

Social categorization and similarity in intergroup behaviour¹

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Abstract

The present study is one of a series exploring the role of social categorization in intergroup behaviour. It has been found in our previous studies that in 'minimal' situations, in which the subjects were categorized into groups on the basis of visual judgments they had made or of their esthetic preferences, they clearly discriminated against members of an outgroup although this gave them no personal advantage. However, in these previous studies division into groups was still made on the basis of certain criteria of 'real' similarity between subjects who were assigned to the same category. Therefore, the present study established social categories on an explicitly random basis without any reference to any such real similarity.

It was found that, as soon as the notion of 'group' was introduced into the situation, the subjects still discriminated against those assigned to another random category. This discrimination was considerably more marked than the one based on a division of subjects in terms of interindividual similarities in which the notion of 'group' was never explicitly introduced. In addition, it was found that fairness was also a determinant of the subjects' decisions.

The results are discussed from the point of view of their relevance to a social-cognitive theory of intergroup behaviour.

Previous papers (Tajfel, 1970, Tajfel *et al.*, 1971) reported a set of studies which aimed to elucidate the role played by social categorization in intergroup behaviour. The major purpose of these studies was to show that an individual's act of categorizing his social world into distinct social groups, into 'them' and 'us', can be, at least in

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our societies, a *sufficient* condition for introducing in his behaviour certain forms of ingroup favouritism and of discrimination against the outgroup. The theoretical rationale for the expectation that social categorization *per se* would induce this type of behaviour was described in detail in the previous paper (Tajfel *et al.*, 1971). Methodologically, in order to isolate the predicted effects of social categorization it was important to eliminate from the situation the major variables which are normally assumed to be causal in creating intergroup discrimination. The most important of these are: A conflict of interest and/or various forms of previously existing hostility between the groups. This was achieved in the experimental procedures by fulfilling the following criteria:

1. There should be no face-to-face interaction whatever between the Ss, either in the ingroup or in the outgroup or between the groups.
2. Complete anonymity of group membership should be preserved.
3. There should be no instrumental or rational link between the criteria for intergroup categorization and the nature of ingroup and outgroup responses requested from the subjects.
4. The responses should not represent any utilitarian value to the subject making them.
5. A strategy of responding in terms of intergroup differentiation (i.e. favouring the ingroup and detrimental to the outgroup) should be in competition with a strategy based on other more 'rational' and 'utilitarian' principles, such as obtaining maximum benefit for all. A further step in this direction would be to oppose a strategy of maximum material benefit to the ingroup to one in which the group gains less than it could, but *more* than the outgroup.
6. Last but not least, the responses should be made as important as possible to the Ss. They should consist of real decisions about the distribution of concrete rewards (and/or penalties) to others rather than of some form of evaluation of others (Tajfel *et al.*, 1971, pp. 153-4).

The results of the studies showed unambiguously that the Ss discriminated against the outgroup in the manner in which they awarded amounts of money to members of their ingroup and members of the outgroup. This discrimination was not, however, 'total'. In their responses, the Ss attempted to achieve a compromise between the two norms which, in their view, pertained to the situation: Ingroup solidarity and fairness. As a result, both the variables of ingroup favouritism and of fairness were shown to exert a highly significant 'pull' on the Ss' decisions about awarding money to others. These results have since been replicated in various forms in other studies (Doise *et al.*, 1972; Doise and Sinclair, in press; Tajfel and Billig, in press; Turner, 1972).

In order to specify the aims of the present study and to place it in its context, the procedures used in the initial study (Tajfel *et al.*, 1971) must first be described in

some detail. *Ss* were schoolboys aged between fourteen and fifteen. They knew each other well and were brought from their school in small parties to take part in the experiment in the psychology laboratory. First, they were asked to do a short task – in the first experiment this was to estimate the number of dots flashed onto a screen, and in the second, to express preferences for a number of abstract paintings of two artists, Klee and Kandinsky. After this they were told that they would be divided into two groups on the basis of how they had performed on the first task. In the first experiment they were told that they would be divided into the groups on the basis of their performance on the dot-guessing test; in the second, that they would be divided into groups depending whether on the whole they preferred the pictures of Klee or of Kandinsky. In actual fact, in both experiments the composition of the groups was random.

After the first task was completed, the *Ss* were informed that the experimenters would like to take advantage of their presence in the laboratory in order to conduct a second experiment, unrelated to the first. However, in order to facilitate coding and administration, the results of the first experiment would be used to divide them into 'groups' in the second one. The first experiment was concerned with, as the *Ss* knew, visual judgments (in the case of judging numbers of dots) or with esthetic preferences. The *Ss* were informed that the second one was concerned with taking decisions.

Ss were told they would only know which group they were in; they would not know the group membership of any of the others. In this second experiment they would be allotting real money to their fellow *Ss*. They would not know the identity of those they were giving the money to; they would only know which group they were in. They allotted the money by making choices alone on specially prepared payment matrices. It was stressed that on no occasion would they be awarding money to themselves; they would always be allotting it to the others. The choices on the matrices permitted detailed analysis of *Ss'* decisions.

The results from these two experiments were clear-cut: An overwhelming majority of *Ss* in the dots task allotted more money to ingroup members than to outgroup members. The 'rational' strategy of getting as much as possible for all the other *Ss* (maximizing joint profits), was ignored. In the 'picture task' it was also found that absolute ingroup favouritism was not as important as relative ingroup favouritism – in other words, *Ss* were more concerned that outgroup members should get *less* than ingroup members than they were with the absolute amounts of money they gave ingroup members.

It might be thought that the minimal intergroup experiments, outlined above, had shown that social categorization, isolated as a variable, is sufficient to produce ingroup favouritism. It remains true, however, that the variable of social categoriza-

tion always coincided in these experiments with the variable of similarity. The subjects were divided into groups on the basis of their performance on some task. It does not matter that the groups were 'defined by flimsy and unimportant criteria' (Tajfel, 1970, p. 101); the important point is that they were based on *some* criterion. The Ss always assumed that there was some similarity between their fellow ingroup members and themselves, and also that there was some difference between themselves and the members of the outgroup.

Thus, in the initial minimal intergroup experiments, social categorization and similarity between ingroup members were never properly differentiated. These two variables need to be separated experimentally before the effects of social categorization *per se* on intergroup relations can be assessed. This is especially so in the light of the considerable amount of research which has demonstrated that Ss are attracted to others who have similar personality or socio-economic status to themselves (see Byrne, 1969; Simons *et al.*, 1970, for reviews of this evidence). There is one crucial difference between most of the similarity-attraction studies and the minimal intergroup experiments: In the latter the similarities and differences involved were deliberately trivial (e.g. style of dot-guessing and preferences for abstract pictures), whilst in the similarity-attraction studies the similarities and differences have been more important (e.g. personality and attitudes). However, there have been several similarity-attraction studies which have investigated the effects of similarity importance (Clore and Baldridge, 1968; Byrne and Nelson, 1964, 1965). In these studies, some Ss were asked to rate for attractiveness a stranger who held similar views to themselves on important attitude items (e.g. politics and religion), and other Ss had to rate a stranger who agreed with them on an attitude scale composed of unimportant items (e.g. attitudes to gardening). The results of these experiments showed that there was no difference in the relationship between agreement and attractiveness according to the importance of the attitudes. In one condition of the Clore and Baldridge (1968) study, and in experiments by Byrne *et al.* (1968) and Clore and Baldridge (1970), it was found that the importance of the attitudinal similarity did have an effect if important and unimportant items were both used at the same time with the same Ss. Nevertheless, even in these cases there was a correlation between agreement on the unimportant items and attractiveness, although it was not as strong as the correlation on the important items. Thus it has been shown that trivial similarities can lead to attraction, and under certain circumstances they can lead to as much attraction as more important similarities. As a result, it is reasonable to expect that the trivial similarities and differences used in the minimal intergroup experiments might have had some influence on the intergroup discrimination that has been found.

Therefore, in order to assess the effects of social categorization *per se*, this variable

needs to be experimentally separated from any similarity basis for that categorization. The question to be answered is whether the mere division of Ss into 'groups', regardless of the meaning of these groupings, is sufficient to produce intergroup behaviour. There have been two studies which suggest that a grouping not based on any similarities is insufficient to produce any ingroup bias (Rabbie and Horwitz, 1969; Rabbie and Wilkens, 1971). Both these experiments were primarily concerned with investigating the effects of such variables as interaction and 'common fate' on intergroup relations. However, both experiments contained similar control conditions which are of relevance here. In both these control conditions Ss were arbitrarily divided into two groups; they then worked on their own at several tasks, and after this they were asked to rate the members of their own group and the members of the outgroup on several personality-rating scales. The results showed no evidence of ingroup favouritism in these control conditions – the Ss did not rate ingroup members more favourably than they did outgroup members. It could be argued, however, that the failure by Rabbie to find ingroup favouritism in these control conditions might not be due so much to the random grouping as to the method used for assessing ingroup bias. It seems at least possible that guessing the personality characteristics of total strangers in a highly contrived situation is not seen by the Ss as either a very significant or a very sensible task. The task of awarding money to others (in a situation which is equally contrived) presents the advantage of being, in some measure, a set of 'significant' decisions. It was therefore assumed that it would be a more sensitive measure of intergroup bias than the judgment of personality characteristics.

The experiment reported below is an attempt to investigate separately the variables of similarity and social categorization in the minimal intergroup situation. In relation to the results of the previous studies, it was decided to obtain measures of three possible strategies that Ss might employ in making their choices:

(a) Ingroup favouritism (FAV) – This was defined as the strategy of choosing on a matrix *either* the greatest amount of money that can be awarded to a member of the ingroup *or* a choice which results in a member of the ingroup getting as much as possible more than a member of the outgroup. The former type of FAV can be termed 'absolute ingroup favouritism', and the latter type 'relative ingroup favouritism'. In this experiment absolute and relative ingroup favouritism were not investigated separately.

(b) Maximum joint profit (MJP) – This was defined as the strategy of making a choice which results in the greatest possible common benefit; i.e., choosing the term which corresponds to the most money that can be awarded to two other Ss regardless of their group membership.

(c) Fairness (F) – This was defined as the strategy of choosing on a matrix the

term which corresponds to the least difference in amounts that can be allotted to the two individuals.

The main hypothesis of this experiment was that both variables, similarity and social categorization, should positively affect ingroup favouritism.

The experiment

Design

There were two independent variables: Social categorization/no social categorization; similarity between ingroup members/no similarity between ingroup members. Social categorization was operationally defined as the explicit division of *Ss* by the experimenters into groups. For the sake of convenience, the implicit division of *Ss* in the non-categorization conditions will be referred to as a grouping, and the term 'ingroup favouritism' will still be applied to these conditions.

There were 75 subjects, boys aged between 14 and 16, pupils of an independent private school in Bristol.

The experiment was of a 2×2 factorial design. The four experimental conditions are represented in Table 1, with the number of *Ss* in each condition.

Table 1. *Experimental design and number of subjects in each condition*

	Categorization	Non-categorization
Similarity	N = 19	N = 19
Non-similarity	N = 18	N = 19

Procedure

The experimental sessions consisted of two parts and followed the basic design of the minimal intergroup experiments described in Tajfel (1970) and Tajfel *et al.* (1971). There were four experimental sessions, one for each experimental condition.

Part 1

Ss were shown on an epidiascope twelve pairs of pictures and for each pair they had to mark down on answer sheets which of the pictures they preferred. The pictures were all abstract. *Ss* in the two Similarity conditions were told that the

pictures were painted by two foreign modern painters, Klee and Kandinsky. The names of these two artists were written on the blackboard. They were not told which of the pictures were painted by Klee and which by Kandinsky. Ss in the non-Similarity conditions were not told anything about the painters. They were simply told that they would be shown twelve pairs of pictures. In other words Klee and Kandinsky were not mentioned to these Ss. Otherwise Part 1 of the experiment was the same for all Ss.

Part 2

After Part 1 had been finished, Ss were given instructions for the second part of the experiment. The instructions differed for each experimental condition.

Categorization: Similarity: Ss were given the same instructions which are usually given in the standard minimal intergroup situation. They were told that in this part of the experiment they would be making different sorts of decisions and would be divided into two groups. They would make these decisions on their own and would be taken out one by one to another room, to work in separate cubicles. By this time their scores for their picture preferences would be computed and they would be told individually whether they were in the group which preferred Klee or the group which preferred Kandinsky.

Once in their cubicles they would be given a booklet. They were told that they would be awarding real money to the other subjects. However, they would not know the identity of the individuals to whom they were giving the money, since everyone would be given code numbers. They would only know, to take an example, that they were awarding money to 'member No. 49 of the Kandinsky Group' and 'member No. 79 of the Klee group'. Other examples were given, and it was pointed out that all the members of the Kandinsky group had code numbers in the forties and all in the Klee group had code numbers in the seventies. No other identification would be given in the booklets. The booklets contained 24 matrices and were explained to the subjects. The matrices will be described below.

It was stressed that on no occasion would subjects be awarding money to themselves. They would always be allotting money to others. At the end of this task, each would be brought back into the first room and each would receive the amount of money that the others had awarded him. They were told that the value of each point they were awarding was 1/10 p.

After the instructions had been given and questions answered, subjects were told that their picture-preference sheets had been marked. They were then led off individually to their cubicles in order to fill out their booklets. On the way each was told which group he was in: Composition of the groups was, in fact, random.

Categorization: Non-similarity: Ss were told that Part 2 had nothing to do with Part 1. For this part of the experiment they would be divided into two groups; one called 'group X' and the other 'group W'. They were told that it was just a matter of chance whether they were in group X or group W. While these instructions were being given, they were told that another experimenter was working out by the toss of a coin who was to go into which group.

They were told they would have to work on their own and the booklets were explained to them; and also that they would not know the identity of those to whom they were giving money on account of the code numbers. They would only know the individual's code number and group (e.g. 'member no 49 of the W Group'). They were told that all the members of the W group had code numbers in the forties and all the members of the X group had code numbers in the seventies. Apart from this the instructions were the same as those for the Categorization: Similarity Ss.

Non-categorization: Similarity: Ss were told that while the instructions were being given for this part of the experiment, another experimenter would be working out who on the whole liked Kandinsky and who liked Klee. They were then told they would have to work on their own and award real money to other subjects. The booklets and code numbers were explained. They would not know the identity of the individuals, only their code number (e.g. 'Number 49'). They were told that some of the code numbers were in the forties and some in the seventies. They were told: 'It's easier for us to work out the money if we do it like this. As a matter of fact we give code numbers in the forties to those who on the whole preferred the Kandinsky, pictures and code numbers in the seventies to those who preferred the Klee pictures. You will be told what your code number is on the way to the cubicles.' In other respects the instructions were the same as those used in the Categorization: Similarity condition.

Non-categorization: Non-similarity: Ss were told that Part 2 had nothing to do with Part 1. In this part they would work on their own. They would be given booklets and they would be awarding money to others. They would not know the identity of those to whom they were giving the money because everyone would be given code numbers. They would only know the individual's code number (e.g. Number 49). They were also told, 'some of the code numbers are in the forties and some in the seventies. It is easier for us to work out the money if we do it like this. We allot the code numbers quite randomly by the toss of a coin. So it's just a matter of chance which number you get.' The subjects were told their code numbers individually on the way to the cubicles. Apart from this, Ss in this condition received the same instructions as those in the Categorization: Similarity condition.

The matrices

Each page in the booklet contained one matrix. A matrix consisted of either 13 or 14 boxes, each containing two numbers. On each matrix an *S* was awarding money to two other *Ss*. The top row of numbers within the boxes were the rewards to be awarded to one *S*, and the bottom row for the other. *Ss* had to indicate their choices by ticking one box per matrix. There were 24 pages per booklet, and the *Ss* in all conditions had the same set of matrices to complete. Three different matrices were used. (They are listed in Table 2.) All the matrices were used in three different sorts of choices: (a) Ingroup (I) choices, where both rows of numbers stand for rewards for an ingroup member other than the *S* himself; (b) Outgroup (O) choices, where both rows of numbers stand for rewards for an outgroup member; (c) Intergroup 'differential' (D) choices, where the *S* is choosing for a member of his own group (other than himself) and for a member of the outgroup.

Table 2. *The matrices*

Matrix 1	1 14	2 13	3 12	4 11	5 10	6 9	7 8	8 7	9 6	10 5	11 4	12 3	13 2	14 1
Matrix 2	19 1	18 3	17 5	16 7	15 9	14 11	13 13	12 15	11 17	10 19	9 21	8 23	7 25	
Matrix 3	14 14	15 13	16 12	17 11	18 10	19 9	29 8	21 7	22 6	23 5	24 4	25 3	26 2	

The important features of the matrices are as follows:

Matrix 1: This matrix is primarily a straightforward measure of ingroup favouritism. It is impossible to maximize joint profit, and the fairest choices are in the centre of the matrix. Ingroup favouritism is assessed by considering the 'D' choices, where the *S* is awarding money to a member of the ingroup and a member of the outgroup. On these choices the *Ss*' decisions are scored from 0 to 13 with zero signifying the choice which shows maximum favouritism to the ingroup member (i.e. the choice which gives 14 to the ingroup member and 1 to the outgroup member). A choice which shows maximum favouritism to the outgroup member would be scored as 13 (i.e. the choice which gives 1 to the ingroup member and 14 to the outgroup member). Each *S* had to complete this matrix eight times: 2 Ingroup choices, 2 Outgroup choices and 4 Differential choices.

Matrix 2: This matrix permits an assessment of the strategies of ingroup favouritism (FAV) and of maximum joint profit (MJP). To determine whether the *Ss* employed these strategies the D choices are considered. On the D choices the strategies of FAV and MJP either coincide or conflict with each other depending on

which line stands for rewards for the ingroup member and which line stands for rewards for the outgroup member. When the row 19 . . . 7 (the top row in the matrix 2 in Table 2) stands for rewards for the ingroup member, and 1 . . . 25 stands for rewards for the outgroup member, then MJP (7/25) is on the extreme right hand side of the matrix, and FAV (19/1) is on the extreme left. Thus on these choices a strategy of MJP conflicts with a strategy of FAV. However, when the positions of the ingroup and outgroup member are reversed the strategies coincide; when therefore row 19 . . . 7 represents rewards for the outgroup member and row 1 . . . 25 rewards for the ingroup member then MJP coincides with FAV, both are represented by the box 7/25. The strategies are assessed by comparing the decisions on the choices where the strategies coincide with those where they conflict. If neither strategy is used then Ss should respond in the same way on the matrices where these strategies conflict as they do when they coincide. If FAV is used then this should cause responses to be closer to MJP when FAV coincides with MJP than when they conflict. The converse should be true if MJP is used. In this way both MJP and FAV can be assessed as strategies. Each S had to complete this matrix eight times: 2 I choices, 2 O choices and 2 each of the two sorts of D choices.

Matrix 3: This matrix permits an assessment of the strategies of ingroup favouritism and fairness. It is similar in form to matrix 2. That is, on the D choices the strategies in question either coincide or conflict, depending on which line stands for rewards for the ingroup member and which for the outgroup member. The method of scoring is similar: Choices where FAV and F coincide are compared with choices where they conflict. MJP is kept constant throughout this matrix. Each S had to complete this matrix eight times: 2 I choices, 2 O choices and 2 each of the two sorts of D choices.

On the cover of each booklet and at the top of each page was the S's code number or group membership, depending on the experimental condition:

Categorization: Similarity: Booklets in this condition were headed 'Booklet for member of the (S's group identification, Kandinsky/Klee inserted here) group'. Each row was labelled 'These are rewards for member No. (code numbers inserted here) of the (group identification, Klee/Kandinsky, inserted here) group'.

Categorization: Non-similarity: Booklets were headed 'Booklet for member of the (S's group identification, X/W, inserted here) group'. Each row of each matrix was labelled 'these are rewards for member No. (code numbers inserted here) of the (group identification, X/W, inserted here) group.'

Non-categorization: Similarity and Non-categorization: Non-similarity: the booklets for both these conditions were headed 'Booklet for No. (S's code number, either in forties or seventies inserted here).' Each row of each matrix was labelled 'these are rewards for No. (code numbers inserted here)'.

Summary of experimental manipulations

There were two independent variables: Social categorization and similarity. In the categorization conditions Ss were explicitly divided into groups and in the non-categorization conditions there was no mention of 'groups'. In the similarity conditions Ss were told that they were assigned code numbers and/or group membership on the basis of their picture preferences. In the non-similarity conditions code numbers and/or group membership were openly assigned by chance.

Categorization: Similarity: In this condition the usual minimal group procedure was followed; subjects were given code numbers and divided into two groups on the basis of their picture preferences. There were two series of code numbers, one for each of the two groups.

Categorization: Non-similarity: Ss were divided into two groups and given a code number from one of the two series, just like the Ss in the Categorization: Similarity condition, except that group membership was openly assigned by chance.

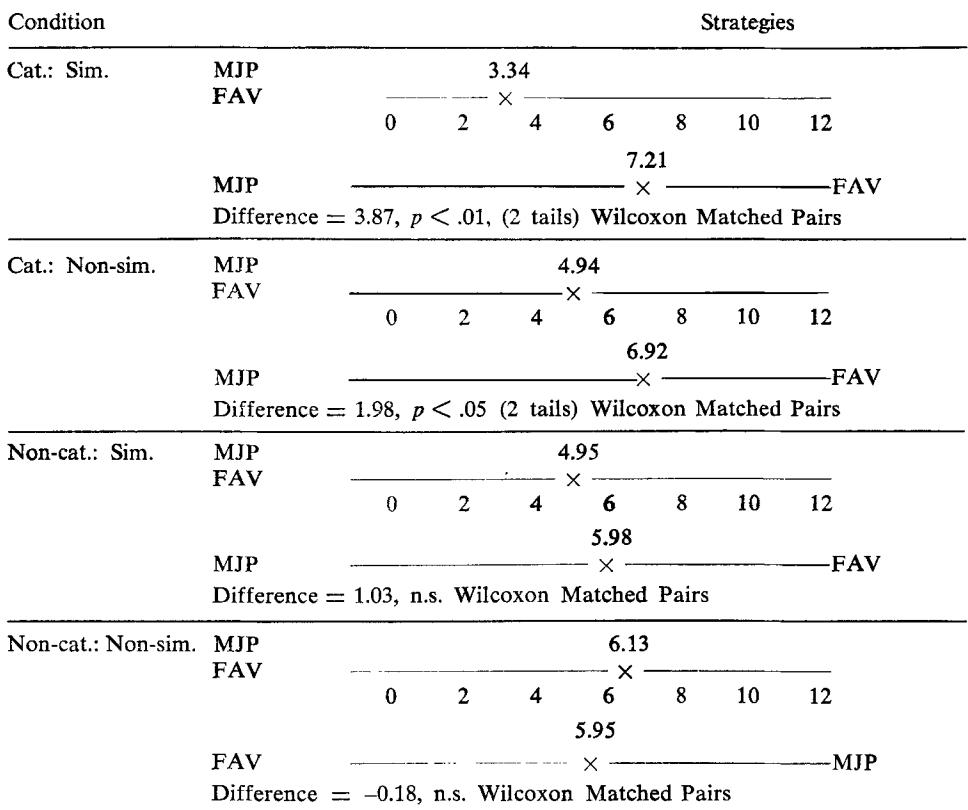
Non-categorization: Similarity: Ss were given a code number from one of the two series of code numbers. Ss were told that they were assigned code numbers on the basis of their picture preferences. This condition was similar to the Categorization: Similarity condition except that there was no explicit social categorization (i.e. no mention of groups or group labels).

Non-categorization: Non-similarity: In this condition subjects were told that they would be assigned a code number randomly from two series of code numbers. In point of fact this was a control condition since there were no explicit groups, and code numbers were not assigned on the basis of similarities: i.e., the two variables hypothesized to determine ingroup bias were absent in this condition.

Results

Measures of ingroup favouritism

Obviously, the most important results are those which show the presence or absence of ingroup favouritism. Figure 1 shows the results of the 'D' choices on matrix 2. In order to isolate ingroup favouritism as a strategy, Ss' choices on these matrices

Figure 1. *Mean scores of 'D' choices: Matrix type 2 (MJP ± FAV), per condition*

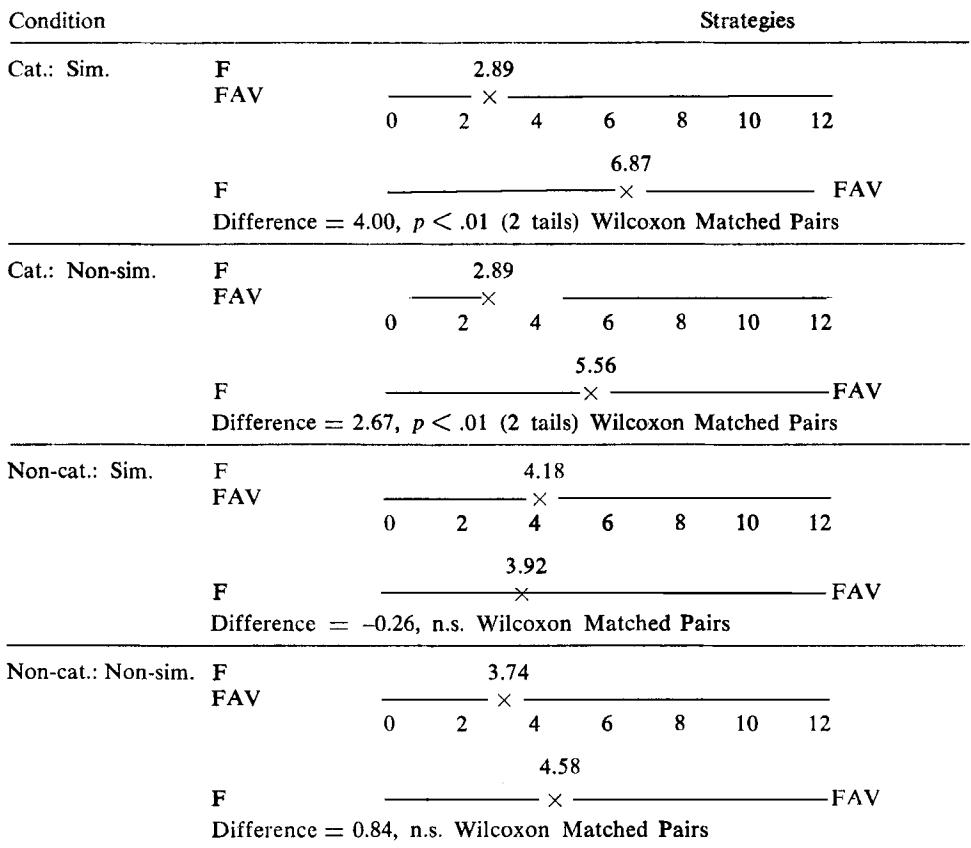
are scored from 0 to 12, with a score of zero always corresponding to a choice showing maximum joint profit, and a score of twelve for a choice furthest from maximum joint profit. If ingroup favouritism does affect Ss' choices then their choices on those matrices where a strategy of FAV conflicts with MJP should be greater than their scores on those matrices where they coincide. Where FAV coincides with MJP a choice showing maximum ingroup favouritism is scored as zero, but where the strategies conflict such a choice is scored as twelve since it is the choice furthest from MJP. The results are presented schematically in Figure 1. The two sorts of 'D' choices are shown together for each condition: The mean scores for the choices where MJP and FAV coincide are always shown above those where the strategies conflict. The difference between the two choices is shown beneath each pair.

From Figure 1 it can be seen that only two of the four conditions showed significant ingroup favouritism. The two conditions which showed this ingroup favouritism were the two categorization conditions, with the Categorization: Similarity Ss showing more favouritism than the Categorization: Non-similarity Ss. Ss in the Non-categorization: Similarity condition showed a distinct but non-significant trend towards ingroup favouritism.

Figure 2 shows the mean scores of the 'D' choices on matrix 3, per condition. In order to isolate ingroup favouritism as a strategy, these matrices are scored 0 to 12, with a score of zero always representing the point of fairness. Thus on those choices where FAV and F coincide, a choice of maximum FAV is also scored as zero. But on those choices where the two strategies conflict a choice of maximum of FAV is scored as twelve. The mean scores per condition are represented schematically in Figure 2. The mean scores for the choices where F and FAV coincide are shown above those where the strategies conflict. The difference between the two choices is shown beneath each pair.

The results of Figure 2 agree well with those of Figure 1. Again only the two Categorization conditions show significant ingroup favouritism, and again Ss in the Categorization: Similarity condition show greater FAV than those in Categorization: Non-similarity condition. On these matrices, however, the Non-categorization: Similarity Ss do not show any trend towards ingroup favouritism.

Matrix 1 was scored from 0 to 13. A score of zero on the 'D' choices signified a response showing maximum FAV and a score of 13, minimum FAV. A mean score of 6.5 would show a pattern of responses with no bias at all either to ingroup or outgroup favouritism. The mean scores for all conditions are listed in Table 3. One sample 't' test was computed on these scores to determine whether they differed significantly from the point of no bias, 6.5. Only one condition's scores significantly differed from 6.5: That was those of the Categorization: Similarity condition ($p < .01$, two-tailed). The scores of the Categorization: Non-similarity and the Non-categorization: Similarity showed a nonsignificant tendency towards ingroup favouritism. The results from the three direct measures of ingroup favouritism have so far been presented. There is a fourth measure but it is an indirect measure of FAV. It is indirect in that it is not derived from 'D' choices where Ss are actually determining rewards for an ingroup or an outgroup member at the same time. This measure compares the I (ingroup) choices with the O (outgroup) choices on those matrices where MJP is not constant, in order to find out whether Ss tend to allot more money when they are deciding for two ingroup members than when they are deciding for two outgroup members. The reasoning behind this is that Ss might show ingroup favouritism, FAV, by giving as much as possible to two members of their own group and as little as possible to two members of the outgroup. Thus on the I choices FAV,

Figure 2. *Mean scores of 'D' choices: Matrix type 3 (*F* ± *FAV*) per condition***Table 3.** *Mean choices on 'D' choices of matrix 1*

Condition	Mean score
Categorization: Similarity	4.38
Categorization: Non-similarity	5.92
Non-categorization: Similarity	6.09
Non-categorization: Non-similarity	6.62

Ingroup favouritism < 6.50.

according to this reasoning, coincides with MJP, but on the O choices FAV conflicts with MJP.

Figure 3. Means scores of O and I choices: Matrix 2, per condition (MJP ± FAV)

Condition	Choice	Strategies									
Cat.: Sim.	I FAV MJP	4.66									
O	MJP	6.47									
O-I	= 1.81, p < .01 (2 tails)	Wilcoxon Matched Pairs									
Cat.: Non-sim.	I FAV MJP	4.97									
O	MJP	6.14									
O-I	= 1.17, p < .02 (2 tails)	Wilcoxon Matched Pairs									
Non-cat.: Sim.	I FAV MJP	5.84									
O	MJP	6.89									
O-I	= 1.03, n.s. Wilcoxon Matched Pairs										
Non-cat.: Non-sim.	I FAV MJP	5.42									
O	MJP	5.89									
O-I	= 0.47, n.s. Wilcoxon Matched Pairs										

To obtain this indirect measure of ingroup favouritism the O and I choices on matrix type D, no. 7 were scored 0 to 12 with the point of MJP being scored as zero. The main decisions on these matrix choices are represented schematically in Figure 3. All four conditions produced responses on the I choices which were nearer to MJP than the O choices were. In only one condition, Categorization: Non-similarity, was the difference between the two sorts of choices significant. The gross difference between the O and I choices of the Categorization: Similarity condition was in fact greater than that produced by the Categorization: Non-similarity Ss; but it just fails to reach significance level ($z = 1.82$) on account of the high variability of these scores. The Non-categorization: Similarity Ss also showed a substantial nonsignificant trend in the direction of ingroup favouritism.

The main conclusions to be drawn from the data so far presented can be summarized:

- a) Both Categorization conditions showed significant ingroup favouritism on three of the four measures of FAV and nonsignificant ingroup favouritism on the fourth.
- b) Neither of the Non-categorization conditions showed any significant ingroup favouritism, although the Non-categorization: Similarity Ss produced three non-significant trends towards ingroup favouritism.
- c) On all four measures, the Categorization: Similarity Ss' mean amount of ingroup favouritism was greater than that produced by the Categorization: Non-similarity Ss.
- d) Each of the four measures of ingroup favouritism (three direct and one indirect) showed at least one significant amount of ingroup favouritism.

Comparisons of ingroup favouritism between conditions

In order to gain a clearer picture it is necessary to compare directly the amounts of ingroup favouritism found in the various experimental conditions.

A $2 \times 2 \times 2 \times 2$ analysis of variance was computed for the 'D' choices of matrix 2 and matrix 3. The choices on matrix 2 were scored with maximum joint profit as zero. The scores on matrix 3 were scored with maximum fairness as zero. The two main variables were the two experimental manipulations: Similarity/Non-similarity and Categorization/Non-categorization. There were two repeated measures: The two sorts of matrices (matrix 2 and 3) and the two sorts of 'D' choices (whether FAV agrees or conflicts with the other strategy of the matrix, +FAV/-FAV). An extra score, the mean of the other eighteen, was added to the Categorization: Non-similarity condition. This was also done in the subsequent analyses of variance so that all four experimental conditions would contain nineteen Ss.

There are three significant results in this analysis of variance:

1. The repeated measure (+FAV/-FAV) was significant ($F = 24.56, p < .01$, two-tailed). The overall scores for all conditions on the F+FAV and MJP+FAV matrices were lower than the scores on the matrices where FAV conflicts with either fairness or maximum joint profit. Thus ingroup fairness is a significant repeated measure, but this result needs to be examined in the light of the second significant result.
2. The Categorization/FAV first order interaction was significant, ($F = 15.56, p < .01$, two-tailed). This significance is due to the fact that ingroup favouritism was greater for the Categorization Ss than for the Non-categorization Ss on these matrix choices. Since the Similarity/FAV interaction was nonsignificant,

- the FAV main effect has to be understood in terms of the Categorization/FAV interaction; i.e. the overall significant effect of FAV is mainly accounted for by the large effects of FAV in the Categorization conditions.
3. The other repeated measure also was significant ($F = 19.74, p < .01$, two-tailed). The scores on matrix 3 were nearer to the point of maximum fairness than the scores on matrix 2 were to the point of maximum joint profit. This indicates that Ss' choices were more influenced by the strategy of fairness than by MJP on these matrices.

A 2×2 analysis of variance was computed on the 'D' choices of matrix 1, scored 0 to 13, with a score of zero indicating a choice of maximum ingroup favouritism. Similarity/Non-similarity and Categorization/Non-categorization were the two variables. Both these variables produced significant main effects and the interaction between them was negligible; for Similarity/Non-similarity $F = 5.09, p < .05$, two-tailed; for Categorization/Non-categorization, $F = 6.76, p < .05$, two-tailed. This result suggests that similarity as well as categorization can be a determinant of ingroup favouritism.

A $2 \times 2 \times 2$ analysis of variance was computed on the indirect measure of FAV – the I and O choices of matrix 2. The two experimental manipulations were the two independent variables and the I/O choices constituted the repeated measure. The matrices were scored from 0 to 12, with a score of zero representing a choice of MJP. The only significant result was the repeated measure, ($F = 9.34, p < .01$, two-tailed). Overall the I choices were nearer to MJP than the O choices were, this being an indirect indication of ingroup favouritism. Neither of the two main effects nor any of the interactions reached significance level.

In order to investigate further the effects of categorization and similarity on FAV, the four measures of ingroup favouritism (three direct and one indirect) were combined to provide an 'overall FAV score'. All Ss' scores on each of the four measures were ranked from 1 to 76 across conditions: '1' denoted the S on that measure with the least amount of ingroup favouritism and '76' the S with the greatest amount. Each S thus had four rank scores, one for each measure of FAV. These four rank scores were then summed to give his overall FAV score. The means of this overall FAV score per condition were as follows: Categorization: Similarity = 191.68, Categorization: Non-similarity = 159.16, Non-categorization: Similarity = 138.74, Non-categorization: Non-similarity = 126.05 (N.B. the higher the score the greater the FAV). A 2×2 analysis of variance was computed on these overall FAV scores. The results are given in Table 4. It can be seen that both variables produced significant main effects and that the interaction between them was negligible. The F-ratio of the categorization variable was considerably larger than that of the similarity variable indicating that categorization is the more important of these significant variables.

The effects of the two experimental variables on FAV can be summarised:

(i) Categorization/Non-categorization. This has been shown to be an important determinant of FAV on three of the four measures and also on the overall measure. Categorization has been shown to be a sufficient condition for ingroup favouritism in this sort of experimental situation, viz. the strong FAV shown by the Categorization: Non-similarity Ss. It may even be a necessary condition, since neither of the two Non-categorization conditions *on their own* produced significant FAV on any one of the four separate measures of ingroup favouritism.

(ii) Similarity/Non-similarity. On one of the four measures of FAV it was found that the similarity Ss produced greater FAV than the non-similarity Ss. This was also found to be the case on the overall measure. Similarity was not found to be a necessary condition for ingroup favouritism: The Categorization: Non-similarity Ss produced significant FAV. Similarity was not even found to be a sufficient condition for FAV: The Non-categorization: Similarity Ss failed to show significant FAV on any of the four measures. However there was a definite but nonsignificant trend towards ingroup favouritism on three of the four measures for Non-categorization: Similarity Ss.

Maximum joint profit

Matrix 2 isolates MJP as a strategy as well as FAV on the 'D' choices. In order to assess maximum joint payoff as a determinant of Ss' choices, the 'D' choices are scored from 0 to 12, with zero always representing the point of maximum ingroup favouritism. The two sorts of 'D' choices are then compared in exactly the same way as they were in order to assess FAV. On those choices where MJP and FAV coincide the scores are exactly the same as they were when the matrices were scored with zero representing the point of maximum joint payoff. Where the two strategies conflict, the new scores equal the old scores subtracted from twelve, since the same responses are being scored, only this time from the other end of the matrix. The mean scores of these choices are shown schematically in Figure 4.

It can be seen from Figure 4 that the Non-categorization: Similarity condition was the only condition in which maximum joint payoff was used significantly as a strategy. The mean difference between the two sorts of 'D' choices was in fact bigger in the Categorization: Similarity than in the Non-categorization: Similarity condition (1.45 as against 1.07) but this difference just fails to reach significance level on a Wilcoxon Matched Pairs Test, ($T = 26.5$, $N = 14$). The other two conditions produced only a negligible amount of MJP.

A $2 \times 2 \times 2$ analysis of variance was computed on matrix 2 with maximum ingroup favouritism scored as zero. The two experimental manipulations were the

Table 4. Results of analysis of variance of overall ingroup favouritism scores

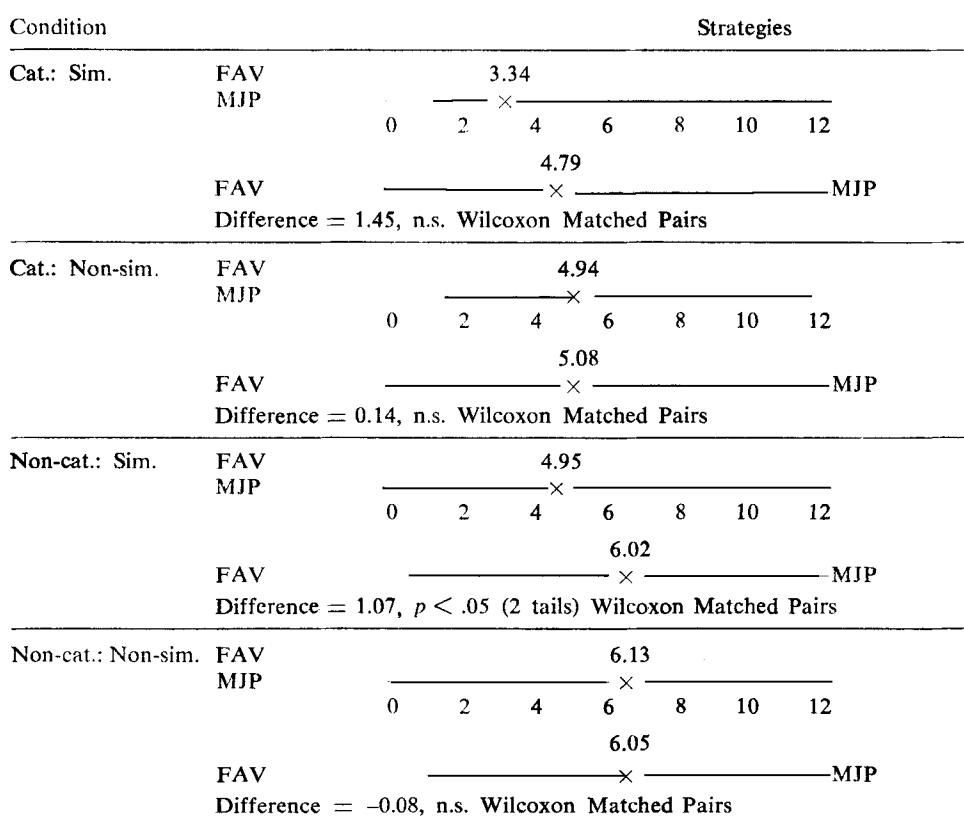
Source	df	SS	F
A Similarity/Non-similarity	1	9708.97	4.13*
B Categorization/Non-categorization	1	35174.02	14.96**
AB	1	1870.11	
Error	72	169269.26	
Total	75	216022.36	

* $p < .05$ two-tailed.

** $p < .01$ two-tailed.

two main variables and the two sorts of 'D' choices constituted the repeated measure. There were three significant results:

a) The Categorization/Non-categorization main effect ($F = 9.25$, $p < .01$). This

Figure 4. Mean scores of 'D' choices: Matrix 2 ($FAV \pm MJP$) per condition

is to be expected since the scores were computed with maximum ingroup favouritism as zero. Because the categorization Ss showed greater ingroup favouritism on these matrices than the non-categorization Ss. Their scores should be significantly lower than those of the non-categorization Ss.

- b) The repeated measure was also significant ($F = 4.91, p < .05$). Thus MJP was found to be a significant strategy. This result needs to be interpreted in terms of the third significant result.
- c) The interaction between Similarity/Non-similarity and the repeated measure was significant, ($F = 4.5, p < .05$, two-tailed). Although there was a significant main effect of MJP, the interaction showed that this was entirely due to the similarity conditions. The non-similarity Ss hardly used MJP as a strategy at all, whereas both the similarity condition Ss did use it (see Figure 4).

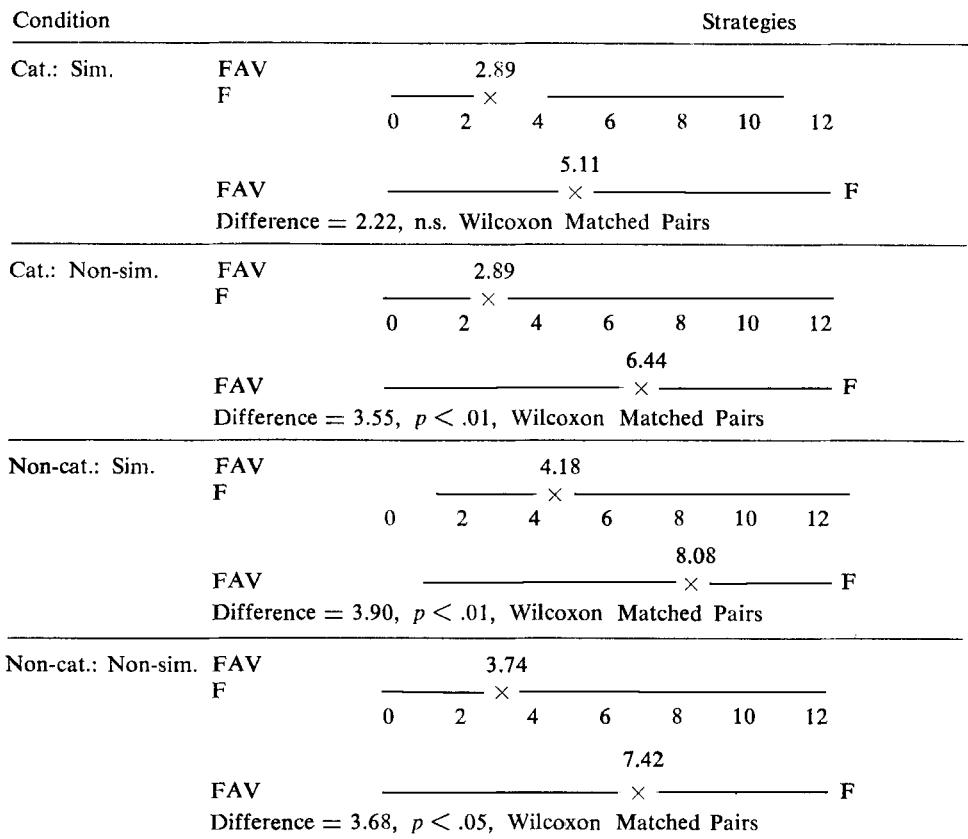
Fairness

Matrix 3 'D' choices isolate fairness as a strategy as well as ingroup favouritism. The method for isolating fairness is the same as that used to isolate MJP on matrix 2: The 'D' choices are scored from 0 to 12, with zero always representing the point of maximum ingroup favouritism. In the same way, on those choices where the two matrix strategies coincide (in this case F and FAV) the scores are exactly the same as they were in the calculations to isolate FAV. But where the strategies conflict, the new scores equal the remainder when the old scores are subtracted from twelve. The mean scores of the 'D' choices of matrix 3 thus scored are presented schematically in Figure 5.

From Figure 5 it can be seen that fairness was a significant strategy for three of the four experimental conditions. The only condition which failed to show significant fairness was Categorization: Similarity. There was a large trend in the direction of showing fairness as a strategy, but it just fails to reach significant level, when a Wilcoxon Matched Pairs Test is applied ($T = 33.5, N = 16$).

A $2 \times 2 \times 2$ analysis of variance was computed on the 'D' choices of matrix 3 scored with the point of maximum ingroup favouritism as zero. Categorization/Non-categorization and Similarity/Non-similarity were the two main variables. The two sorts of 'D' choices constituted the repeated measure. There were two significant results:

- a) The Categorization/Non-categorization main effect was highly significant ($F = 9.73; p < .01$); this is a reflection of the greater ingroup favouritism shown by Ss in the categorization conditions than by the Ss in the non-categorization conditions. Since these choices are being scored with the point of maximum

Figure 5. Mean scores of 'D' choices: Matrix 3 ($FAV \pm F$), per condition

ingroup favouritism as zero, it is to be expected that the scores of the categorization Ss should be lower than those of the non-categorization Ss.

- b) The repeated measure was very highly significant ($F = 41.53, p < .001$). Since none of the interactions with the repeated measure even approaches significance level, it can be concluded that fairness was a significant determinant of Ss' choices across conditions.

Discussion of results and conclusion

The main finding of this experiment was the establishment of the importance of social categorization in the minimal intergroup situation. Similarity was also found

to affect ingroup favouritism positively but it did not appear to be the crucial variable that social categorization was. The latter variable was found to be a sufficient condition for ingroup favouritism, and this finding provides a positive answer to the original question behind the minimal intergroup experiments: Whether the very act of social categorization leads to discriminative behaviour? In this experiment, Ss were merely told that they were being randomly divided into groups. This was sufficient for them to use this intergroup classification in their decisions. The Ss knew that their groups were arbitrary yet still they showed significant ingroup bias in the minimal intergroup situation.

Fairness was also found to be an important determinant of Ss' choices across conditions. As far as MJP is concerned, similarity, not categorization, appeared to be the crucial variable. This result is *prima facie* difficult to explain. In the previous experiments (Tajfel, 1970; Tajfel *et al.*, 1971; Tajfel and Billig, in press) there was no evidence that MJP was a significant strategy; all these experiments tested Ss in what were essentially similarity conditions. For this reason it would be rash to assert that similarity as a variable produces MJP. It could well be the case that the significant Similarity/MJP interaction was a chance result: Further experimentation would be necessary to determine whether this was a freak result and, if it is not, what explanation can be ascribed to it.

Social categorization was operationally defined in this experiment as the *explicit* division of Ss by the experimenters into 'groups'. It seems that the mere mention of 'groups' by the experimenters was sufficient to produce strong intergroup discrimination. It was as if that, just by inserting the word 'group' into the experimental instructions, the S's definition of the situation was radically altered. Standards or norms of behaviour would seem therefore to inhere in the very concept of a 'group', and these norms were elicited by the explicit grouping of Ss in the minimal intergroup situation. They were not elicited, at least not to the same degree, by implicit grouping: In the Similarity: Non-categorization condition, it could be argued that there was an implicit grouping of the Ss; however, it needed the explicit mention of 'groups' to produce strong discriminatory responses.

The question to be asked is why the word 'group' should have such normative prescriptions for behaviour. Obviously such a question could be answered on a number of different explanatory levels. A sociological analysis might stress the competitive nature of western societies and the fact that schoolboys are taught from an early age notions like 'team-spirit' and 'loyalty'. Related to these notions is of course ethnocentrism which has been found to be a widespread phenomenon, (e.g. Lambert and Klineberg, 1967; Tajfel *et al.*, 1970; Jaspars *et al.*, 1972). The evidence suggests that, in western society at least, there are normative values for favouring 'one's own kind'. It would be a simple enough matter to explain the ingroup favour-

itism of the minimal group situation in terms of a generalized response, which is 'carried over' from real-life into the laboratory setting.

This is no more, however, than a first level of explanation which leaves out of account the sociopsychological articulation of the phenomena involved. To say on a 'sociological' level that we are dealing here with the subjects' application to a particular situation of general norms, or on the 'psychological' level that the subjects have generalized to a new situation the kind of responses that had previously been reinforced, is undoubtedly true in some respects. But statements of this nature can be made to explain almost everything, and therefore they explain very little if anything at all.

The articulation of the individual sociopsychological processes (individual but *shared* by most of our subjects in the social context in which they found themselves) must start from the *problems* that intergroup situations pose for an individual and the analysis of the *functions* that are served by the solutions that he finds to these problems. We assume that the fundamental problem in any intergroup setting is that of defining one's social identity, of placing oneself in relation to others (cf. Berger and Luckmann, 1967, for a general discussion of this process). Social categorization provides the framework which enables this search to proceed. The only direction which it can take is through comparisons of one's own group with other groups – no social group or social category can be conceptualized outside of their relation to other groups or categories. A group can contribute to the positive aspects of an individual's image of himself only if it can be positively differentiated on some value-laden dimensions from other groups (cf. Tajfel, 1972, for a more detailed discussion). When this is difficult or impossible, internal conflicts of various kinds arise, as has been shown in many studies of children from socially disadvantaged groups (e.g. Deutsch, 1960; Vaughan, 1964; Morland, 1966; Milner, 1970; Jahoda *et al.*, 1972; Tajfel *et al.*, 1972). Thus, the notions of social identity and of intergroup social comparison lead directly to a third notion, that of the establishment of psychological *distinctiveness* of certain kinds from social groups other than one's own. There is a good deal of evidence that 'enhancement of contrast' is a general process which takes place in a variety of conditions (e.g. Tajfel and Wilkes, 1964; Leach, 1966; Tajfel, 1972; Eiser and Stroebe, 1972).

It is our view that the minimal intergroup situations provide a convenient paradigm for the study of the establishment of this group distinctiveness. It is obvious that more precise theoretical specifications will have to be made about the links from identity to distinctiveness and the manner in which the search for the former determines efforts to establish the latter. In the present experiments it was shown that a social categorization into groups based explicitly on a criterion of randomness led to behaviour which differentiated more clearly the ingroup from the outgroup

than was the case for a categorization based on non-random interindividual similarity. Our subjects were provided with one channel through which they could establish this distinctiveness – the distribution of money – and they used this channel. There were no ‘utilitarian’ grounds why they should do so since their own individual interest was not engaged; and no ‘rational’ grounds since other, ‘better’, strategies for their choices were available to them.

In this manner, some forms of intergroup behaviour and experience can be seen as following from the individual’s need to define and place himself in his social world. From these premises it should be possible to construct a social and cognitive theory of intergroup behaviour which will have, as its point of departure, the development of ingroup affiliations rather than using for its basis the phenomena of outgroup hostility or some crude ‘additivity’ of individual frustrations followed, unaccountably, by large-scale social aggression. The present study and those which preceded it can be seen as tentative explorations in that direction.

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Résumé

Ce travail fait partie d'une série d'études qui explorent le rôle que joue la catégorisation sociale dans le comportement entre groupes. Nous avons montré précédemment que dans les situations 'minimales' où ils étaient l'objet de catégorisation en fonction de leurs jugements visuels ou de leurs préférences esthétiques les sujets discriminaient nettement les membres de l'*outgroup*: ils accordaient relativement plus d'argent aux membres de leur propre groupe bien qu'ils n'en tiraient aucun avantage personnel. Néanmoins, dans nos études antérieures, la division entre les groupes reposait sur des critères de similarité 'réelle' entre les sujets appartenant à une même catégorie; par contre, dans la présente étude, les catégories sociales sont explicitement aléatoires, et ne se fondent sur aucune similarité 'réelle'.

Nous avons trouvé que les sujets continuent à discriminer ceux qui se trouvent aléatoirement assignés à une autre catégorie lorsque le terme 'groupe' est explicitement mentionné. Cette discrimination est beaucoup plus marquée que celle fondée sur une division des sujets en termes de similarité interindividuelle mais où le terme 'groupe' n'est jamais mentionné. Nous avons aussi trouvé que la norme de *fairness* est un facteur déterminant les décisions des sujets.

Nous discutons ces résultats du point de vue de leur pertinence quant à une théorie sociale cognitive du comportement entre groupes.

Zusammenfassung

Die Arbeit ist Teil einer Versuchsreihe zur Erforschung der Rolle sozialer Kategorisierungen im Verhalten von Gruppen gegenüber einander.

In unseren früheren Arbeiten diskriminierten die Vpn unter 'Minimalbedingungen', in denen sie auf der Grundlage ihrer visuellen Schätzungen oder ästhetischen Vorlieben kategorisiert wurden, deutlich gegen Mitglieder anderer Gruppen, obgleich sie selbst keinen Vorteil davon hatten. Jedoch erfolgte in den genannten Arbeiten die Gruppeneinteilung noch auf der Grundlage 'tatsächlicher' Ähnlichkeiten zwischen den Mitgliedern einer Gruppe. Deshalb wurden in der vorliegenden Arbeit ausdrücklich Zufallskategorien verwendet, die keinen Bezug zu irgendwelchen Ähnlichkeiten haben.

Sowie der Gruppenbegriff in die Experimentsituation eingeführt wurde, diskriminierten die Vpn gegen Angehörige anderer Zufallskategorien, und zwar beträchtlich ausgeprägter als bei einer Gruppeneinteilung aufgrund interindividueller Ähnlichkeiten ohne explizite Einführung des Gruppenbegriffs. *Fairness* fand sich als weitere Determinante für die Entscheidungen der Vpn.

Die Ergebnisse werden im Hinblick auf ihre Relevanz für eine sozial-kognitive Theorie des Verhaltens von Gruppen gegeneinander diskutiert.