL	UL
FAV on MJP	D_1	3.51	0.89	.000	2.38	0.80	.004	−0.11	1.23	−0.05	1.66
	D_2	5.22	0.89	.000	2.72	0.87	.002	−0.18	0.25	0.86	3.09
MD on MIP + MJP	D_1	2.30	0.72	.002	1.79	0.69	.010	−0.58	0.38	−0.17	1.48
	D_2	3.10	0.72	.000	1.67	0.76	.027	−0.89	0.51	0.75	2.66
FAV on P	D_1	3.15	0.90	.001	1.96	0.82	.018	0.01	1.52	−0.03	1.48
	D_2	5.04	0.90	.000	2.56	0.88	.004	0.11	2.15	0.49	2.87
P on FAV	D_1	−2.05	1.02	.046	−1.38	0.99	.165	−0.85	1.16	−1.98	0.03
	D_2	−3.30	1.02	.002	−1.44	1.07	.180	−1.18	1.74	−3.71	−0.74

Note. 5,000 bootstrap samples. CI = confidence interval; *LL* = lower limit; *UL* = upper limit; D_1 = control condition (0), relative gratification (1), relative deprivation (0); D_2 = control condition (0), relative gratification (0), relative deprivation (1); FAV on MJP = ingroup favoritism at the expense of maximum joint profit; MD on MIP + MJP = maximum difference in favor of the ingroup at the expense of maximum ingroup profit and maximum joint profit; FAV on P = ingroup favoritism at the expense of parity; P on FAV = parity at the expense of ingroup favoritism.

justified by the experimenter in terms of shortage of research budget. This may have "softened" the perceived unfairness of intergroup inequality and therefore may have influenced outcome allocations by the relatively gratified groups. Study 3 examined the impact of RG experience without the possible intervening effect of scarcity.

Study 3

Study 3 examines whether emotional reactions to intergroup inequality accounts for discrimination by relatively gratified groups. Because in the present study RG was operationalized as violation of expectations in a social comparison framework, and this was due to the arbitrary decision of a third party (i.e., the experimenter), RG members are likely to perceive intergroup inequality as unstable and illegitimate. In these conditions, two group-based emotions appear to be pertinent (cf. Leach et al., 2002). On the one hand, RG members will plausibly worry about losing their advantage and will want to maintain it; on the other hand, they are likely to feel guilty because of the unjust treatment of the RD outgroup. Since RG members are not responsible for the two groups' condition, guilt was intended as existential guilt (Hoffman, 1976) and discomfort at the perspective of possible interactions with the outgroup. Although Harth et al. (2008) found no relation between existential guilt and ingroup favoritism (see also Leach, Iyer, & Pedersen, 2006), in their study RG was based on rather stable intergroup inequality. However, existential guilt—as well as fear of losing the ingroup advantage—should play a role under illegitimate and unstable conditions.[3]

Second, we reasoned that the two proposed emotions will lead RG members to wonder how other ingroup members would behave to ensure the ingroup advantaged position, as well as to think about RD members' reactions to their disadvantage. As shown by several studies (Jetten, Spears, & Manstead, 1996; Rabbie, Schot, & Visser, 1989; Yamagishi, Jin, & Kiyonari, 1999), members of minimal groups expect that ingroup members will favor the ingroup in resource allocations while outgroup members will favor the outgroup. Expectations of ingroup reciprocity and of discrimination by the outgroup are related to participants' actual allocations (Gaertner & Insko, 2000; Moscatelli, Rubini, & Albarello, 2008; Stroebe, Lodewijkx, & Spears, 2005). Accordingly, in this study we argued that the emotions raised by the RG experience will generate specific expectations about ingroup and outgroup behavior, which, in turn, will influence participants' actual allocation behavior: Fear of losing the ingroup advantage will be likely to induce RG groups to wonder about how fellow group members will act to maintain ingroup advantage and, therefore, to expect ingroup reciprocity. Thus, RG members would discriminate as a means of "reciprocating" toward ingroup members in order to ensure the ingroup position. Conversely, feelings of existential guilt might lead them to focus on possible reactions by the RD outgroup and to think that outgroup members would discriminate out of their anger and sense of injustice. In turn, RG members might discriminate as a way of "compensating" for expected discrimination (cf. Ng, 1981).

To sum up, in this study we expected that in comparison with control groups, RG groups would report higher feelings of fear of losing ingroup advantage (*Hypothesis 1a*) and higher existential guilt (*Hypothesis 1b*). As in Study 2, RG groups should show higher intergroup discrimination (*Hypothesis 2a*) and lower use of cooperative strategies (*Hypothesis 2b*). They should also report higher expectations of ingroup reciprocity (*Hypothesis 3a*) and higher expectations of discrimination by the outgroup (*Hypothesis 3b*) in comparison with control groups. Finally, we advanced two hypotheses of sequential mediation. First, we expected that fear of losing ingroup advantage and expectations of ingroup reciprocity would sequentially mediate intergroup discrimination (*Hypothesis 4*). Second, we hypothesized a pattern of sequential mediation through guilt and expectations of discrimination by the outgroup (*Hypothesis 5*).

Method

Participants and design. Seventy-six university students (91.8% females, 8.2% males, $M_{age} = 19.93$ years) participated in the study to fulfill a course requirement. They were tested in groups of approximately 12 persons, randomly assigned to group conditions (control, relative gratification).

Procedure. The manipulation of RG and the cover story were the same as in Study 2. In order to manipulate RG, participants were led to believe that two groups (Alpha vs. Omega) were present in the same experimental session. Whereas one group received 6-euro coupons as a reward for its problem-solving performance, the other group received 1-euro coupons notwithstanding the very similar performance of the two groups. Actually, because RD was not considered in this study, in experimental sessions where RG was manipulated, all participants belonged to the relatively gratified group and received 6-euro coupons. Control groups received 6-euro coupons. To avoid group manipulation involving scarcity, no justification was provided for the reward distribution. After RG manipulation, participants filled out a questionnaire with measures of emotional reactions. Afterward, they were asked to distribute time of unpleasant noise to ingroup and outgroup members by means of 12 allocation matrices. Finally, participants completed a questionnaire measuring expectations about ingroup and outgroup behavior, perception of intergroup inequality, and manipulation checks. Debriefing took place at the end of all experimental sessions.

Dependent variables. Two items measured fear of losing ingroup advantage ("I fear that the experimenters will decide to take some money away from my group to give it to the other group"; "I worry that the other group may demand part the reward given to my group"; $\alpha = .83$), and three items measured existential guilt ("I feel guilty toward the other group"; "I feel uncomfortable with the other group"; "I feel uneasy about the other group"; $\alpha = .60$). Response scales ranged from 1 (*not at all*) to 7 (*very much*). As in Study 2, 12 matrices were used to measure the relative

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[3] Leach et al. (2002) argued that the emotional reactions to relative gratification depend on four appraisal dimensions (perceived legitimacy and stability of advantage, perceived control of the means by which the RG groups have gained their position, and the degree to which the RG members focus on themselves or the disadvantaged). Because in our view individuals confronted with unexpected intergroup inequality (such as in our experiment) are likely to pay more immediate attention to their own situation, we were interested in self-focused emotions only. Because we had no predictions as to the extent of control over the distribution of rewards perceived by RG groups, we considered emotional reactions that can be experienced under either high or low control. Participants' perception of control was, however, measured.

strength of three discriminatory strategies (FAV on MJP, MD on MIP + MJP, and FAV on P) and three cooperative strategies (MJP on FAV, MIP + MJP on MD, and P on FAV). The order of matrices was randomized for each participant. Mean pull scores could range from −12 to +12.

Two items measured expectations of ingroup reciprocity ("I expect I would receive fewer seconds of noise from members of my group than from members of the other group"; "I think members of my group would give less second of noise to the other group members"; $\alpha = .64$). Two items tapped expectations of discrimination by the outgroup ("I expect I would receive more seconds of noise from members of the other group than from members of my own group"; "I think members of the other group would give less second of noise to their group members"; $\alpha = .68$). Response scales ranged from 1 (*completely disagree*) to 7 (*completely agree*).

Participants were asked how much they perceived the rewards given to the two groups as legitimate, appropriate, and fair (perceived legitimacy; $\alpha = .94$), and whether they thought that the experimenter might change opinion about the distribution of rewards (perceived instability). They also rated the extent to which they had control over the reward given to the two groups. Because the recognition of intergroup inequality is a pre-condition of the proposed emotions, participants were asked whether their group was advantaged over the outgroup and whether their group was superior to the outgroup ("We are better off than the other group"; "My group showed to be superior to the other group"; $\alpha = .83$). All measures had a 7-point scale (1 = *not at all*, 7 = *very much*). Measures of perceived status and unpleasantness of noise were the same as in Study 2.

Results

Perception of intergroup inequality and manipulation checks. RG members rated the rewards given to the groups as less legitimate than members of control groups ($M_{RG} = 3.89$, $SD = 1.68$; $M_{control} = 6.31$, $SD = 1.06$), $F(1, 72) = 53.64$, $p < .001$, $\eta^2 = .427$. They also perceived higher instability ($M_{RG} = 4.92$, $SD = 1.48$; $M_{control} = 3.31$, $SD = 1.86$), $F(1, 72) = 16.99$, $p < .001$, $\eta^2 = .191$. RG members correctly recognized the ingroup advantage ($M_{RG} = 4.76$, $SD = 1.97$; $M_{control} = 2.47$, $SD = 1.63$), $F(1, 72) = 29.62$, $p < .001$, $\eta^2 = .291$, and did not rate their group as superior to the outgroup ($M_{RG} = 2.07$, $SD = 1.48$; $M_{control} = 2.43$, $SD = 1.88$), $F(1, 72) = 0.87$, $p = .355$. Group conditions did not differ with respect to perceived control over the two groups' attainments ($M_{RG} = 4.18$, $SD = 1.96$; $M_{control} = 3.81$, $SD = 1.89$), $F(1, 72) = 0.71$, $p = .401$; perceived group status ($M_{RG} = 4.71$, $SD = 1.27$; $M_{control} = 5.00$, $SD = 1.12$), $F(1, 72) = 1.07$, $p = .303$; or the unpleasantness of noise ($M_{RG} = 5.78$, $SD = 1.51$; $M_{control} = 5.28$, $SD = 1.89$), $F(1, 72) = 0.57$, $p = .451$.

Emotional reactions. RG members reported higher fear of losing ingroup advantage than members of control groups ($M_{RG} = 1.63$, $SD = 0.52$; $M_{control} = 1.11$, $SD = 0.82$), $F(1, 72) = 10.48$, $p = .002$, $\eta^2 = .127$. They also reported higher existential guilt ($M_{RG} = 1.68$, $SD = 0.84$; $M_{control} = 1.26$, $SD = 0.54$), $F(1, 72) = 6.38$, $p = .017$, $\eta^2 = .081$. Thus, Hypotheses 1a and 1b were supported.

Allocation strategies. Table 4 shows means and standard deviations of pull scores, and reports their statistical significance calculated as in Study 2. As revealed by significant pull scores, in the RG condition, participants made use of the discriminatory strategies of FAV on MJP, MD on MIP + MJP, and FAV on P, but also of the more cooperative strategies of MIP + MJP on MD and P on FAV. Conversely, in the control condition, only the P on FAV pull scores were significant.

One-way ANOVAs performed on the pull scores of each allocation strategy showed significant effects of group condition on the discriminatory strategies of FAV on MJP, $F(1, 72) = 16.96$, $p < .001$, $\eta^2 = .191$; MD on MIP + MJP, $F(1, 72) = 5.07$, $p = .027$, $\eta^2 = .066$; and FAV on P, $F(1, 72) = 7.53$, $p = .008$, $\eta^2 = .095$. Supporting Hypothesis 2a, in the RG condition, the pull scores of all these strategies were higher than in the control condition. There was no effect of group condition on the cooperative strategies of MJP on FAV, $F(1, 72) = 0.11$, $p = .746$; MIP + MJP on MD, $F(1, 72) = 1.50$, $p = .225$; or P on FAV, $F(1, 72) = 1.50$, $p = .224$. Hypothesis 2b was therefore not supported.

Expectations about ingroup and outgroup allocations. In the RG condition, expectations of ingroup reciprocity were higher than in the control condition ($M_{RG} = 4.99$, $SD = 1.17$; $M_{control} = 3.99$, $SD = 1.67$), $F(1, 72) = 9.07$, $p = .004$, $\eta^2 = .112$ (Hypothesis 3a). Similarly, expectations of discrimination by the outgroup were higher in the RG condition than in the control condition ($M_{RG} = 5.26$, $SD = 1.31$; $M_{control} = 4.28$, $SD = 2.06$), $F(1, 72) = 6.08$, $p = .016$, $\eta^2 = .078$ (Hypothesis 3b).

Mediation analyses. First, we tested whether the effects of group condition were sequentially mediated by variations in fear of losing the advantage and expectations of ingroup reciprocity. Second, we tested for sequential mediation of existential guilt and

Table 4

Mean Pull Scores, Standard Deviations, and Statistical Significance of Matrix Distribution Strategies (Study 3)

Strategy	Control	RG	Total
FAV on MJP	−0.04	4.66***	2.37***
	(4.36)	(5.37)	(5.42)
MD on MIP + MJP	−0.14	2.04**	0.99
	(4.28)	(4.04)	(4.27)
FAV on P	0.46	3.43***	1.99**
	(3.16)	(5.74)	(4.87)
MJP on FAV	0.11	0.34	0.23
	(2.96)	(3.14)	(3.04)
MIP + MJP on MD	0.99	2.33**	1.68**
	(4.35)	(5.04)	(4.74)
P on FAV	1.69***	3.09***	2.41***
	(5.28)	(4.61)	(4.97)

Note. Standard deviations are in parentheses. RG = relative gratification; FAV on MJP = ingroup favoritism at the expense of maximum joint profit; MD on MIP + MJP = maximum difference in favor of the ingroup at the expense of maximum ingroup profit and maximum joint profit; FAV on P = ingroup favoritism at the expense of parity; MJP on FAV = maximum joint profit at the expense of ingroup favoritism; MIP + MJP on MD = maximum ingroup profit and maximum joint profit at the expense of maximum difference between ingroup and outgroup; P on FAV = parity at the expense of ingroup favoritism.
** $p < .01$. *** $p < .001$ (two-tailed *t* tests comparing the decisions from the ingroup/outgroup version of a specific matrix with those of the complementary outgroup/ingroup version).

expectations of discrimination by the outgroup. To this end, we ran bootstrapping analyses (5,000 re-samples) for testing direct and indirect effects in multiple step mediation models as prescribed by Hayes, Preacher, and Myers (2011; see also Taylor, MacKinnon, & Tein, 2008). The MEDTHREE macro for SPSS was employed. For the analyses, the RG condition was coded 1, and the control condition was coded 0. Because preliminary intercorrelation analyses revealed that the proposed mediators significantly correlated with two of the discriminatory strategies, namely, FAV on MJP and FAV on P, these strategies were entered as dependent variables in the mediation analyses.

Figure 2 shows the sequential model with fear of losing the ingroup advantage and expectations of ingroup reciprocity as mediators and FAV on MJP pull scores. Group condition significantly predicted the first mediator (Path 1), $B_1 = 0.52$, $SE_1 = 0.16$, $p = .001$. The first mediator predicted the second mediator, while controlling for group condition (Path 2), $B_2 = 0.42$, $SE_2 = 0.25$, $p = .010$. In turn, the second mediator significantly predicted FAV on MJP pull scores, while controlling for group condition and the first mediator (Path 3), $B_3 = 1.20$, $SE_3 = 0.34$, $p = .001$.

The point estimate for the sequential indirect effect equated to 0.26 ($SE = 0.18$), with the 95% bias corrected confidence interval (BC CI) bounded by 0.03 and 0.74. Because zero falls outside this interval, the sequential indirect effect of group condition on FAV on MJP pull scores via fear of losing ingroup advantage and expectations of ingroup reciprocity was significant. Including the two mediators in the regression analysis weakened the strength of the relation between group condition and FAV on MJP pull scores (before inclusion of mediators Path 4: $B_4 = 4.69$, $SE_4 = 1.14$, $p = .001$; after inclusion of mediators Path 4: $B_4 = 2.78$, $SE_4 = 1.13$, $p = .020$).

The same sequential model was estimated entering FAV on P pull scores as the dependent variable (see Figure 3). The second mediator significantly predicted FAV on P pull scores while controlling for group condition and the first mediator (Path 3), $B_3 = 1.05$, $SE_3 = 0.34$, $p = .003$. The proposed sequential indirect effect was significant, with the point estimate for the sequential indirect effect equating to 0.23 ($SE = 0.15$), 95% BC CI [0.02, 0.60]. Including the mediators in the regression analysis substantially weakened the strength of the relation between group condition and FAV on P pull scores (before inclusion of mediators Path 4: $B_4 = 2.97$, $SE_4 = 1.08$, $p = .007$; after inclusion of mediators Path 4: $B_4 = 1.37$, $SE_4 = 1.11$, $p = .220$).

Figure 4 shows the sequential mediation model with existential guilt and expectations of discrimination by the outgroup as mediators and FAV on MJP strategy as the dependent variable. Group condition significantly affected existential guilt (Path 1), $B_1 = 0.41$, $SE_1 = 0.16$, $p = .014$. Guilt predicted expectations of discrimination by the outgroup, while controlling for group condition (Path 2), $B_2 = 0.47$, $SE_2 = 0.23$, $p = .046$. Expectations of discrimination by the outgroup affected FAV on MJP pull scores while controlling for group condition and the first mediator (Path 3), $B_3 = 1.42$, $SE_3 = 0.35$, $p = .002$. The point estimate for the sequential indirect effect equated to 0.28 ($SE = 0.16$), 95% BC CI [0.02, 0.66], revealing that the proposed sequential indirect effect was significant. Including the two mediators in the regression analysis weakened the strength between group condition and FAV on MJP pull scores (before inclusion of mediators Path 4: $B_4 = 4.70$, $SE_4 = 1.14$, $p = .001$; after inclusion of mediators Path 4: $B_4 = 2.62$, $SE_4 = 1.06$, $p = .016$).

The same sequential model of mediation was estimated entering FAV on P pull scores as the dependent variable (see Figure 5). Expectations of discrimination by the outgroup significantly predicted FAV on P pull scores while controlling for group condition and the first mediator, $B_3 = 0.90$, $SE_3 = 0.35$, $p = .013$. The proposed sequential indirect effect was significant, with the point estimate equating to 0.18 ($SE = 0.11$), 95% BC CI [0.01, 0.45]. Including the mediators in the regression analysis substantially weakened the strength of the relation between group condition and FAV on P scores (before inclusion of mediators Path 4: $B_4 = 2.97$, $SE_4 = 1.08$, $p = .008$; after inclusion of mediators Path 4: $B_4 = 1.27$, $SE_4 = 1.06$, $p = .230$).

Although alternative models seemed to us less plausible, we tested whether fear of losing the ingroup advantage and expectations of discrimination by the outgroup sequentially mediated the effects of group manipulation. The analyses showed no significant indirect effect on either FAV on MJP or FAV on P: 95% BC CIs [−0.01, 1.07], and [−0.02, 0.80], respectively. When existential guilt and expectations of ingroup reciprocity were entered as sequential mediators, no significant indirect effect was found on either FAV on MJP or FAV on P: 95% BC CIs [−0.04, 0.44], and [−0.03, 0.36], respectively. Further models whereby expectations predicted group-based emotions were also tested. When expectations of ingroup reciprocity and fear of losing ingroup advantage were entered as sequential mediators, the sequential indirect effect was no significant for either FAV on MJP or FAV on P: 95% BC
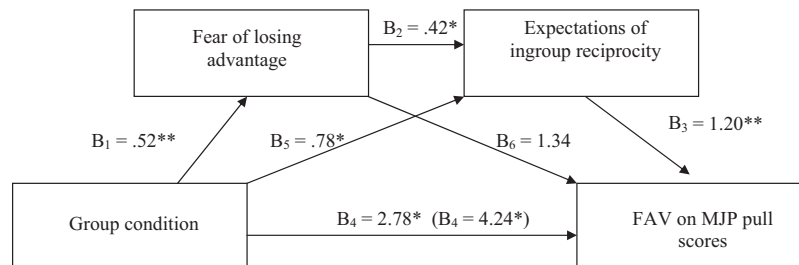

Figure 2. Multiple step mediation model of the effect of group condition on ingroup favoritism at the expense of maximum joint profit (FAV on MJP) pull scores, showing sequential mediation via fear of losing advantage and expectations of ingroup reciprocity (Study 3). * $p < .05$. ** $p < .01$. Coefficients are unstandardized regression weights.
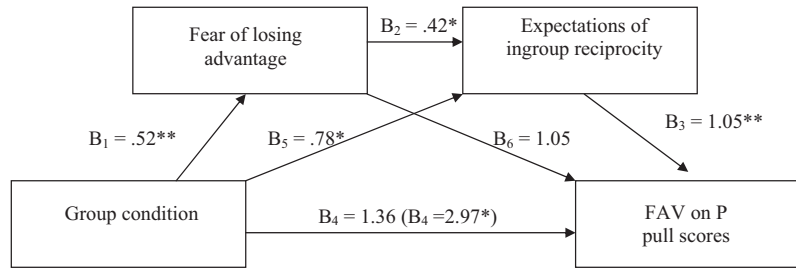
Figure 3. Multiple step mediation model of the effect of group condition on ingroup favoritism at the expense of parity (FAV on P) pull scores, showing sequential mediation via fear of losing advantage and expectations of ingroup reciprocity (Study 3). $^* p < .05.$ $^{**} p < .01.$ Coefficients are unstandardized regression weights.

CIs [−0.07, 0.35], and [−0.05, 0.31], respectively. When expectations of discrimination by the outgroup and guilt were entered as sequential mediators, there was no significant sequential indirect effect with respect to FAV on MJP or FAV on P: 95% BC CIs [−0.16, 0.10], and [−0.04, 0.50], respectively. Thus, these additional analyses supported the proposed order of the mediators.

Discussion

Study 3 addressed for the first time the mediating role of group-based emotions and cognitive expectations in accounting for RG effects on discrimination. First, the results showed that RG members deal with their fear of losing their privilege by thinking that ingroup members, too, would favor the ingroup, and by reciprocating toward the ingroup. Second, RG members feel guilty and expect that the RD outgroup will behave in a discriminatory fashion. In the end, RG members seem to feel justified in their decision to favor the ingroup by thinking that they will be damaged by the outgroup's allocations.

Sequential mediation effects were found on two discriminatory strategies, but not on the maximum differentiation (MD on MJP + MIP) strategy. Since this strategy is meant to measure the individual's motivation to differentiate ingroup and outgroup outcomes rather than to achieve absolute ingroup profit (e.g., Leonardelli & Brewer, 2001), RG members might have not considered it an appropriate means to ensure the ingroup's advantage and to balance expected discrimination by the outgroup. Finally, one may wonder why emotional reactions obtained low values, but this finding is not uncommon in research on intergroup emotion (e.g.,

Harth et al., 2008; Tam et al., 2007). Moreover, it seems hard to expect that members of artificial groups will react with strong feelings of fear and guilt as one could expect when considering real-world intergroup inequalities. In our view, what is notable is that despite the artificial intergroup setting, our manipulation of RG was able to significantly affect individuals' emotional reactions.

General Discussion

Do relatively deprived groups discriminate against their privileged counterparts? Do relatively gratified groups discriminate against the unlucky ones? What are the underlying mechanisms? By addressing these issues, this research extends the literature on the consequences of relative deprivation and relative gratification in several important ways. In particular, it sheds lights on the experience of relative gratification by pointing out the role of emotional reactions and related cognition in accounting for intergroup discrimination.

The Consequences of Relative Deprivation and Relative Gratification: Linguistic Discrimination and Negative Outcome Allocations

The findings of Study 1 demonstrated that relatively deprived and relatively gratified groups communicate about each other by systematically varying the abstraction of predicates. By doing so, members of relatively deprived groups express their positive attitudes toward ingroup members, but they also tailor imagines of the
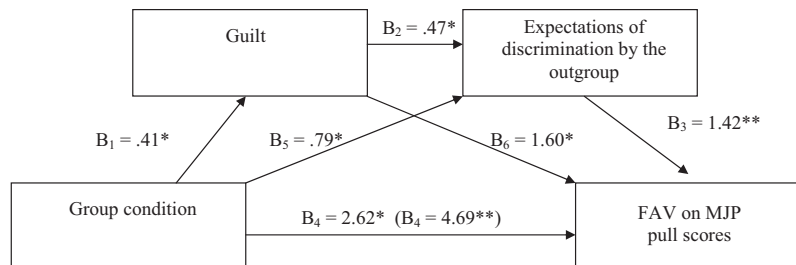

Figure 4. Multiple step mediation model of the effect of group condition on ingroup favoritism at the expense of maximum joint profit (FAV on MJP) pull scores, showing sequential mediation via guilt and expectations of discrimination by the outgroup (Study 3). $^* p < .05.$ $^{**} p < .01.$ Coefficients are unstandardized regression weights.
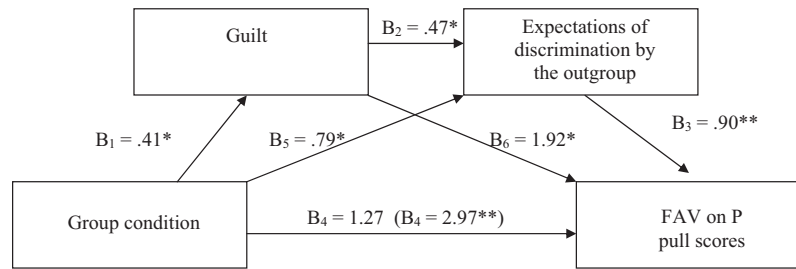
Figure 5. Multiple step mediation model of the effect of group condition on ingroup favoritism at the expense of parity (FAV on P) pull scores, showing sequential mediation via guilt and expectations of discrimination by the outgroup (Study 3). * $p < .05$. ** $p < .01$. Coefficients are unstandardized regression weights.

relatively gratified outgroup that reflect outgroup hate. Communication provided by relatively gratified groups seem to be driven mainly by an ingroup-enhancing motive. Thus, while these findings are overall consistent with the contention that ingroup love has a primary role in intergroup relations (Allport, 1954; Brewer, 1999), they also enhance the understanding of specific conditions that can strengthen the more destructive components of intergroup bias. Study 2 and Study 3 corroborate these findings by demonstrating that both RD and RG experiences legitimate aversive discrimination toward the outgroup. Thus, this research shows that the effects of RD and RG are detectable through an analysis of linguistic abstraction—which the individual is rarely aware of (Maass et al., 2000; Menegatti & Rubini, 2013; Rubini & Kruglanski, 1997; Rubini & Sigall, 2002)—as well as through the more deliberate form of discrimination of allocation decisions. Although these studies did not aim to examine how implicit and explicit measures relate to each other, the parallel findings observed on the two measures provide converging evidence on the power of RD and RG in enhancing intergroup discrimination.

The different nature of the two measures could however be responsible for some differences in these results. As discussed earlier, in Study 1, RD elicited stronger linguistic discrimination than did RG, whereas RD and RG groups showed similar levels of discrimination in outcome allocations. It is possible that RD groups felt higher hostility toward the lucky outgroup because of their strong discontent (e.g., Smith et al., 2008). However, they might have tried to refrain from being too discriminatory because the outgroup was clearly no responsible for the two groups' fates. If it were so, members of RD groups may have been more successful in controlling discrimination at the explicit level of intergroup allocation than at the linguistic level. Whereas this interpretation is speculative at this stage, these findings underline the importance of future studies to consider unintentional and explicit reactions to RD and RG experiences in the same design.

Mediators of Relative Deprivation and Relative Gratification Experiences

Study 2 contributes to the understanding of RD effects by highlighting the important role of intergroup rivalry, as well as—to a lesser extent—of the perception of sharing a common fate with fellow ingroup members, in promoting intergroup discrimination. For RG groups, only common fate was partly related to intergroup discrimination. Thus, it seems that the intergroup comparison is

more salient for the relatively deprived groups, possibly because they are victims of injustice compared the privileged outgroup (e.g., Grant & Brown, 1995). Conversely, RG members appear to be more focused on their luck and less interested in comparing their situation with that of the deprived outgroup.

The little evidence on RG's mediators in Study 2 led us to direct our attention to different reactions brought about by intergroup inequality in members of privileged groups. Drawing from theorization on group-based emotions (e.g., Leach et al., 2002), we focused on the emotions generated by an experience of RG based on the unexpected and illegitimate assignment of a reward to the detriment of the outgroup. Furthermore, we examined the interplay between emotions and cognitive expectations about ingroup and outgroup behavior in accounting for discrimination by RG groups. The findings of Study 3 showed that RG leads individuals to worry about losing their privilege, and to think that other ingroup members too will try to ensure the ingroup position. Hence, discrimination seems to be in part driven by RG members' attempt to reciprocate ingroup favoritism and to protect the ingroup position (e.g., Stroebe et al., 2005). The findings also reveal that at the same time, RG members feel guilty since they know that their advantage is based on the outgroup's misfortune. They seem to compensate for the discomfort of existential guilt by reckoning that the outgroup would discriminate against them, so they end up by discriminating against the latter. In other words, discrimination against the outgroup represents a way by which RG members may actually defend the ingroup from expected negative treatment by the outgroup (e.g., Ng, 1981).

Overall, these results add to previous models on emotional experience of relatively advantaged groups (e.g., Harth et al., 2008; Leach et al., 2002) by emphasizing the role of fear of losing ingroup privilege and existential guilt. However, they go a step further by demonstrating that these emotional reactions are handled by group members through intergroup cognition, which, in turn, influences intergroup discrimination. Broadly speaking, this novel evidence brings converging support to the theoretical models that highlight the primary role of emotions in influencing cognition and behavior (e.g., Frijda, Manstead, & Bem, 2000; Zajonc, 1980).

Alternative Sources of Relative Gratification and Relative Deprivation

In this research, RD and RG were operationalized in terms of violation of expectations made by a super-ordinate party within a

direct intergroup comparison. However, one may think of other possible sources of RD/RG. For instance, there might be situations in which a group gains a favorable position by illegitimately overthrowing the outgroup and is therefore very much in control of ingroup and outgroup outcomes. In these conditions, emotions such as pride, gloating, or even disdain toward the disadvantaged outgroup are plausibly more relevant for RG groups than the ones considered in our study (Leach et al., 2002). On their part, members of the RD group are likely to be quite angry with the RG group—at least if they are aware of its illegitimate actions—and may therefore be highly discriminatory toward the privileged groups. A completely different case is that of groups who see their position as legitimate and stable (e.g., Harth et al., 2008; Leach et al., 2002; Tajfel & Turner, 1979). In this situation, members of a RD groups will plausibly be unlikely to protest against the status quo and may even show outgroup favoritism as predicted by system justification theory (Jost & Banaji, 1994). For instance, this is the case of low-class individuals who do not strive against their socio-economical conditions and support political parties that actually defend dominant groups. Future research could therefore examine the reactions of RD and RG groups in conditions varying in legitimacy and stability of group conditions.

A peculiar situation is that of groups who happen to acquire a privileged or disadvantaged position by mere chance. Olson, Banaji, Dweck, and Spelke (2006) demonstrated that young children prefer children who are the beneficiaries of good luck (e.g., who happen to find some money on the sidewalk) over children who are victims of bad luck, and even generalize this preference toward the individuals who belong to the same group. Because in Olson et al.'s study respondents were not part of the lucky/unlucky groups, future studies should verify whether members of RD groups would refrain from discriminating against members of RG groups whose fortune is based on chance.

Finally, it would be interesting to examine the possible interplay between RD/RG—which derive from a violation of expectations with respect to the outcomes of the groups—and group status, which concerns group prestige or social standing. In our studies, the results on the manipulation checks made us confident that groups did not differ in perceived social standing. However, in social reality there are groups that enjoy a superior status position (for instance, graduate office workers) but at the same time experience relative deprivation when they compare their economic achievements with those of lower status outgroup (e.g., skilled workers). Conversely, one may think of RG groups who suffer from low prestige in a society (e.g., the so-called "nouveau riche" compared to the "patricians" or higher bourgeoisie). Future research could therefore systematically manipulate relative deprivation/gratification and social status as orthogonal factors within the same design.

Conclusion

In summary, the evidence we gathered shows that the unequivocal answer to our initial questions is affirmative. Both RD and RG groups do indeed discriminate unintentionally through communication and give more punishments to the outgroup when they have the opportunity. Individuals who are unjustly deprived of valued resources, but also those who are unjustly privileged over others, are likely to feel more entitled to show favorable treatment toward their own group and to behave in a hostile fashion toward the outgroup close to them. Being subjected to imbalance and unfairness in intergroup relations enhances RD members' perception of rivalry with the outgroup, which, in turn, accounts for discrimination. However, discrimination by RG members can be better explained in terms of group-based emotions and cognitive expectations about ingroup and outgroup behavior. Besides contributing to the theoretical understanding of relative deprivation and relative gratification experiences, these results have important implications for real-life intergroup relations. Thinking of current worldwide crisis, this research suggests that intergroup discrimination consequent to experiences of intergroup inequality might represent an important by-product of the economic downturn. For their applied value, these implications should therefore be taken into consideration by even governments, politicians, business people, and bankers.

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