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Better of different III: The impact of importance of comparison dimension and relative in-group size upon intergroup discrimination

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Abstract

Within the framework of social identity theory (SIT) two experimental studies were conducted to further explore group members' selectivity in choosing dimensions for intergroup discrimination. Both studies were carried out in a laboratory setting using artificially created social categories. Importance of comparison dimension for the in-group and that for the out-group were manipulated independently of each other as within-subjects factors. In line with previous research study I (n=32) tested the following hypotheses: (1) In-group favouritism was expected to be higher on dimensions highly important to the ingroup than on those unimportant to it. (2) In-group favouritism would be mitigated on dimensions highly important to both in- and out-group. (3) Out-group favouritism would occur on dimensions which are highly important to the outgroup but at the same time unimportant to the ingroup. All three hypotheses were confirmed. Study II (n=46) added relative in-group size (minority vs. majority position) as an between-subjects factor to the experimental design. It was predicted that minority members would discriminate in favour of their own group particularly on dimensions important to the in-group whereas majority members would favour the in-group only on dimensions unimportant to the out-group. The results partially supported our predictions. Moreover, more subtle pathways to out-group discrimination were discussed.

Introduction

By now in-group bias or in-group favouristism is a well-established phenomenon in research on intergroup relations (see Brewer, 1979; Brown, Tajfel & Turner, 1980; Turner, 1981), a finding which shows remarkable robustness over various kinds of subject populations and kinds of independent as well as dependent measures (Tajfel, 1981, 1982). Within the framework of social identity theory (Tajfel & Turner, 1986) it is interpreted as an outcome of the search for positive in-group distinctiveness, which in turn is assumed to contribute to group members' positive social identity.

Mummendey & Schreiber (1983) explored alternative ways group members could secure a positive social identity without discriminating against out-groups. At first sight the results they obtained indicated that "as soon as a good result is possible for both groups at the same time ... it appears that the judgments are influenced in the sense of fairness." (p.395). However, a more detailed analysis pointed to disguised forms of intergroup discrimination. Based on post hoc interpretations the authors surmised that the impression of fairness or even out-group favouritism may be misleading considering the supposedly inferior quality or importance of those dimensions on which the outgroup is judged equally good or even superior. In a field experiment (Mummendey & Schreiber, 1984) the same authors tested hypotheses derived from those post hoc speculations. In line with their first hypothesis they could show that in-group favouritism is higher on comparison dimensions of high importance for the in-group than on those of low importance for it. However, their second hypothesis had to be modified: Contrary to the original prediction in-group bias was in fact mitigated on dimensions important at the same time to both in- and out-group compared to dimensions important only to the in-group. Finally, their last hypothesis predicting out-group favouritism for dimensions which were of high importance for the out-group but at the same time unimportant to the in-group received some support.

In addition to these main findings significant differences between the two social groups which had participated in the experiment were observed. In the present paper two experiments will be reported. Study I was conducted to test the main assumptions underlying the former field experiment in a laboratory setting. Also assuming some influence of the variable relative in-group size on the results of the field experiment the second study investigated the impact of this variable on the pattern of intergroup discrimination.

Study I

The aim of this study was to test whether the main results reported by Mummendey & Schreiber (1984) would hold true in a laboratory setting employing ad hoc groups. As to the field experiment one could possibly argue that these findings merely reflect actual differences between the two natural groups rather than the operation of social psychological processes postulated by social identity theory. The methodology adpoted in the present study- as well as in study II - was specifically designed to rule out such an alternative explanation. Firstly, subjects had to evaluate ambiguous in-group and out-group products on various dimensions. Secondly, those dimensions were selected by each single subject according to the importance for both in-group and out-group she attributed to them. Thus, in the final analysis differences between in-group and out-group evaluations were averaged across a heterogeneous pool of dimensions which had in common merely their perceived importance (high or low) for in-group and out-group. Therefore convergent findings from both settings, field and laboratory, would greatly add to the validity of the underlying assumptions.
In line with the findings supported by Mummendey & Schreiber (1984) our hypotheses are:

(1) In-group favouritism would be higher on comparison dimensions of high importance for the in-group than on those of low importance for it.
(2) In-group favouritism might be mitigated on dimensions which are at the same time highly important to both in-group and out-group.
(3) Out-group favouritism would occur on dimensions which are of high importance for the out-group but at the same time of low importance for the in-group.

Method

Subjects

Thirty-two female students average age 22 years, participated in the experiment. Subjects were recruited from various faculties of the university - no psychology students were admitted - and from a college for social work. Each subject received 15 DM for her participation.

Design

To test our hypotheses we used a 2x2-factorial design consisting of two within-subjects factors importance of comparison dimension for in-group (low vs. high) and importance of comparison dimension for out-group (low vs. high).

Procedure

The experiment was run in 4 sessions, in each of which 8 subjects took part. It was introduced as being concerned with the relationship between cognitive style and problem-solving in groups. At first the subjects had to work on a short test allegedly administered in order to find out "what kind of cognitive style you preferably use in problem-solving". The test consisted of 40 items of the "Intelligenz-Struktur-Test" (IST-70) by Amthauer (1973). The items had been selected from 4 different subtests- 10 items from each subtest - which had to do with verbal reasoning, numerical ability, abstract reasoning and space relations. Including instructions the test took about 20 minutes.
After two assistants had left the room allegedly in order to analyze the tests a cover story was presented stating that cognitive psychologists had found out that depending on the way people approach a problem they can be assigned to one of two groups called "Analytics" and "Synthetics". The two groups were characterized as follows: Analytics were said to tend to a) "Detail Perception", b) "Deductive Inferences", and c) a "Vertical Focus of Attention" allegedly indicative of pronounced depth rather than breadth of attention. Conversely, Synthetics would tend to a) "Holistic Perception", b) "Inductive Inferences", and c) a "Horizontal Focus of Attention" allegedly indicative of pronounced breadth rather than depth of attention. Furthermore, some researchers would claim the existence of personality differences between these two groups. However, the present experimenter would not be interested in such differences but rather in "how people in each group work together on a problem-solving task". Finally, it was stated that both groups are numerically equivalent, that is about 50% of the population in Western countries would belong to one group and 50% to the other. Subjects' attention was drawn to two diagrams further illustrating the characterization of the groups and their numerical distribution. Subsequently, the assistants returned the ostensibly analyzed tests and the experimenter announced each person's group membership. In fact, how-

ever, subjects were randomly assigned to the groups, 4 to one group and 4 to the other. Group label (Analytics vs. Synthetics) was counterbalanced across sessions.

After the categorization into groups was effected members of each group were instructed to cooperate in representing an illustration of an "optimally designed adventure playground for children". Paper and painting materials were placed at their disposal and the two groups worked in separate rooms for about 20 minutes. Having finished the task, Analytics and Synthetics gathered again and each group were to present and explain its own product to the other.

Following that, a questionnaire was distributed on the front page of which subjects had to indicate which was their own and the other group (Analytics or Synthetics) and how many people participating in the respective session belonged to either group. Then the experimenter stated that in designing an adventure playground one can obviously attach differential importance to different criteria. A poster was attached to the wall presenting the following eighteen criteria:

- Stimulation of children's initiative,
- Stimulation of children's imagination,
- Stimulation of social contacts,
- Well-balanced design,
- Differentiation,
- Colourfulness,
- Financial realizability,
- Hygiene,
- Controllability,
- Naturalness,
- Novelty,
- Originality,
- Technical realizability,
- Clear survey,
- Safety,
- Variety,
- Spaciousness, and

- Independence of weather.

The respective German terms were ordered alphabetically resulting in the order given above. From this pool of criteria subjects had to select eight assigning two to each of the following four categories respectively:

(1) criteria of high importance for the in-group but of low importance for the out-group (H/L),
(2) criteria of high importance for the outgroup but of low importance for the in-group (L/H),
(3) criteria of high importance for both the in-group and the out-group (H/H),
(4) criteria of low importance for both the in-group and the out-group (L/L).

Using the selected criteria subjects then evaluated their own group's product and that of the out-group.

Questions followed at first concerning the personal importance attached by the subjects to each of the eighteen criteria, then concerning their liking for in-group and out-group members, the cooperation within their own group, their feeling of belongingness and their perception of judgmental consensus within their own group. Finally, in order to detect any suspiciousness regarding the experimental deception subjects were to summarize very briefly the purpose of the present study.

After data collection and analysis had been completed, subjects were invited to a collective de-briefing session. There, the real purpose of the study was revealed and the results were extensively discussed.

Independent variables

Importance of comparison dimension for in-group and out-group. As described above, each subject selected 4 pairs of criteria with regard to their assumed importance for in-group and out-group. This procedure yielded the 4 combinations of the 2 two-level

within-subjects factors importance of comparison dimension for in-group (low vs. high) and importance of comparison dimension for out-group (low vs. high).

Dependent Measures

a) Subjects indicated on separate scales to what extent the in-group product and to what extent the out-group product actually met each of the 8 selected criteria ("not fulfilled ... perfectly fulfilled"). The order of in-group and out-group ratings was counterbalanced across subjects.

b) Subjects indicated for each criterion "how important it is - in your opinion - for the optimal design of an adventure playground".

c) They further rated:
   - how much they liked the in-group members,
   - how much they liked the out-group members,
   - how much they would like to work together again with their own group,
   - how satisfied they were with the cooperation within their own group during the problem-solving task (i.e. during the painting phase),
   - how much they felt belonging to the group with which they had just worked together,
   - how much they felt belonging to the group of Analytics/ Synthetics in general, and
   - how much other members of the group with which they had just worked together would be in agreement with their own evaluations of the 2 group products.

   All ratings were made on continuous 100-mm scales (0 = not at all ... 100 = very much).

Results

In the final analysis only those subjects were included who had completely filled in the questionnaire having left out not even a single question. Thus, the data from six subjects were ignored. Furthermore, subjects' responses to the last question in the questionnaire did not reveal any suspicion regarding the experimental deception.

Preliminary analysis

If not explicitly stated otherwise the unit of all following analyses is the difference between the rating given for the in-group product and that for the out-group product or in other words the in-group bias. It will be recalled that for each of the four combinations of the within-subjects factors subjects had to rate in-group and out-group on two dimensions. Using analyses of variance (ANOVA) with the paired dimensions as another within-subjects factor this factor yielded no significant main effect nor interactions. Therefore, the ratings on the two dimensions were averaged in the main analysis. As analyses of variance revealed neither order of in-group and out-group rating nor group label (Analytics vs. Synthetics) yielded significant main effects or interactions with the independent variables. Hence, both factors were ignored in the main analysis.

Main analysis

In a 2x2 ANOVA highly significant main effects emerged for both within-subjects factors ($F(1,25) = 157.88$, $p < .0005$ and $F(1,25) = 83.43$, $p < .0005$ for importance of comparison dimension for in-group and for out-group respectively).

Subjects clearly showed stronger in-group favouritism on dimensions highly important to the in-group (M = 23.9) than on dimensions unimportant to the ingroup where on the contrary out-group favouritism was shown (M = -18.0). On the other hand, the out-group was more strongly favoured on dimensions highly important to the out-group (M = -15.2) than on dimensions unimportant to it. Rather, the in-group was clearly favoured on those dimensions (M = 21.1). The interaction effect was nonsignificant. However, it can be seen from Table 1 that, although significant in-group favouritism emerged on dimensions important to the in-group not only when they were at the same time unimportant to the out-group but also when they were highly important to it, the amount of in-group favouritism on the former dimensions was more than ten times the amount on the latter. Conversely, significant out-group favouritism is found only on those dimensions important to the out-group which at the same time are unimportant to the in-group.

Further analysis

Personal importance of comparison dimensions

A 2x2 ANOVA with the same within-subjects factors as in the main analysis was performed on subjects' ratings concerning the personal importance attached to the actually used comparison dimensions. Again, respective analyses showed that group label could be ignored and the ratings concerning the two dimensions paired per cell could justifiably be averaged.

Table 1: Means and Standard Deviations (in parentheses) of in-group bias (n=26)

		Importance of Comparison Dimension for In-group (IN)	
		High	Low
Importance of Comparison Dimension for Out-group (OUT)	High	4.1** (7.0)	-34.3*** (21.1)
	Low	43.7*** (23.2)	-1.6 (8.7)

Notes:

* cell mean ≠ 0 $p < .05$ (t-tests, two-tailed)
** cell mean ≠ 0 $p < .01$
*** cell mean ≠ 0 $p < .001$

ANOVA results:

IN: $F(1,25) = 157.88$, $p < .0005$
OUT: $F(1,25) = 83.42$, $p < .0005$
IN x OUT: $F(1,25) = 1.64$, ns

Table 2: Means and Standard Deviations (in parentheses) of Ratings Concerning Personal Importance of Actually Used Comparison Dimensions (n=26)

		Importance of Comparison Dimension for In-group (IN)	
		High	Low
Importance of Comparison Dimension for Out-group (OUT)	High	87.2 (13.2)	62.4 (19.7)
	Low	84.1 (14.80)	58.4 (20.4)

ANOVA results:

IN: $F(1,25) = 44.10$, $p < .0005$
OUT: $F(1,25) < 1$, ns
IN x OUT : $F(12,5) < 1$, ns

Table 3: Means and Standard Deviations (in parentheses) of Ratings for I) Liking for in-group members, II) Liking for out-group members, III) Liking for future cooperation with in-group, IV) Satisfaction with actual cooperation with in-group during the problem-solving task, V) Feeling of belongingness to the group with which subjects had just worked together, VI) Feeling of belongingness to the group of Analytics/Synthetics in general, VII) Perceived judgemental consensus (n=26)

I	II	III	IV	V	VI	VII
75.5⁺	65.3⁺	76.9⁺	77.0⁺	64.2⁺	66.4⁺	57.1⁺
(18.8)	(15.6)	(20.8)	(17.1)	(28.0)	(23.3)	(16.8)

Notes:

⁺ differs from to midpoint of the scale at the .05 level of significance or better (t-tests, two-tailed)

As shown in Table 2 subjects attached significantly higher personal importance to those comparison dimensions categorized by them as highly important to the in-group (M = 85.7) than to those categorized as unimportant to the in-group (M = 60.4) ($F(1,25)$ = 44.10, $p < .0005$). However, no significant main effect for importance of comparison dimension for the out-group emerged, nor was the interaction effect significant.[1]

Liking for in-group and out-group members, for future and for actual cooperation with the in-group, feeling of belongingness, and perception of judgemental consensus

Group label did not influence subjects' ratings on any of these scales. Means and standard deviations are given in Table 3.

Each mean differs significantly from the (neutral) midpoint of the respective scale. Furthermore, in-group members are liked

[1] At this point it should be recalled that in both studies the personal importance ratings have been elicited from the subjects after these had categorized the respective dimensions according to the perceived importance for in-group and out-group and after they had evaluated both group products on these dimensions. Of course, such an order prohibits the interpretation of the personal importance ratings as some kind of base-line data for the "objective" importance of the respective dimensions because of possible effects of the previously undertaken categorization and/or intergroup comparison. Rather, these results give information merely as to the degree of personal importance subjects attached to the dimensions after they had categorized and used them for intergroup comparisons.

significantly better than out-group members ($\underline{t}(25) = 2.76$, $\underline{p} < .05$, two-tailed).

Discussion

Before discussing the results one important aspect of our main unit of analysis (i.e. in-group bias) has to be elaborated briefly. Given the experimental procedure (see Method section), one could reasonably expect that an impartial evaluation of both group products would - on the average - result in judgements for in-group and out-group not significantly different from each other, thus implying a mean difference (i.e. in-group bias) around zero. Hence, any discrepancy between the average in-group and out-group judgements significantly above or below zero can be interpreted as in-group or out-group favouritism respectively.

Turning to the data, we can conclude that the results of study I clearly confirmed our hypotheses thus replicating the main results of the field experiment by Mummendey & Schreiber (1984). In-group favouritism is generally stronger on dimensions highly important to the in-group than on unimportant ones. However, on dimensions of high importance for both in- and out-group in-group bias is pulled down to a much lower level. On dimensions important to the out-group out-group favouritism is granted only if no comparison dimensions of great importance for the in-group are involved.

At first sight, one might argue that the subjects followed a "to-every-group-its-due" principle by favouring each group mainly on group specific dimensions, that is on dimensions exclusively important to the specific group. However, closer inspection reveals remarkable deviations from such fairness. First, there is a clear in-group bias on dimensions highly important to both groups. Second, the absolute amount of in-group favouritism on in-group specific dimensions ($\underline{M} = 43.7$) tends to be greater than

the amount of out-group favouritism on out-group specific dimensions (M = 34.3) ($t(25)$ = 1.81, p = .083, two-tailed).
Finally, greater personal importance is attached to in-group specific dimensions (M = 84.1) than to out-group specific dimensions (M = 62.4) ($t(25)$ = 4.07, p < .0005, t-test, two-tailed). Thus, if each group is given its due at all, certainly that of the out-group is of less value than that of the in-group.

Study II

Certainly, study I sucessfully replicated the main findings of the field experiment by Mummendey & Schreiber (1984). But - as already mentioned above - in their study also emerged clear differences between the two participating social groups. Members of the Social Democratic Party (SPD) clearly showed in-group favouritism on dimensions of low out-group importance but not on dimensions of high importance for the out-group. Members of the Green Party, however, favoured their in-group exclusively on dimensions of high in-group importance, even when those were of high importance for the out-group. As to the differences between the two social groups Mummendey & Schreiber (1984) offered a post hoc interpretation in terms of the special relationship between those groups. Members of the SPD who had participated in that experiment turned out to have had "to some extent more sympathy for political ideas of the Grüne than of the establishment of their own party" (p. 79). Not withstanding that explanation one can further speculate that the structural variable relative in-group size might have exerted some differential influence on the intergroup behaviour of the two social groups. In relation to each other the Green Party could and still can unjustifiably be considered as a minority - both by its antinomic position and by its numerical inferiority (Moscovici, 1985, p. 15), while the SPD can be said

to hold a relative majority position. Hence, reconsidering the results of the field experiment in terms of minority-majority relations the more pronounced discriminatory behaviour of members of the Green Party is entirely consistent with research evidence suggesting less fairness on the part of the minority (Gerard & Hoyt, 1974; Sachdev & Bourhis, 1984).

Study II was specifically designed to examine the validity of this line of reasoning. We assume that being in a group which is numerically inferior poses a threat to group members' self-esteem (see Festinger, 1954, pp. 136-137; Gerard, 1985, p. 174; Sachdev & Bourhis, 1984, p. 39; Simon & Brown, 1987). Referring to notions based on social identity theory (Tajfel & Turner, 1986) we argue that minority members would be motivated to counteract that threat by accentuating their positive social identity. According to social identity theory discrimination against a relevant outgroup is one means to achieve that goal. Thus, we expect minority members to produce a more discriminatory pattern of intergroup comparisons than members of the numerically superior - thus more secure - majority. More specifically, our hypotheses are as follows:

(1) Minority members will discriminate in favour of their own group particularly on dimensions <u>important to the in-group</u>. Such in-group favouritism should be observed not only when those dimensions are at the same time of low importance for the out-group but also when they are of high importance for it, though the amount of in-group favouritism might be lower in the latter case.

(2) Conversely, majority members being fairer than minority members will show in-group favouritism on dimensions important to the in-group only when at the same time these dimensions are <u>unimportant to the out-group</u>.

Method

Subjects

46 female students, average age 23 years, participated in the experiment. Again, subjects were recruited from various faculties of the university - no psychology students were admitted - and from a college for social work. Each subject received 15 DM for her participation.

Design

To test our hypotheses we used a 2x2x2-factorial design consisting of one between-subjects factor relative in-group size (minority vs. majority) and two within-subjects factors importance of comparison dimension for in-group (low vs. high) and importance of comparison dimension for out-group (low vs. high).

Procedure

The experiment was run in 12 sessions, in each of which either 6 or 12 participants were present. Depending on the treatment condition either 4 naive subjects and 8 confederates of the experimenter (minority in-group condition: 4 vs. 8) or 4 naive subjects and 2 confederates (majority in-group condition: 4 vs. 2) took part in an experimental session.[2]
The experimental procedure - otherwise identical to the procedure followed in study I - differed from that described above on two points: First, the numerical inequality between Analytics and

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[2] Two subjects - one in the minority condition and one in the majority condition - did not turn up as agreed. Instead, two confederates acted as their substitutes. Of course, their data were not included in the analysis.

Importance of comparison dimension for in-group and out-group. As in study I, the procedure yielded 2 two-level within-subjects factors: Importance of comparison dimension for in-group (low vs. high) and importance of comparison dimension for out-group (low vs. high).

Dependent measures

These measures were identical to those applied in the first study.

Results

In the final analysis only those subjects were included who had correctly endorsed the manipulation regarding the group size of the in-group and out-group in the questionnaire and had completely filled in all other questions in it. Altogether, the data from 4 subjects - 3 in the minority in-group and 1 in the majority in-group condition - were ignored. Furthermore, subjects responses to the last question in the questionnaire did not reveal any suspicion regarding the experimental deception.
If not explicitly stated otherwise the unit of all following analyses is the difference between the rating given for the in-group product and that for the out-group product, or in other words, the in-group bias.

Preliminary analysis

As in study I we treated the two dimensions paired within each of the four combinations of the within-subjects factors as an additional within-subjects factor of the experimental design. But unlike the previous study that factor interacted significantly with importance of comparison dimension for in-group ($F(1,40) = 5.94$,

$p = < .05$). However, dimension 1 and 2 did not differ as to the pattern of means: in both cases in-group bias was much stronger when importance for in-group was high (dimension 1: $M = 27.1$, dimension 2: $M = 23.3$) than when low (dimension 1: $M = -22.6$, dimension 2: $M = -17.1$). Rather, the difference on dimension 2 was somewhat moderated. Hence, as in study I, we could justifiably average the ratings across those two dimensions. Furthermore, analyses of variance revealed no significant main or interaction effect for order of in-group and out-group rating. Therefore, that factor was ignored in the main analysis. Unexpectedly, group label (Analytics vs. Synthetics) exerted some influence on the dependent measure of in-group bias as the significant four-way interaction between group label and all 3 independent variables indicates ($F(1,38) = 9.43$, $p < .01$). In the main analysis, therefore, we analysed the data from Analytics and Synthetics separately thus obtaining two three-factorial designs.

Main analysis

Separate 2x2x2 ANOVAs were performed for Analytics and Synthetics. In both analyses the main effects for importance of comparison dimension for in-group (Analytics: $F(1,19) = 93.36$, $p < .0005$; Synthetics: $F(1,19) = 218.54$, $p < .0005$) and for importance of comparison dimension for out-group (Analytics: $F(1,19) = 90.34$, $p < .0005$; Synthetics: $F(1,19) = 84.60$, $p < .0005$) were highly significant. In both ad hoc groups subjects clearly showed stronger in-group favouritism on dimensions highly important to the in-group ($M(A) = 25.5$, $M(S) = 24.9$) than on dimensions unimportant to the in-group where on the contrary out-group favouritism was shown ($M(A) = -20.9$, $M(S) = -18.9$). On the other hand, the out-group was more strongly favoured on dimensions highly important to it ($M(A) = -16.8$, $M(S) = -17.2$) than on dimensions unimportant to it. Rather, the in-group was clearly favoured on the latter dimensions ($M(A) = 21.4$, $M(S) = 23.2$). Finally, the three-way interaction between relative in-group size and the two with-

in-subjects factors reached statistical significance again for both ad hoc groups (Analytics: $F(1,19) = 4.80$, $p < .05$; Synthetics: $F(1,19) = 4.82$; $p < .05$).

It can be seen from Table 4 that as to Analytics this interaction is mainly due to a reversed order of the means for the minority and majority condition on H/H dimensions compared to their order on H/L dimensions. In the first case minority members tended to show somewhat more in-group favouritism than majority members (M(MIN) = 11.7, M(MAJ) = 3.4, $F(1,19) = 2.83$, $p < .11$, Scheffé-test). In the second case majority members exceed minority members regarding the amount of in-group favouritism (M(MAJ) = 50.4, M(MIN) = 36.2, $F(1,19) = 8.44$, $p < .01$, Scheffé-test). However, as to Synthetics mainly the fact that on L/H dimensions minority members show a relatively low amount of out-group favouritism in contrast to a very high amount shown by majority members (M(MIN) = -29.0, M(MAJ) = -52.0, $F(1,19) = 12.33$, $p < .005$, Scheffé-test), seems to be responsible for the three-way interaction.

Further analysis

Personal importance of comparison dimension

Analysis of variance showed that the two personal importance ratings for the dimensions which had been paired per combination of the within-subjects factors could justifiably be averaged. However, group label was not without influence on personal importance ratings. Group label and importance of comparison dimension

Table 4: Means and Standard Devitations (in parentheses) of In-group Bias for Analytics and Synthetics

Relative In-group Size (SIZE)	Importance of Comparison Dimension for Out-group (OUT)	Analytics: Importance of Comparison Dimension for In-group (IN) High	Analytics: Importance of Comparison Dimension for In-group (IN) Low	Synthetics: Importance of Comparison Dimension for In-group (IN) High	Synthetics: Importance of Comparison Dimension for In-group (IN) Low
Minority	High	11.7[a] * (14.2) n=10	-39.4[c] *** (22.2) n=10	7.7[a] (13.0) n=10	-29.0[c] ** (27.8) n=10
	Low	36.2[b] *** (21.5) n=10	.1[d] (13.0) n=10	44.6[b] *** (11.1) n=10	.7[a] (8.0) n=10
Majority	High	3.4[a d] (14.1) n=11	-42.1[c] *** (23.1) n=11	5.7[a] (10.2) n=11	-52.0[d] *** (22.6) n=11
	Low	50.4[e] *** (19.6) n=11	-1.7[d] (12.5) n=11	41.8[b] *** (17.3) n=11	5.6[a] (13.0) n=11

Notes:

* cell mean ≠ 0, $p < .05$
** cell mean ≠ 0, $p < .01$ (t-tests, two-tailed)
*** cell mean ≠ 0, $p < .001$

Means with different superscripts differ at the .05 level of significance or better according to Scheffé-test.

ANOVA results:

Analytics:

IN : $F(1,19) = 93.36$, $p < .0005$
OUT : $F(1,19) = 90.34$, $p < .0005$
SIZExINxOUT: $F(1,19) = 4.80$, $p < .05$

Synthetics:

IN : $F(1,19) = 218.54$, $p < .0005$
OUT : $F(1,19) = 84.60$, $p < .0005$
SIZExINxOUT: $F(1,19) = 4.82$, $p < .05$

All other effects were nonsignificant.

Table 5: Means and Standard Deviations (in parentheses) of Ratings Concerning Personal Importance of Actually Used Comparison Dimensions for Analytics and Synthetics

Relative In-group Size (SIZE)	Importance of Comparison Dimension for Out-group (OUT)	Analytics: Importance of Comparison Dimension for In-group (IN) High	Analytics: Importance of Comparison Dimension for In-group (IN) Low	Synthetics: Importance of Comparison Dimension for In-group (IN) High	Synthetics: Importance of Comparison Dimension for In-group (IN) Low
Minority	High	91.9[a] (9.8) n=10	58.0[b d] (14.0) n=10	90.1 (7.8) n=10	61.9 (19.9) n=10
	Low	82.3[a c] (14.4) n=10	73.3[c e] (26.1) n=10	83.9 (14.6) n=10	55.8 (19.3) n=10
Majority	High	83.4[a c] (17.0) n=11	62.7[d e] (20.6) n=11	91.0 (8.8) n=11	60.6 (22.9) n=11
	Low	92.0[a] (9.4) n=11	60.9[d] (25.6) n=11	84.8 (11.4) n=11	46.5 (28.4) n=11

Notes:

Means with different superscripts differ at the .05 level of significance or better according to Scheffé-test.

ANOVA results:

Analytics:

IN : $F(1,19) = 30.62$, $p < .0005$
SIZExINxOUT: $F(1,19) = 10.15$, $p < .005$

Synthetics:

IN : $F(1,19) = 41.89$, $p < .0005$
OUT : $F(1,19) = 4.69$, $p < .05$

All other effects were nonsignificant.

Table 6: Means and Standard Deviations (in parentheses) of Ratings for I) Liking for in-group members, II) Liking for out-group members, III) Liking for future cooperation with in-group, IV) Satisfaction with actual cooperation with in-group during the problem-solving task, V) Feeling of belongingness to the group with which subjects had just worked together, VI) Feeling of belongingness to the group of Analytics/Synthetics in general and VII) Perceived judgemental consensus

Scale		I		II		III		IV	
	Group Label	A	S	A	S	A	S	A	S
Relative In-group Size (SIZE)	Minority	81.1⁺ (22.0) n=10	72.9⁺ (20.4) n=10	73.1⁺ (13.5) n=10	58.6 (12.6) n=10	78.4⁺ (28.8) n=10	68.2⁺ (23.6) n=10	80.2[a]⁺ (21.5) n=10	86.9[a]⁺ (17.6) n=10
	Majority	75.2⁺ (18.2) n=11	53.1 (25.0) n=11	61.1 (28.8) n=11	59.8 (16.9) n=11	69.9⁺ (24.0) n=11	53.5 (30.0) n=11	72.6[a]⁺ (28.6) n=11	48.5[b] (27.1) n=11

Scale		V		VI		VII	
	Group Label	A	S	A	S	A	S
Relative In-group Size (SIZE)	Minority	57.4 (33.0) n=10	71.2⁺ (16.7) n=10	49.9 (29.9) n=10	38.7 (24.6) n=10	55.5 (17.4) n=10	57.9 (18.8) n=10
	Majority	57.6 (28.9) n=11	38.9 (34.8) n=11	65.5 (30.8) n=11	43.2 (29.8) n=11	51.7 (22.7) n=11	46.0 (22.0) n=11

Notes. A = Analytics , S = Synthetics

⁺ differs from the midpoint of the scale (i.e. 50) at the .05 level of significance or better (t-tests, two-tailed)

Means with different superscripts differ at the .05 level of significance of better according to Scheffé-test.

ANOVA results:

SIZE : (IV) $F(1,38) = 9.34$, $p < .01$
LABEL : (I) $F(1,38) = 5.05$, $p < .05$
SIZExLABEL: (IV) $F(1,38) = 4.20$, $p < .05$

All other effects were nonsiginifant.

for out-group interacted significantly ($F(1,38) = 5.52$, $p < .05$). Hence, analogous to the main analysis separate 2x2x2 ANOVAs for Analytics and Synthetics were performed on those ratings (see Table 5).

As indicated by the two main effects for importance of comparison dimension for the in-group (Analytics: $F(1,19) = 30.62$, $p < .0005$; Synthetics: $F(1,19) = 41.89$, $p < .0005$) subjects in both ad hoc groups attached significantly higher personal importance to those comparison dimensions which they had categorized as highly important to the in-group (H/H and H/L: $M(A) = 87.5$, $M(S) = 87.4$) than to those categorized as unimportant for it (L/H and L/L: $M(A) = 63.7$, $M(S) = 56.1$). Furthermore, in contrast to Analytics ($F(1,19) = 1.10$, ns) Synthetics attached higher personal importance to dimensions highly important to the out-group (H/H and L/H: $M = 75.9$) than to those of low importance for that group (H/L and L/L: $M = 65.4$) ($F(1,19) = 4.69$, $p < .05$). Finally, as to Analytics the three-way interaction was statistically significant ($F(1,19) = 10.15$, $p < .005$) but nonsignificant regarding Synthetics ($F(1,19) < 1$, ns). Analytics attached higher personal importance to L/L dimensions when in a minority position than when in a majority position ($M(MIN) = 73.7$, $M(MAJ) = 60.9$; $F(1,19) = 4.99$, $p < .05$, Scheffé-test) and a trend in the same direction turned out regarding H/H dimensions ($M(MIN) = 91.9$, $M(MAJ) = 83.4$; $F(1,19) = 2.34$, $p < .14$, Scheffé-test). A reversed pattern of means emerged for H/L dimensions ($M(MIN) = 82.3$, $M(MAJ) = 92.0$; $F(1,19) = 3.08$, $p < .10$, Scheffé-test) and - though far from significance - for L/H dimensions ($M(MIN) = 58.0$, $M(MAJ) = 62.7$; $F(1,19) < 1$, ns, Scheffé-test).

5%-level of significance ($F(1,38) = 3.95$, $p = .054$).

Discussion

Although the experimental procedure of study II slightly differed from that of study I due to the participation of confederates (see Method section) we can again expect that an impartial evaluation of group products should result in a mean difference between both judgements (i.e. in-group bias) not significantly different from zero. On the other hand, differences significantly above or below zero are indicative of in-group or out-group favouritism respectively. On the whole, in the present study subjects who had been ascribed minority membership favoured their in-group not only on H/L dimensions ($M = 40.4$), but also on H/H dimensions ($M = 9.7$). In both cases the amount of in-group bias differed significantly from zero ($t(19) = 10.50$, $p < .001$ and $t(19) = 3.24$, $p < .01$, respectively; all t-tests are two-tailed). But on L/H comparison dimensions significant out-group favouritism was shown ($M = -34.2$, $t(19) = -6.09$, $p < .001$) and judgements on L/L dimensions were perfectly fair ($M = .4$, $t(19) = .17$, ns). These results lend strong support to our first hypothesis. As to majority members signifcicant in-group favouritism was found only on H/L comparison dimensions ($M = 46.1$, $t(21) = 11.63$, $p < .001$). On L/L dimensions - though positive - the amount of in-group bias ($M = 2.0$) was not significantly different from zero ($t(21) = .72$, ns) as was - expectedly - the case with H/H dimensions ($M = 4.6$, $t(21) = 1.78$, ns). Out-group favouritism was again found on L/H dimensions ($M = -47.0$, $t(21) = -9.63$, $p < .001$). Hence, there also is support for our second hypothesis.

However, unexpectedly the pattern of intergroup discrimination was not independent of the particular labels of the categories to which subjects had been assigned. Subjects categorized as Analytics discriminated clearly in line with our hypothesis: Minority members significantly favoured their own group on dimensions

highly important to the in-group, that is on both H/H and H/L dimensions, whereas majority members showed in-group favouritism only on the latter dimensions (see Table 4). These results further indicate that majority and minority differ in the way they try to secure a positive social identity. The former highlights its positive distinctiveness mainly on in-group specific dimensions ("to every group its due"). The latter, however, manifests more social competitiveness (Turner, 1975, 1978). Rather than merely demanding its due, the minority further strives to outdo the out-group, i.e. to differentiate itself positively from of the out-group. These patterns of intergroup discrimination are clearly consistent with our hypotheses.

But a caveat is necessary. For as to Synthetics the pattern of results was not as straight forward. Both majority and minority showed significant in-group favouritism only on in-group specific, i.e. H/L dimensions, though on H/H dimensions there was merely a nonsignificant trend towards in-group favouritism in both conditions ($\underline{M}$(MIN) = 7.7, $\underline{t}(9) = 1.87$, $\underline{p} < .10$; $\underline{M}$(MAJ) = 5.7, $\underline{t}(10) = 1.85$, $\underline{p} < .10$). Conversely on out-group specific dimensions the out-group was clearly favoured. However, regarding the amount of out-group favouritism granted on L/H dimensions the majority was clearly less competitive than the minority. Hence, although the results regarding Synthetics deviate from our specific predictions, the apparently more pronounced social competitiveness shown by minority members is nevertheless consistent with our basic rationale which assumes particular identity problems for minority members thus expecting them to be less fair in intergroup comparisons.

Inspection of the personal importance ratings (Table 5) sheds further light on groups' strategies to secure a positive social identity. Interestingly, both minorities and majorities (Analytics and Synthetics) ascribe more personal importance to those dimensions on which they hold a superior position in contrast to dimensions on which out-group superiority is admitted. Moreover, as to Analytics the importance of ratings nicely match the pattern of discriminatory intergroup comparisons. For minority mem-

bers attach the highest importance to H/H dimensions, majority members to H/L dimensions. In a nutshell, minority members seem to communicate blatantly "we are better than the majority" whereas the majority indicates more subtly "they are different, but different just means worse".

Regarding Synthetics the low amount of out-group favouritism granted on out-group specific dimensions (L/H) by minority members is further accentuated if one considers the low personal importance attached to L/H dimensions ($\underline{M}$(H/L) = 83.9 vs. $\underline{M}$(L/H) = 61.9, $\underline{t}(9) = 2.78$, $\underline{p} < .05$, t-test, two-tailed). Majority members' importance ratings, however, seriously question the generous impression those subjects gave by favouring the out-group on L/H dimensions earlier on. For that out-group favouritism is granted only on "second class" dimensions according to the respective low personal importance ratings ($\underline{M}$(H/L) = 84.8 vs. $\underline{M}$(L/H) = 60.6, $\underline{t}(10) = 2.68$, $\underline{p} < .05$, t-test, two-tailed). In sum, the majority appears somewhat more subtle than the minority in its search for a positive social identity.

Another interesting question concerns the effect of membership in a minority or majority group on the degree of identification with the in-group. Simon & Brown (1987) presented empirical evidence supporting their prediction that minority members would identify more strongly with their in-group than would members of nonminorities. In the present study two scales are directly concerned with subjects' feelings of belongingness either to the small four-person subgroup or to the broad social category (scale V and VI respectively; see Table 6). Relative in-group size did not yield a significant main effect on either scale, though on the former the main effect approached statistical significance ($\underline{F}$(V)(1,38) = 3.12, $\underline{p}$ = .085, $\underline{F}$(VI)(1,38) = 1.26, $\underline{ns}$). However, as can be seen in Table 6 (scale V) only Synthetics identified more strongly with the minority than with the majority in-group whereas there was virtually no difference for Analytics ($\underline{F}$(size x label)(1,38) = 3.21, $\underline{p}$ = .081). On the other hand, for both Analytics and Synthetics minority members were more satisfied with the actual cooperation within their small subgroup (scale IV)

than were majority members (F(size)(1,38) = 9.34, $p < .01$), although the difference was again more pronounced for Synthetics (F(size x label)(1,38) = 4.20, $p < .05$). On scale I a nonsignificant trend suggests that minority members in general liked their fellow group members better than did majority members (F(1,38) = 3.64, $p = .064$). Comparing liking for in-group and out-group members an inspection of Table 6 (scale I and II) again points to differences between Analytics and Synthetics. Whereas for the former in-group liking consistently exceeds out-group liking, for the later only minority members liked in-group members better than out-group members.

Since most differences just reported did not reach an acceptable level of statistical significance only tentative conclusions can be drawn. Firstly, there is some indication that minority membership leads to a more positive perception of in-goup members and the intragroup encounter and to increased identification with the actually present in-group. Secondly, those effects tend to be more pronounced when the minority status is based on membership in a broad social category members' identification with which is rather weak (scale VI: F(label)(1,38) = 3.51, $p = .069$) and as to which they show only low intragroup liking (scale I: F(label)(1,38) = 5.05, $p < .05$).

Relating these findings to the differential pattern of intergroup discrimination shown by minority and majority members the more straightforward discriminatory behaviour of the former appears to be associated with increased social cohesiveness on the part of these group members. This relation is entirely consistent with the basic notion of social identity theory.

Finally, as to the differences between Analytics and Synthetics no thorough explanation can be offered. The somewhat lower acceptance by the latter of the category membership ascribed to them, on the one hand, and the accentuated minority-majority differences on different measures of social cohesiveness shown by these subjects (i.e. Synthetics), on the other, point to semantic connotations inadvertently associated with the category descriptions or labels. It stands to reason that such connotations might have

been responsible for differences between Analytics and Synthetics concerning the pattern of intergroup discrimination. Interestingly, however, in study I where a symmetrical categorization in two groups of equal size was effected group label had no influence whatsoever on intergroup comparisons or on measures of social identification and social cohesiveness (all Fs < 1). One might speculate that an asymmetrical categorization in minority and majority sensitized subjects for contextual cues to a greater degree thus rendering such connotations effective.
Notwithstanding the complexity of the results reported here there is solid empirical ground on which we can conclude that both minority and majority members strive for positive in-group distinctiveness in intergroup comparisons thus securing a positive social identity. However, minority and majority clearly differ as to the degree of open social competition they engage in. The former endeavours to dispel any doubt concerning its own superiority in a rather straightforward way. Conversely, at first sight the majority appears quite fair or even generous towards the out-group. But closer examination of this attitude clearly reveals more "refined" or hidden pathways to in-group favouritism.

General Discussion

Previous research has demonstrated how selective groups are in the dimensions they choose for discriminatory intergroup comparisons (Mummendey & Schreiber, 1983, 1984; van Knippenberg & Oers, 1984). The aim of the present piece of research was twofold. Study I was set out to investigate the validity of previous findings (Mummendey & Schreiber, 1984) employing a laboratory rather than a field setting this time. The results demonstrate the predicted effects of the importance of comparison dimensions on intergroup discrimination. The in-group is not favoured indiscriminately. Rather, there are domains (dimensions) as to which superiority of the out-group is conceded. However, by no means is this superiority likely to threaten one's own positive social identity. For

the superiority of the out-group in its specific domains is less pronounced than the specific superiority of the in-group anyway and above all out-group specific domains are perceived as of minor importance regarding the relevant task.

The second study provided some evidence supporting the assumption that a minority is more competitive than a majority regarding the selection of comparison dimensions on which the in-group is differentiated positively from the out-group. But the results are more complex than expected. In spite of less conspicuous competitiveness on the part of majority members these, too, were not willing to jeopardize the positive distinctiveness of their own group. They also favoured the out-group only on second class dimensions, dimensions which they considered less relevant to the respective task.

Taken together, these studies further illustrate how selective choice of dimensions for intergroup comparisons opens up hidden pathways to in-group favouritism. One might assume that group members would follow a "to-every-group-its-due principle" provided that there is the opportunity of conceding positive distinctiveness of the out-group on out-group specific dimensions, thus without jeopardizing one's own positive social identity. In this respect our results are disappointing, however.

Firstly, comparisons biased in favour of the in-group are still possible on dimensions equally relevant to in-group and out-group (see study I and minority condition in study II). Secondly, although superiority may be attributed to in-group and out-group regarding distinct domains, a meta-comparison between the respective in-group and out-group superiority can still reveal some degree of in-group bias (nonsignificant trend in study I and for Synthetics in the minority condition of study II). Thirdly, the out-group may be allowed to fare well only on second class dimensions (see study I and II). Either out-group superiority is acknowledged only on dimensions which are (a priori) consensually regarded as of minor importance within a specific social context or the dimensions on which the out-group is superior are (a posteriori) re-evaluated respectively. There is indeed some indica-

tion that subjects in both studies tended to select as in-group specific dimensions (H/L) those which seem especially important considering both the task assignment and subjects' normative background (it will be recalled that subjects were mostly social science students). Conversely, those selected as out-group specific dimensions (L/H) apparently correspond less well to the relevant standards or norms. In study I 13 different dimensions were selected as H/L and 17 as L/H dimensions. Among the two most frequently chosen dimensions were "stimulation of children's initiative" and "variety" for H/L dimensions and "clear survey" and "controllability" for L/H dimensions. In study II 12 and 13 different dimensions were selected as H/L and 10 and 13 as L/H dimensions in the minority and majority condition respectively. In both conditions "naturalness" and "stimulation of children's initiative" were among the two most frequently chosen H/L dimensions, and again "clear survey" and "controllability" among the repective L/H dimensions. Thus, although out-group distinctiveness is generally admitted, the out-group being different here also implies its being worse.

Moreover, many if not most intergroup encounters are between members of minorities and majorities. Our results indicate that under such conditions the former will show pronounced social competitiveness resulting in more obvious in-group favouritism whereas the latter might adopt a more generous facade. But one can expect that as soon as the majority feels seriously threatened by the minority it will also assert its own identity more offensively (see Moscovici & Paicheler, 1978).

In sum, at this stage of research we have some serious doubts concerning prescriptions for intergroup harmony which stress mutual intergroup differentiation, or in other words, mutual recognition of superiorities and inferiorities (cf. Hewstone & Brown, 1986).

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