POWER AND STATUS IN MAJORITY-MINORITY RELATIONS

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IN

MAJORITY - MINORITY RELATIONS

By

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ABSTRACT


Social psychological processes underlying intergroup behaviour should be placed in their sociostructural contexts. Previous experimental studies have usually created groups that do not differ on sociostructural dimensions such as group numbers, power, and status. The impact of these factors on intergroup behaviour constituted the major aim of the present research.

Predictions were formulated assuming that individuals are motivated to achieve a positive social identity (Tajfel & Turner, 1979). Variants of the "minimal group" paradigm (see Tajfel & Turner, 1979) were used, first, to replicate previous minimal group results, and second, to assess the independent and combined effects of power, status, and group numbers on intergroup behaviour. As in previous studies, allocation matrices developed by Tajfel and his colleagues were the main dependent measures. Unlike previous studies, these were supplemented with extensive postsession questionnaire items that included items on social identifications and various intergroup perceptions.

First, the classic minimal group discrimination effect, replicated under conditions of equal group numbers, power, and status, was eliminated when group members had little or no power (study 2). Categorization per se was

not sufficient for intergroup discrimination. Without usable

power, minimal group members did not _discriminate_.

However, categorization _per se_ was sufficient in eliciting

_prejudice_.

Second, results of this research clearly showed that

increases in group status and group power led to concomitant

increases in matrix discrimination. Membership in minority

groups polarised these patterns of behaviour (and

perceptions) more than membership in majority groups. Status

was the best predictor of social identification (and related

perceptions), while power best predicted actual behaviour.

In conclusion, evidence from these studies indicated that

group numbers, power, and status, independently and in

combination, have a strong impact on intergroup behaviour and

perceptions.

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Chapter 1

OVERVIEW

"Whenever individuals belonging to one group
interact collectively or individually, with another
group or its members in terms of their group
identification, we have an instance of intergroup
behavior." Sherif (1966, p. 12).

A cursory glance at any daily newspaper reveals
numerous instances of intergroup behaviour based on national,
ethnic, linguistic, religious, gender, and class categories.
Turner (1980) proposed that intergroup behaviour may be
conceptualized on a theoretical continuum varying from
maximal ingroup favouritism at one pole through parity (or
fairness) at the mid-point and maximal outgroup favouritism
at the other pole. Ingroup favouritism refers to favouring
members of one's own group over non-members along behavioural
(e.g., discrimination) or attitudinal (e.g., prejudice)
dimensions. Whereas parity (or fairness) refers to the
equivalent treatment of ingroup and outgroup members,
outgroup favouritism is the inverse of ingroup favouritism
and suggests devaluation of one's own group relative to the
outgroup.

Perhaps the most publicised aspects of intergroup
relations are prejudice and discrimination. Prejudice and

discrimination provided the original avenues for social psychological research in intergroup relations (see Allport, 1954; Levine & Campbell, 1972; Ehrlich, 1973; Kidder & Stewart, 1975; Austin & Worchel, 1979; Turner & Giles, 1981; Tajfel, 1982a). Generally, discrimination refers to the tendency to 'unfairly' favour members of one's own group (ingroup) and devalue members of the outgroup behaviourally. Traditionally, prejudice has referred to an intolerant, 'unfair', or unfavourable attitude towards outgroup members relative to ingroup members (see Harding, Proshansky, Kutner, & Chein, 1969; Ehrlich, 1973; cf. Sumner, 1906). In the present research, intergroup behaviour was conceptualised in terms of Turner's (1980) intergroup behavioural continuum, while maintaining traditional distinctions between prejudice and discrimination where appropriate.

A variety of perspectives, including the political, sociological, economic, historical, and biological (Jones, 1972), may be used to analyse factors related to changes in intergroup behaviour. The present research focusses on the social psychological level of analysis without in any way denying that a comprehensive understanding of intergroup behaviour is ultimately an interdisciplinary enterprise. Within social psychology, factors affecting intergroup behaviour may be subsumed under two general categories:

sociopsychological and sociostructural variables.

Investigations of intergroup behaviour have identified a plethora of sociopsychological variables affecting the conduct of intergroup relations (see Tajfel, 1982a, for a review). Though the effects of sociopsychological variables on intergroup behaviour have been extensively investigated, contextual contingencies (e.g., sociostructural disparities along group numbers, power, and status dimensions) have been largely ignored (cf. Tajfel, 1972; Giles, Bourhis, & Taylor, 1977). Furthermore, recent attempts to investigate how sociostructural variables affect intergroup behaviour have suffered from conceptual and methodological weaknesses yielding contradictory results. The present research begins the task of systematically reducing the 'sociostructural lacuna' in analyses of intergroup relations (cf. Giles et al., 1977; Bourhis & Sachdev, 1984).

This chapter provides overviews of the effects of sociopsychological and sociostructural variables on intergroup behaviour. Proposals for a programme of research stemming from this overview are outlined. Chapter 2 reviews research on sociopsychological determinants of intergroup behaviour which suggests that social categorization is both a necessary and sufficient condition for the occurrence of intergroup discrimination. The most powerful evidence for this comes from studies using the "minimal group" paradigm

discussed in chapter 2. Sociostructural differentials between groups are the focus of attention in the remaining chapters. Four studies of the impact of group numbers, power, and status variables on intergroup behaviour are presented in chapters 3, 4, 5 and 6.

## Sociopsychological factors

Much of the early work on the social psychology of intergroup relations stressed intra-individual and/or interpersonal psychological processes contributing to prejudicial attitudes and/or discriminatory behaviour. For instance, the roots of prejudice and discrimination were thought to lie in either individuals' personalities (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950), or their degree of personal frustration (Berkowitz, 1962), or their perceived similarity in beliefs and attitudes to others (Rokeach, 1968; Byrne, 1971). This reduction of large scale intergroup phenomena to matters of intra-individual and/or interpersonal psychology has been cogently criticised by a number of social psychologists (e.g., Sherif, 1966; Tajfel, 1972; Steiner, 1974; Billig, 1976; Tajfel, 1978; Brown & Turner, 1981).

In the present context, the critics' main points may be summarised as follows. First, accounts based on

individual personality differences (e.g., Adorno et al., 1950) empirically account for a very small amount of variance in patterns of intergroup behaviour (Billig, 1976). Second, intra-individual accounts, such as frustration-aggression theory (Berkowitz, 1962), seem implausible in that they suggest that aggression against members of an outgroup is due to the simultaneous accumulation of individual frustrations coupled with an intra-individual and interpersonal coincidence in target selection. Third, in spite of the multiplicity of interpersonal similarities and differences usually present in intergroup situations, intergroup behaviour is typically characterised by low intra- and inter-member variability in the treatment and perception of outgroup members (Tajfel, 1978). Overall, the striking and empirically demonstrable uniformities in relations between members of different groups pose the greatest challenge to intra-individual and interpersonal accounts of intergroup behaviour.

Intra-individual and interpersonal accounts of intergroup behaviour are necessarily limited as they only investigate the behaviour of individuals _qua_ individuals, without taking into consideration the important effects that group memberships have on intergroup behaviour. According to Sherif (1966), social psychologists investigating intergroup relations...

"...must consider both the properties of the groups themselves and the consequences of membership for individuals. Otherwise, whatever we are studying, we are not studying intergroup problems." (p. 62)

The narrow and acontextual scope of intra-individual and interpersonal theories was in direct contrast to Sherif's (1966) approach. According to Sherif (1966), real intergroup conflict over scarce resources creates antagonistic intergroup identifications, perceptions and attitudes. This approach conceptualized the 'subjective' aspects of group membership (e.g., group identification) as almost epiphenomenal to the 'objective' intergroup relations situation (e.g., Billig, 1976; Tajfel & Turner, 1979). However, results of a series of laboratory studies cast doubt on Sherif's (1966) position by suggesting that incompatible group interests are not a necessary precursor to intergroup prejudice and discrimination (see Turner, 1980).

Results of over a decade of research using the 'minimal group paradigm' demonstrated that the mere categorization of people into two groups is sufficient to foster intergroup discrimination (e.g., Tajfel, Flament, Billig, & Bundy, 1971; Tajfel & Billig, 1974; Locksley, Oritz, & Hepburn, 1980; Vaughan, 1978; Weatherill, 1982). For instance, Billig and Tajfel (1973) and Turner, Sachdev, and Hogg (1983) found that subjects showed discrimination even though they were explicitly and visibly assigned to

their groups by a random toss of a coin. This 'minimal group discrimination effect' has displayed considerable robustness in being replicable across subjects of different ages, sexes, and nationalities with a variety of dependent measures (see Brown, Tajfel, & Turner, 1980; Turner, 1981, for reviews).

Typically, the minimal group paradigm has involved anonymous members of two arbitrary groups allocating pecuniary points to members of the ingroup and the outgroup. There is no social interaction either within or between anonymous group members, no previous history of relations between groups, and no instrumental links between subjects' responses and self-interest. These experimental controls produce 'minimal groups' because they unconfound social categorization _per se_ from other extraneous variables. Although these procedures are designed to eliminate grounds for discriminatory behaviour, the results show that subjects, nevertheless, discriminate. Indeed, studies have consistently shown that subjects choose to _maximize the difference_ between awards made to ingroup and outgroup members even at the cost of sacrificing absolute ingroup profit (see Turner, 1980).

Why do members of minimal groups discriminate? A variety of methodological and conceptual explanations are reviewed in chapter 2. Tajfel and Turner (1979) provided perhaps the most tenable explanation for minimal group

discrimination. They argued that it was not social categorization per se that led to discrimination in traditional minimal group studies, but that subjects' motivations for positive self-esteem could only be expressed by using the experimentally imposed categorizations in a discriminatory fashion. In support of this, Oakes and Turner (1980) obtained evidence suggesting that increased self-esteem was positively related to minimal group discrimination.

Social Identity Theory (S.I.T., Tajfel & Turner, 1979) focusses on the contribution that group membership makes to individuals' self-images. Social identity refers to "those aspects of an individual's self-image that derive from the social categories to which he perceives himself as belonging" (Tajfel & Turner, 1979, p. 40). In its barest essentials, S.I.T. suggests that individuals define themselves in terms of their group memberships and seek to establish positively valued differentials between their own group and other groups in order to maintain and enhance their self-esteem as group members.

S.I.T. emphasizes the impact of sociopsychological variables on intergroup relations. For instance, salience of categorization (see Brewer, 1979), choice of comparison group (Turner, 1978; Turner, Brown, & Tajfel, 1979), and the perceived legitimacy and stability of intergroup

differentials (Caddick, 1980; Turner & Brown, 1978) have been

shown to affect intergroup behaviour. Other

sociopsychological variables, such as belief

similarity-dissimilarity (Billig & Tajfel, 1973),

differential ingroup/outgroup expectations (Locksley et al.,

1980), and interpersonal attraction (e.g., Turner et al.,

1983), have also been discussed within the social identity

framework (see Brewer, 1979; Turner, 1981).

Applications of S.I.T. to real-life intergroup

situations inevitably make reference to the differences

between groups on sociostructural dimensions such as status,

power, and numbers (see Tajfel, 1982b). However, the impact

of these sociostructural variables on intergroup behaviour

has rarely been assessed.


## Sociostructural factors

Although sociopsychological factors are important in

determining intergroup behaviour, such determining factors

and resulting behaviours do not operate or occur in a vacuum

(Tajfel, 1972). Sociopsychological processes operating in

real-life intergroup behaviour need to considered in their

appropriate sociostructural contexts (Johnson, Giles, &

Bourhis, 1983).

Sociologists such as Weber (1948) and Lenski (1966)

proposed models of stratification that identified three sociostructural dimensions affecting the conduct of intergroup relations: economic, social-evaluative, and power. Stratification along the economic dimension refers to differential control by groups (or classes) over the means of production and wealth. Status groups arise from stratification along social-evaluative dimensions that are associated with varying degrees of superiority/inferiority. Stratification along the power dimension results in dominant-subordinate relations in which one group controls and determines the political fate of another group.

In social psychology, analyses of social stratification along these structural dimensions remain to be conducted. Though attempts have been made in this direction (e.g., Giles et al., 1977; Bourhis & Sachdev, 1984), they are largely descriptive. Giles et al. (1977), in their analysis of ethnolinguistic groups, proposed that ethnolinguistic groups may be stratified in terms of demographic, status and institutional support factors. The economic, social-evaluative, and power dimensions of the sociological analyses are subsumed loosely under status and institutional support factors in Giles et al. (1977). Demographic factors, referring to "the sheer numbers of group members and their distribution" in space (p. 309, Giles et al., 1977), constitute the novel dimension relative to the Weberian

models of sociostructural stratification. For the purposes
of the present research, sociostructural stratification was
represented by group numbers, power, and status dimensions.
Sheer numbers of group members rather than their distribution
in space were considered. The power dimension was
conceptualised generally in terms of the control that members
of one group had over those of another group. The economic
dimension, which refers to control over economic resources,
was considered to be an aspect of power. Social status was
used to refer to the social-evaluative connotations
associated with group membership.

Social psychologists have recently attempted to
obtain subjective and objective assessments of
sociostructural stratification in Canada (e.g., Bourhis &
Sachdev, 1984), Australia (Giles, Rosenthal, & Young, in
press), Hong Kong (Young, Pierson, & Giles, in press),
Scotland and Wales (see Johnson et al., 1983). These studies
have focussed on the linguistic behaviour and attitudes of
members of different groups. For instance, perceived
position on sociostructural dimensions has been tentatively
related to group members' desires to learn ingroup and
outgroup languages, as well as their strength of group
identification (see Johnson et al., 1983).

Generally, these studies have been conducted in field
settings using survey and questionnaire methodologies. The

lack of control over variables, and the mainly correlational nature of these studies make it particularly difficult to ascertain cause and effect. Indeed, field studies are necessarily somewhat interpretative and do not possess the inferential precision afforded by the experimental method. Unfortunately, experimental studies addressing these issues, either in the field or in the laboratory, are rare.

Previous experimental studies have usually created groups that were equal in group numbers, power, and status (e.g., minimal groups, Sherif's groups), while focussing on variations in sociopsychological factors. Since real-life groups are characterized by differences in numbers, power, and status, limited empirical information is obtained from experimental research that only employs groups that are sociostructurally equal. Furthermore, theoretical extrapolations to situations in which groups are disparate on sociostructural dimensions are likely to be somewhat vague. For instance, S.I.T. (Tajfel & Turner, 1979) tends to treat demographic, power, and status variables interchangeably (e.g., Tajfel & Turner, 1979, p. 36-38) as if they have equivalent effects on intergroup behaviour. Indeed, S.I.T. only focusses on the social-evaluative or status dimension of social stratification. In contrast, Sherif's (1966) 'Objective Conflict' approach does not even address issues related to sociostructural disparities between groups.

In real-life intergroup situations, demographic, power, and status variables are often positively correlated. However, one cannot assume _a priori_ that majority/minority, dominant/subordinate, and high/low status are all the same, or that they produce equivalent patterns of intergroup behaviour. At the present stage, this remains an empirical question to be investigated in the field and in the laboratory. Although dominant groups often have high status, and subordinate groups often have low status, one can conceive of examples in which power, and status are orthogonal. For instance, members of militarily powerful regimes, such as that of Pinochet's ruling government in Chile, are often ascribed low status. In a similar vein, the politically powerful western European monarchies of yesterday have effectively lost their political power though their ascribed social status remains high in modern nations. Demographic factors may also be orthogonal to the power, and status of groups. For instance, whereas the whites in South Africa are in a minority, their power, and status are undeniably high as a result of the ruling apartheid policy. Conversely, the blacks, a substantial majority, hold little power and are ascribed extremely low status.

The above real-life examples of intergroup situations prompt questions about the independent effects of group numbers, power, and status differentials on intergroup

behaviour. Field investigations designed to address these questions provide a realism rarely present in laboratory investigations of intergroup behaviour. However, lack of experimental control and the plethora of potential confounding factors substantially undermine the confidence in conclusions drawn from field studies. It is argued that the first step should be to assess the pure and independent effects of sociostructural asymmetries within the more controlled confines of a laboratory.

Group numbers differences: In Allport's (1954) classic study The Nature of Prejudice, it was suggested that the probability of intergroup conflict is greater when the ratio of the numbers in a minority group to the majority group is large. The importance of group numbers in intergroup relations has since been recognised by some social psychologists (e.g., Giles et al., 1977; Kalin & Berry, 1982), though few experimental studies have directly investigated majority/minority relations.

A number of social psychologists have rejected a purely numerical characterization of minority groups (e.g., Tajfel, 1978; Moscovici, 1976; Mugny, 1982; Simpson & Yinger, 1965). According to these authors, minority groups are characterized not by their relative group numbers but by their social positions as subordinate segments of society

with distinguishing physical, cultural, and other traits that
are often devalued by dominant group members. Of course,
considerable confusion arises when numerical majorities such
as the blacks in South Africa and women in the Western world
are referred to as "minority" groups (e.g., Tajfel, 1978).
Such characterizations of minority groups are confounded by
status and power factors, and undermine the study of group
numbers factors in intergroup relations. Previous empirical
studies further confuse the issue by almost exclusively
operationalizing social minorities and majorities in
numerical terms (e.g., Moscovici, 1976; Mugny, 1982). To
avoid such confusion here, the use of the terms
majority/minority is limited to the relative numerical
compositions of groups.

Results of previous studies of majority/minority
relations are equivocal. Some field studies suggest that
increases in minority group size are associated with greater
discrimination by majority group members. For instance,
Pettigrew (1959) reported that white prejudice against blacks
and jews in the U.S.A. was positively related to the relative
increases in local black and jewish populations. In a
similar vein, Allport (1954) suggested that Boston's Broad
Street riot in 1832 and Los Angeles' riots in 1943 were
associated with rapid increases in Irish and Mexican
populations within the two communities respectively.

Other field studies suggest the opposite: increases in minority group size may be associated with decreased levels of prejudice and discrimination. For instance, Kalin and Berry (1982) found that evaluations of various ethnic minority groups in Canada by non-members covaried with ethnic group size. Hamilton (1972) and Ford (1973) painted a similar picture in their studies of various city neighbourhoods in the U.S.A.

The non-experimental nature of field studies makes it difficult to resolve discrepancies in their results. Laboratory researchers (e.g., Gerard & Hoyt, 1974; Moscovici & Paicheler, 1978) have also assessed the degree to which differences in relative group size affect intergroup behaviour. Unfortunately, these studies have been plagued with methodological and conceptual problems which have produced contradictory results (see ch. 3). Gerard and Hoyt (1974) found that numerical minorities discriminated against numerical majorities, while majorities showed outgroup favouritism. In contrast, Moscovici and Paicheler (1978) suggested that although minorities discriminate, majorities are more discriminatory than minorities.

The common factor in the above studies appears to be the relatively high levels of salience associated with minority group membership. Minority group members seem to be behaving more consistently as group members across studies

than majority group members. Some of the discrepancies in results may be due to the differences in subjects and dependent measures employed in previous studies. Perhaps the single, most significant differentiating factor may be the operationalizations used to create majority/minority groups in these studies. For instance, it was suggested (study 1, ch. 3) that majority/minority categorizations based on personality differences (Gerard & Hoyt, 1974) evoke qualitatively different psychological representations than those based on aesthetic preferences (Moscovici & Paicheler, 1978). However, post hoc explanations based on these assumptions are not satisfactory. Thus, it was proposed that the inconclusiveness of previous results may be resolved by conducting a 'minimal' study of majority-minority relations as described in chapter 3 (study, 1).

Power differences: Over two decades have passed since Cartwright (1959) advocated the introduction of power in social psychologists' formulations about interpersonal and intergroup relations. Whereas social psychologists have been quite active in addressing power relations between individuals (see Tedeschi, 1974, for a review), they have generally tended to "touch on the issue of power tangentially" in relations between groups (p. 191, Apfelbaum, 1979). As Ng (1980) wrote:

"Power that is embedded in and works through the
social structure and norms of a community seems to
have no place in psychology, as if the analysis of
power at the individual and interpersonal levels
can be undertaken in a social vacuum." (p. 3)

The relative neglect of intergroup power processes
has, to a certain extent, been redressed in recent
discussions (e.g., Apfelbaum, 1979; Ng, 1980, 1982;
Deschamps, 1982). These discussions were critical of earlier
research on social categorization and social identity for
ignoring the distinction between groups who dominate and
those who are dominated. For instance, Deschamps (1982)
suggested that the dominated may not only be refused material
rewards, but may also be denied opportunities to determine
their own sense of social identity. These are priviledges
that members of dominant groups enjoy as a function of their
power advantage. Similarly, in the area of intergroup
discrimination, Ng (1982) argued that "whatever the
psychological antecedent to discrimination may be, there must
be at the same time a usable power such that the antecedent
can be translated into discrimination" (p. 180). The effects
of power differentials between groups on intergroup behaviour
thus appear to be of considerable import.

Perhaps an extreme example of the role of power in
relations between unequally powerful groups is the classic
prison simulation study conducted by Haney, Banks, and
Zimbardo (1973). The guards' extraordinarily violent

treatment of prisoners may reasonably be attributed to the extreme power differentials between the prisoners and guards. However, like other studies investigating intergroup power differentials (e.g., Ng, 1982), confounding factors may be identified. Conclusions based on these studies are, therefore, tentative at best (see chs. 2 & 4). In order to begin the task of empirically assessing the effects of power differentials on intergroup behaviour, the first step was to determine the pure and independent effects of power on intergroup behaviour (study 2, ch. 4).

For the purposes of the present research, power was defined in terms of the degree of control group members have over their own fate as well as that of the outgroup (Jones, 1972). This definition was kept deliberately general since a finer analysis of different types of group power has yet to be undertaken (cf. French & Raven's, 1959, typology of interpersonal power).

Status differences: Relative to group numbers and power differentials, status differences between groups have attracted the greatest amount of attention from social psychologists interested in intergroup relations. Indeed, Tajfel and Turner (1979) provide the most systematic contextualised extension of social identity theory in their analysis of social stratification based on status

differences.   In the succinct statement by Turner (1981):

> "Status differences represent the outcomes of
> intergroup comparisons conferring positive or
> negative distinctiveness and also the antecedent
> conditions for different social strategies
> (individual mobility, social creativity, social
> competition etc.) directed at the maintenance or
> protection of self-esteem " (p. 81-82).

S.I.T. assigns a prominent role to social- and

self-evaluation in its analysis of intergroup behaviour.   In

contrast to power and group numbers variables, status is the

sine qua non social-evaluative dimension of social

stratification.   As a number of studies (see Turner, 1980;

Tajfel, 1982a, b) have shown, its effects on intergroup

behaviour are complex.   Of course, power and demographic

variables may also acquire social-evaluative significance

under some conditions, though this should not be taken to be

the case a priori.

As pointed out in ch. 5, previous studies on status

differentials and intergroup behaviour have produced complex

and apparently contradictory results that have been cited as

supporting S.I.T. post facto.   Some of the discrepancies

may be resolved by making appropriate distinctions between

status-related and status-unrelated dimensions of comparison.

For instance, Doise and Sinclair (1973) suggested that high

status group members are more discriminatory than low status

group members in comparisons collapsed across all dimensions.

However, van Knippenberg and Wilke (1979) in a reanalysis of

Doise and Sinclair's (1973) results proposed a more complex

conclusion. According to van Knippenberg & Wilke (1979)

group members enhanced positive differences and minimised

negative differences regardless of status position.

Van Knippenberg and Wilke (1979) also suggested that

"consensually" favourable differences probably make a greater

contribution than "competitive" differences to ingroup

members' social identities (van Knippenberg & Wilke, 1979).

Consensual superiorities, by definition, are acknowledged by

both ingroup and outgroup members and therefore constitute

the sociostructural factor of status.

Whereas van Knippenberg and Wilke (1979) were able to

test some post hoc interpretations of the results obtained

by Doise & Sinclair (1973), other researchers have rarely

followed their example. Consequently, a review of intergroup

status studies (ch. 5) reveals a large variety of discrepant

results. The question of the effects of status variables on

intergroup behaviour is still an open one. Thus, study 3 was

aimed to establish the independent or baseline effects of

status differentials on intergroup behaviour.

### Research proposals and summary

It was argued that social psychological research in

intergroup relations has largely neglected the impact of

sociostructural variables on intergroup behaviour.

Theoretical statements have either treated group numbers,
power, and status variables interchangeably or have not
addressed the issue. Experimental investigations have
generally created groups that are equal in group numbers,
power, and status.

Perhaps the most challenging experimental studies of
intergroup behaviour were those employing the minimal group
paradigm (see ch. 2; Tajfel, 1978). Chapter 2 reviews
evidence suggesting that categorization per se is necessary
and sufficient for intergroup discrimination. In the minimal
group paradigm, the relationship between the contrived groups
immediately following social categorization was unstratified.
It was in the absence of stratification that intergroup
discrimination occurred, and was interpreted as reflecting
motivations for a positive social identity. Indeed, the
minimal group discrimination effect may be construed as an
attempt to establish stratification along social-evaluative
or status dimensions.

To the degree that sociostructural stratification is
already present, it may differentially affect the salience of
group memberships, individuals' social identities, and their
behavioural options. For instance, minority group members
may be more cognisant of their group memberships than
majority group members. This may lead minority group members

to act more in terms of their group memberships than majority group members. On power dimensions, subordinate group members may be less able to engage in effective discrimination than dominant group members (cf. Ng, 1982). In a similar vein, low status group members are less likely to claim superiority on dimensions related to a consensual status difference than high status group members (cf. van Knippenberg & Wilke, 1979).

Results of the few studies that have employed sociostructurally disparate groups are equivocal. Conceptual and methodological confounds undermine their validity. It was proposed that the first step should be to conduct studies investigating the _independent_ effects of group numbers, power, and status variables on intergroup behaviour. This constituted the major aim of the research described in chapters 3, 4, and 5 (studies 1-3). The penultimate chapter (study 4, ch. 6) presents an exploratory extension of the first three studies in order to assess the _interactive_ effects of sociostructural variables on intergroup behaviour.

Methodologically, the experiments reported in the present research employed variants of the minimal group paradigm as developed by Tajfel and his colleagues (e.g., Tajfel et al., 1971; Turner, et al., 1979). This was to ensure continuity and enable direct comparisons with much of the earlier work on minimal categorization. In addition, the

minimal group paradigm is demonstrably adaptable to a variety of variables and settings, while possessing the analytical advantages of high experimenter control over independent and dependent variables (see chapter 2). Although the operationalizations of group numbers and power variables (study 1 & 2) may be considered to be more "minimal" than those of status variables (study 3), it is suggested that these experiments, at the very least, identify the independent or 'baseline' effects of each of the sociostructural variables on intergroup behaviour.

Chapter 2

SOCIAL CATEGORIZATION AND INTERGROUP BEHAVIOUR


In a series of pioneering studies conducted at boys'
summercamps, Sherif and his colleagues investigated the
impact of institutionalized competition and cooperation on
the development and reduction of mutual intergroup
hostilities and negative intergroup relations (e.g., Sherif,
1951; Sherif & Sherif, 1953; Sherif, Harvey, White, Hood, &
Sherif, 1961; also see Sherif, 1966). The impressive
richness and methodological rigour of the Sherif studies is
not a major focus of attention in the present discussion.
Rather, following Billig (1976), Sherif's results are used to
provide a starting point for a discussion of the role of
social categorization in the experimental social psychology
of intergroup relations.

The effects of minimal social categorization on
intergroup discrimination are reviewed with special reference
to the paradigm developed by Tajfel and his colleagues (see
Tajfel, 1981b). Following a discussion of methodological and
paradigmatic aspects of minimal categorization, various
theoretical explanations are considered. It should be noted
that the review presented in this chapter is not meant to be
exhaustive since the effects of social categorization on

intergroup behaviour have been extensively reviewed in a large number of recent publications (e.g., Doise, 1978; Tajfel, 1978, 1981b, 1982a; Brewer, 1979; Turner, 1980, 1981). Evidently, social categorization is a necessary condition for the occurrence of intergroup discrimination. The manner in which sociostructural factors relate to social categorization is also briefly considered in this chapter. However, existing theoretical accounts are insufficiently developed to allow systematic and explicit integration of sociostructural variables within their frameworks.

## The Sherif summercamp studies and social categorization

The basic design of the Sherif experiments comprised three stages. Following a period of engaging in usual campwide activities (Stage 1), subjects were categorized into two groups with separate living arrangements and camp activities (Stage 2). Care was taken to separate close friends by assigning them to different groups. In Stage 3, camp authorities (experimenters) then organised a series of competitions involving sporting contests, and other camp activities in which groups competed for prizes. Sherif et al. (1961) also examined the impact of superordinate goals (i.e., goals requiring intergroup cooperation for success) on relations between previously competitive groups.

According to Sherif (1966) competition for scarce resources seemed to be the sufficient condition for the high levels of intergroup hostility and outgroup derogation that ensued. Furthermore, Sherif et al. (1961) showed that cooperation towards a series of superordinate goals reduced mutual group antagonism and instilled favourable intergroup attitudes. Notwithstanding methodological and ethical shortcomings (see Dion, 1979; Rabbie & Wilkens, 1971; Rabbie & de Brey, 1971), a number of studies subsequently provided ample support for a 'realistic or objective' conflict theory approach (e.g., Blake & Mouton, 1962; Bass & Dunteman, 1963; also see Rabbie, Benoist, Osterbaan, & Visser, 1974).

Methodological rigour and detailed observation were characteristic of the Sherif studies. However, it should be noted that though intergroup attitudes were systematically measured after the onset of institutionalized competition, no systematic assessment preceded the competition phase. Such an oversight may have significantly constrained subsequent theory developed by Sherif. Billig (1976), in a reanalysis of the Sherif studies, suggested that anecdotal evidence reported in these studies indicated that negative intergroup attitudes may have preceded institutionalized competition and that the mere presence of an outgroup may have been sufficient to produce competitive intergroup behaviour.

For instance, Sherif and Sherif (1953) reported that
camp authorities (the experimenters) had to repeatedly turn
down requests by group members to establish intergroup
competitions at stage 2, before the onset of such
competitions in Stage 3. Unlike Sherif and Sherif (1953),
Sherif et al. (1961) eliminated stage 1 and brought the two
groups of boys to camp separately so that they were unaware
of each other's presence. As described by Sherif et al.
(1961, p. 78, 94-95):

> "After supper, the group was allowed to wander
> within hearing distance of the Eagles who were
> playing on the ball diamond. The immediate
> reaction was to 'run them off' and 'challenge
> them'...When the presence of another group was
> definitely announced, the Rattlers immediately
> wanted to challenge them,...Since the efforts to
> help 'all of us' to swim occured after this, it is
> possible that even this strictly in-group activity
> was influenced by the presence of an outgroup and a
> desire to excel it in all ways...When the Eagles
> were playing on the ball diamond and heard the
> Rattlers, Wilson referred to those 'nigger
> campers'..."

Thus externally imposed intergroup competition may not have
been a necessary precondition for derogatory intergroup
attitudes and behaviour.

A laboratory study by Ferguson and Kelley (1964) was
also suggestive in this respect. Three to six person groups
(two groups per session) worked independently (but within
sight of each other) on three tasks in a laboratory
situation. Though intergroup outcomes were explicitly

independent (i.e., no institutionalized competition or cooperation), group members' ratings of ingroup and outgroup products revealed a definite bias in favour of the ingroup. Group members appeared to want to "excel the other group in their products" (p. 227, Ferguson & Kelley, 1964).

Explanations based on actual differences between intragroup and intergroup relations may account for Ferguson and Kelley's (1964) and Sherif's results. For instance, subjects had more contact with, were in closer proximity to, were more communicative, and more familiar with ingroup than outgroup members in these studies. Indeed, in the Sherif studies, these differences in within and between group interaction were explicitly institutionalized. All these variables have reliably led to positive interpersonal relations (e.g., Byrne, 1971). Thus, in situations where ingroup members are in face-to-face interaction, ingroup favouritism may be simply reflecting real differences in intergroup contact, communication, familiarity and information. This need not imply hostile behaviour towards members of outgroups, only more favourable _interpersonal_ relations with members of the ingroup.

Methodological issues in the minimal group studies

The minimal group discrimination effect: It was suggested
(above) that intergroup competition for group goals, and
differential interaction within and between groups is
sufficient to produce intergroup discrimination. In the now
classic minimal group studies, Tajfel and his colleagues
(Tajfel, 1970; Tajfel et al., 1971) excluded these factors
from their experimental situations to ascertain the minimal
conditions necessary for intergroup discrimination. They
posed the following question:

> "Can the very act of social categorization, as far
> as it can be identified and isolated from other
> variables, lead - under certain conditions - to
> intergroup behaviour which discriminates against
> the outgroup and favours the ingroup?" (p. 151,
> Tajfel et al., 1971).

A number of criteria were fulfilled to assess this:
(a) face-to-face interaction within and between groups was
eliminated; (b) complete anonymity of group membership was
preserved; (c) criteria for categorization were
instrumentally unrelated to the kinds of responses subjects
were asked to make; (d) direct self-interest and scarcity of
resources were eliminated as confounding factors, but
subjects were involved in making real and significant
decisions; (e) strategies of ingroup favouritism were pitted
against more 'rational' strategies, such as maximum benefit

for all.

In the first phase of their experiments, Tajfel et al. (1971) divided schoolboys into two groups ostensibly on the basis of fairly trivial criteria such as performance on dot estimation tasks (experiment 1) or painting preferences (experiment 2). Subjects were led to believe that these categorizations were largely a matter of experimental convenience and reflected no evaluative differences between the groups. The one exception to this was a 'value' condition in experiment 1. In this condition subjects were told that the dot estimations of one group were more accurate than those of the other group. In the 'neutral' condition, no references were made to the accuracy of estimations.

In phase 2, subjects were privately informed of their own group memberships and asked to distribute pecuniary points to other subjects in a task unrelated to the first phase. It was impressed upon the subjects that they would not be awarding any money to themselves, only to other anonymous individuals. These other individuals were identified only by arbitrary code-numbers and a label specifying their group memberships. Subjects distributed pecuniary points using specially designed allocation matrices that assessed the relative strengths of different strategies, or distribution rules on subjects' choices. These matrices are, henceforth, referred to as Tajfel's matrices (see

below).

Tajfel et al. (1971) reported that subjects in all conditions of both experiments favoured ingroup over outgroup members in their allocations. In terms of actual percentages, between 72% (experiment 2) and 85% (experiment 1) of subjects showed intergroup discrimination. Overall, Tajfel's matrix strategy results also indicated that subjects unambiguously discriminated. Furthermore, subjects appeared to sacrifice absolute ingroup profit in order to maximise an ingroup favouring difference between allocations made to ingroup and outgroup members. Interestingly, subjects did not pursue the strategy of maximum joint gain except when both recipients were ingroup members. As Tajfel et al. (1971) concluded...

> "...in a situation in which the Ss' own interests
> were not involved in their decisions, in which
> alternative strategies were available that would
> maximise the total benefits to a group of boys who
> knew each other well, they acted in a way
> determined by an ad hoc intergroup
> categorization" (p. 176, emphasis in original)."

Since the seminal studies of Tajfel et al. (1971), a large number of studies have been conducted investigating various aspects of the minimal group effect. Alternative explanations based on demand characteristics, and other methodological issues have been extensively discussed and empirically tested. These are briefly discussed below and attest to the robustness of the minimal group discrimination

effect.

Experimenter effects and demand characteristics: Several
oft-repeated critiques proposed that minimal group
discrimination obtained in studies conducted by Tajfel and
his colleagues might be somewhat artifactual. Statistical
and measurement issues with special reference to Tajfel's
matrices are discussed later in this chapter. The other
major source of controversy has been the influence of
experimenter effects and demand characteristics (Orne, 1962)
in the minimal group situation (e.g., Gerard & Hoyt, 1974;
Aschenbrenner & Schaefer, 1980). Briefly stated, the
argument is as follows: subjects discriminated because they
felt that this kind of behaviour was expected of them by the
experimenters. The contention is that explicit references to
the term "group" provided subjects with clues about the
experimenters' expectations, which they then conformed to.

Tajfel et al. (1971), Billig (1976), Tajfel (1978)
and Turner (1978) have extensively discussed this argument
and have rejected it on the grounds that it leads to
theoretical circularities that only redescribe the original
problem. There are at least two major points of contention.
Firstly, it is difficult to see how the independent variable
of social categorization per se may be manipulated without
explicit reference to "groups". Secondly, it is not obvious

how the mere mention of "groups" should powerfully and

consistently lead to discrimination. If this is assumed,

then,

> "...we must also assume that this particular form
> of intergroup behaviour is one which is capable of
> being induced by the experimenters more easily than
> other forms (such as cooperation between groups in
> extorting the maximum total amount of money from
> the experimenters, or a fair division of spoils
> between groups, or simply random responding)-- at
> least in our culture...The problem must then be
> restated once again in terms of the need to specify
> why a certain kind of intergroup behaviour can be
> elicited so much more easily than other kinds; and
> this specification is certainly not made if we rest
> content with the explanation that the behaviour
> occurred because it was very easy for the
> experimenters to make it occur" (p. 36, Tajfel,
> 1978).

Empirically, results obtained by Tajfel and Billig

(1974) and Billig (1973) suggest that subjects do not always

conform to researchers expectations or norms in the minimal

group paradigm. Furthermore, St. Claire and Turner (1982)

and Turner (1981) report that subjects generally do not share

clear notions of how to behave, and do not believe that they

are expected to discriminate in minimal group situations.

Indeed, as Tajfel et al. (1971) and Billig (1976) have noted,

several subjects felt that the 'obvious thing to do' (p. 172,

Tajfel et al., 1971) was to maximise joint gain. In

addition, Billig (1973) and St. Claire and Turner (1982) also

obtained evidence suggesting that parity is perceived to be

the most socially desirable strategy under minimal group

conditions. In spite of this, intergroup discrimination was the most prevalent mode of behaviour.

Finally, following the suggestions of Kruglanski (1975) and Orne (1962), St. Claire & Turner (1982) conducted a direct test of the demand characteristics hypothesis. Their design consisted of three conditions: 'control', 'prejudice' and 'prediction'. The 'control' condition constituted the usual minimal group situation. The 'prejudice' condition involved providing minimally categorized subjects with explicit cues that they were expected to discriminate. In addition, uncategorized subjects ('prediction' condition), were asked to predict the behaviour of subjects in a typical minimal group situation.

Results indicated that the 'prediction' subjects expected parity to influence subjects' choices to a significantly greater degree than that actually shown by subjects in the 'prejudice' and 'control' conditions. Whereas 'prediction' subjects did not expect any ingroup favouritism, subjects in the control and prejudice conditions discriminated significantly, though not differentially. These results suggest that minimal group discrimination is unlikely to be due to the presence of demand characteristics in the experimental situation.

Subject characteristics: Over a decade of research has provided numerous independent confirmations of the discriminatory effects of social categorization per se across diverse populatons of subjects. For instance, in a study by Doise et al. (1972) which included soldiers in West Germany as subjects, the imposition of social categorization, as in Tajfel et al. (1971), led to discrimination on evaluative (e.g., fair/unfair) and perceptual (e.g., tall/short) ratings. Similarly, Brewer and Silver (1978) reported that female undergraduate students (in the U.S.A.) discriminated on evaluative trait ratings and on allocation matrices (presented before and after trait ratings) under minimal categorization conditions. Allen and Wilder (1975), Oakes and Turner (1980) and Bornstein et al. (1983a; see Turner, 1983a) used undergraduate students (from the U.S.A. and U.K.) of both sexes in their studies which replicated the usual categorization effects. Whereas the original minimal group studies used schoolboys aged 14-16, other minimal or near-minimal group studies employed school children of both sexes as young as 7-8 years old (e.g., Vaughan, Tajfel, & Williams, 1981). Weatherill (1982) used children (mean age of 8) from different ethnic and social class backgrounds in her cross-cultural investigations of minimal groups. Results of these studies generally replicated the traditional minimal group findings. Social categorization per se seems to be

sufficient in eliciting intergroup discrimination across a variety of subject populations.

The Tajfel matrices described: Recently, dependent measures employed in minimal group studies have been at the centre of a lively debate in the literature. The main concern has been a series of response matrices developed by Tajfel and his colleagues.

> "The Minimal Group Paradigm is defined solely in terms of the independent variable, social categorization per se. It is not defined by dependent variables or response techniques and strategies." (p. 400, Brown et al., 1980).

Some researchers (e.g., Aschenbrenner & Schaefer, 1980; Branthwaite, Doyle & Lightbown, 1979; Bornstein et al., 1983a, b) claim that over the past decade, Tajfel and his colleagues have largely misinterpreted their results by using a variety of statistical methods and response matrix scoring procedures without adequate rationale. A number of publications have in large measure adequately replied to these criticisms (e.g., Tajfel, 1978; Turner, 1980; Brown et al., 1980; Turner, 1983a, b). Therefore, only the main issues are discussed below in the context of a brief description of Tajfel's matrices.

Table 1

## Definitions of strategies assessed by Tajfel's matrices
## (adapted from Turner et al., 1979)

| Strategy | Abbreviation | Definition |
|---|---|---|
| Parity | P | That choice which awards EQUAL numbers of points to two recipients |
| Absolute ingroup favouritism or profit | MIP | That choice which awards the highest ABSOLUTE number of points to the ingroup member |
| Relative ingroup favouritism or maximum differentiation | MD | That choice which maximises the DIFFERENCE in points awarded to two recipients, the difference being in favour of the ingroup member |
| Maximum joint profit or payoff | MJP | That choice that maximises the total, COMBINED number of points to both recipients |

Tajfel's matrices were designed to precisely measure the relative strength or 'pull' of a variety of allocation strategies that subjects may adopt. Definitions of these strategies are provided in Table 1. Detailed descriptions of the matrices, the strategies assessed and scoring procedures are to be found in Turner (1978) and Turner et al. (1979).

Other methodological, statistical and scaling issues are
discussed extensively in Brown et al. (1980) and Turner
(1983a).

Table 2 provides examples of the most commonly used
versions of Tajfel's matrices as reported in Turner et al.
(1979). Typically, three classic matrix types have been
used. Matrix A compares ingroup favouritism (FAV or MIP +
MD) with maximum joint profit (MJP). Matrix B compares
maximum difference in favour of ingroup (MD) with a
combination of absolute ingroup profit (MIP) and maximum
joint profit (MJP). Matrix C compares parity (P) with
ingroup favouritism (FAV).

Subjects are required to choose only one column per
matrix in two row matrices such as those presented in Table
1. For the sake of illustration assume that numbers in the
top and bottom rows represent allocations that may be made to
an ingroup (I) and outgroup (O) member respectively (referred
to as the I/O version of the matrix). Matrices are also
presented with allocations to ingroup and outgroup members
reversed so that outgroup allocations are on the top row and
ingroup allocations are on the bottom row (O/I version).

Table 2

Examples of Tajfel's allocation matrices (adapted from

Turner et al., 1979)


Matrix type A:    FAV (MIP+MD) versus MJP

I: 19   18   17   16   15   14   13   12   11   10    9    8    7

O:  1    3    5    7    9   11   13   15   17   19   21   23   25


Matrix type B:    MD versus MIP+MJP

I:  7    8    9   10   11   12   13   14   15   16   17   18   19

O:  1    3    5    7    9   11   13   15   17   19   21   23   25


Matrix type C:    P versus FAV

I: 16   17   18   19   20   21   22   23   24   25   26   27   28

O: 16   15   14   13   12   11   10    9    8    7    6    5    4


Generally, each point in the matrix has some value

(e.g., monetary) associated with it.  By comparing each

subject's responses over a series of different matrices,

scores can be derived which represent the relative strengths

of different strategies.  Consider matrix type A which

measures the degree to which subjects attempt to maximise

ingroup favouritism (FAV) and/or joint profit (MJP). In

matrix presentations of A, where allocations to the ingroup

member are in the top row (I/O version), a predominance of

responses towards the left extreme would suggest that
subjects are employing FAV.  Choices towards the right
extreme of the same matrix are indicative of the influence of
MJP.  However, in the O/I version (ingroup in bottom row) the
optimum points of FAV and MJP coincide at the extreme right
column of the matrix.  Thus, choices towards the right
extreme of matrix A (version O/1) indicate the joint
influence of ingroup favouritism and joint profit.  The
degree to which other strategies (e.g., P, MD) are employed
is assessed in a similar manner from the other matrix types.

Scoring procedures for Tajfel's matrices:  Responses on
each matrix presentation may be treated in two ways.  First,
responses may be considered literally in terms of the actual
numerical value of points distributed.  Alternatively,
responses may be ranked on a spatial scale akin to a rating
scale with two opposite poles.  By comparing either actual
numerical values or simple rank data from single matrices
with other matrix presentations, the relative influence of
various strategies on subjects' choices may be obtained.
However, since actual matrix points in different matrix types
have different points of origin and units, they do not
constitute interval data.  Therefore, comparisons between
different matrix types using actual numerical values are
unreliable.

Brown et al. (1980) argued that simple ranks obtained from responses on single matrices may be considered as interval data since ranks are equidistant from one another. This suggests that comparisons between different matrix presentations may be made to assess the relative influence of different strategies on subjects choices. However, as Turner (1980) suggested, simple rank data generally confound the optimal choice for a given variable with a variety of extraneous tendencies such as idiosyncratic response strategies, random distribution strategies, and individual preference for certain positions and numbers on the scale. These confounding variables tend to draw responses towards the mid-point of each matrix. In addition, when the optimal values of strategies are at opposite extremes, mean responses tend to be drawn towards the mid-point of the scale (Turner, 1980). Hence, simple rank data from single matrices may be unreliable measures of subjects' response strategies.

Instead of using simple rank data from single matrices, Turner (1978) recommended the use of differences in simple ranks from the I/O and O/I versions of the same matrix type to assess subjects' distribution strategies (details of scoring procedure are provided in appendix 1). This procedure enables subjects to be used as their own controls against their idiosyncratic, extraneous response biases (for more details, see Turner, 1978; Turner, 1980; Brown et al.,

1980; Turner, 1983a). Difference scores obtained from this procedure are referred to as "pull" scores. 'Pull' scores enable the assessment of the unconfounded influence of a variety of distribution strategies.

From each matrix type two pulls are calculated. For instance, in matrix A, the pull of FAV on MJP and the pull of MJP on FAV are calculated. From the other matrices the pulls of FAV on P, P on FAV, MD on MIP + MJP, and MIP + MJP on MD, are calculated. Each pull has a theoretical range from -12 to +12. Negative pull scores are also considered to be psychologically meaningful strategies. Thus negative FAV implies outgroup favouritism, negative MJP indicates minimum joint profit, etc. As Turner et al. (1979) point out, there are no __mathematical__ reasons for two pulls calculated from the same matrix type to be negatively correlated __a priori__.

> "The relation between two such pulls -- for
> instance, A on B and B on A -- is such that for any
> value of A the range of B = 2 x (12 - the absolute
> value of A) and vice versa. Thus the more extreme
> is A (towards + or - 12), the more compressed is
> the range of B around a central value of zero. To
> ensure therefore that obtained values of B, for
> instance, are not artifacts of a compressed range,
> one can test for a negative correlation between the
> cell standard deviation of B and the absolute cell
> means of A." (p. 195, Turner et al., 1979).

Thus, Tajfel's multi-choice matrices provide a large number of alternative strategies whose precise relative strengths can be systematically measured.

Construct validity of Tajfel's matrices: The use of other measures than Tajfel's matrices have generally yielded comparable results to pull scores in previous studies. For instance, Tajfel et al. (1971) and Brewer and Silver (1978) using actual numerical values, reported the overall percentages and proportions of subjects following strategies of equality, ingroup and outgroup favouritism. Minimal group discrimination was unambiguously indicated on these measures.

Results of a large number of minimal categorization studies employing a variety of dependent measures in a diversity of designs have also replicated the minimal group discrimination effect. Dependent measures ranging from free-choice (Locksley et al., 1980; Ng, 1981) to binary and multiple allocation matrices (e.g., Brewer & Silver, 1978) and evaluative ratings (e.g., Doise et al., 1972; Brewer & Silver, 1978) have been employed. Minimal social categorization has unambiguously led to intergroup discrimination on these measures. However, it is difficult to gauge from these measures the relative influence of strategies such as MD and MJP. Tajfel's matrices have an advantage over the less sensitive methods of free-choice and binary-choice allocations since a variety of strategies may be systematically assessed (see Turner, 1983a). Both theory and data (see Turner, 1980; Brown et al., 1980; Turner, 1983a, b) suggest that pull scores provide a "convenient and

representative description of the actual distribution strategies" (p. 409, Brown et al., 1980) employed by subjects.

Tajfel's matrices have also been adapted successfully for use in various minimal and non-minimal group situations to measure performance evaluations (e.g., Turner & Brown, 1978), salary differentials (Brown, 1978; Bourhis & Hill, 1982), and intergroup allocations amongst children playing dominoes (Vaughan et al., 1981; Weatherill, 1982). The results of these studies suggest that Tajfel's matrices provide psychologically meaningful and valid measures of intergroup behaviour and perceptions.

Theoretical issues in the minimal group studies

Similarity: How minimal are groups that discriminate? Billig and Tajfel (1973) suggested that categorization in Tajfel et al. (1971) was always confounded with similarity. Members of the same group may have inferred some underlying similarity as the categorization procedure was ostensibly based on task performance or aesthetic preferences. In view of the extensive literature suggesting that similarity breeds attraction (see Byrne, 1971), interpretations emphasizing social categorization per se may have been premature. However, results obtained by Billig and Tajfel (1973)

reinforced the original interpretation. When similarity was unconfounded with social categorization by explicitly categorizing subjects on the basis of a random toss of a coin, subjects unambiguously displayed high levels of ingroup favouritism.

Other studies by Billig (1973), Brewer and Silver (1978), Locksley et al. (1980), and Turner et al. (1983) have confirmed the finding that random categorization leads to intergroup discrimination. Interestingly, there is also some evidence that it is not just positive or random categorization that leads to discriminatory behaviour. Social categorizations in situations where ingroup members held explicitly dissimilar beliefs, or were previously judged to be disliked, also produced intergroup discrimination (Allen & Wilder, 1975; Turner et al., 1983).

Cognitive Categorization: Why does minimal social categorization lead to intergroup discrimination? Doise (1978) proposed an explanation based on cognitive processes of categorization. Tajfel (1969, 1981a, b) and Tajfel and Wilkes (1963) suggested that categorization along a stimulus dimension leads to a perceptual accentuation of similarities within categories and differences between categories. Just as cognitive categorization is useful in understanding the physical environment, social categorization (grouping of

persons) is conceived to be useful in understanding the social environment. Social categorization defines others <u>and</u> self in terms of group memberships (cf. Berger & Luckmann, 1967).

According to Doise (1978; also see Tajfel, 1981a, b), the assimilation-contrast effects associated with the categorization process lead individuals to perceive themselves as similar to ingroup members, and different from outgroup members. These cognitive distinctions, according to Doise (1978), produce differentiation at the evaluative and behavioural levels. Thus, minimal group discrimination may reflect the operation of the cognitive mechanics of the social categorization process (referred to as Cognitive Categorization theory).

In accordance with Doise (1978), several studies suggest that social categorization <u>per se</u> directly leads to accentuated perceptions of intragroup similarities and intergroup differences (e.g., Taylor, Fiske, Etcoff, & Ruderman, 1978; Doise, Deschamps, & Meyer, 1978; Allen & Wilder, 1979; see also reviews by Brewer, 1979, and Turner, 1981). Moreover, Billig and Tajfel (1973), Billig (1973), Allen and Wilder (1975) and Sole, Marton and Hornstein (1975) obtained results suggesting that ingroup favouritism obtained in their studies is due to categorization <u>per se</u> rather than similarities between individuals in attitudes or

opinions. In addition, Wilder's (1978) results indicated that intergroup discrimination increased as a ingroup members perceived outgroup members to be undifferentiated members of a group rather than individuals.

Doise and Sinclair (1973) examined intergroup evaluations under conditions in which individuals anticipated no intergroup comparisons ("no encounter") versus those in which intergroup comparisons were anticipated ("symbolic encounter"). In addition, intergroup evaluations were also obtained when ingroup and outgroup representatives were either physically present singly (i.e "individual encounter"), or in dyads from the two groups ("collective encounter"). In general, the results indicated that intergroup discrimination increased from the "no encounter" to the "symbolic encounter" conditions and from "individual" to "collective" encounter conditions. Enhancing the salience of social categorization thus tends to increase intergroup discrimination.

Previous research indicates that variables such as common fate (e.g., Rabbie & Horowitz, 1969), proximity (Hensley & Duval, 1976), anticipated or actual social interaction (Rabbie & de Brey, 1971; Rabbie & Wilkens, 1971; Janssens & Nuttin, 1976; Kahn & Ryen, 1972), interpersonal/intragroup similarity (Billig & Tajfel, 1973; Allen & Wilder, 1975) and interpersonal/intragroup attraction

(Turner et al., 1983) appear to enhance intergroup discrimination under some circumstances. As Brewer (1979) and Turner (1981) argued, these sociopsychological variables primarily affect intergroup discrimination through enhancing the cognitive salience of distinctions between the ingroup and outgroup.

Though membership in groups that differed on sociostructural dimensions was not a central concern in Brewer's (1979) analysis, it was suggested group membership may be more salient in minority than majority groups. Thus, relative to the traditional minimal groups that employed groups of implicitly equal numbers, minority categorization per se should increase discrimination, and majority categorization per se should reduce discriminatory tendencies. The experimental evidence for these expectations is scarce and contradictory (e.g., Gerard & Hoyt, 1974; Moscovici & Paicheler, 1978). The relevant evidence is discussed in ch. 3, in which the minimal effects of majority/minority categorizations on intergroup behaviour are examined. Unlike differences in group numbers, there are presently no clear indications about how power and status differences may relate to the salience of group memberships.

Control and retribution: Ng's (1981) explanation of minimal group discrimination was based on subjects' lack of

complete control over resource allocations.  Subjects in the usual minimal group experiments, not only allocated pecuniary points to others but also received them from others.  Ng (1981) argued that group members may have engaged in discrimination to counter expected discrimination by outgroup members.  Group members may have expected discrimination in the typical minimal group experiments as subjects only had partial, but equal, control over the amounts of pecuniary points given to the recipients. Providing group members with complete control over distributions would ensure that outgroup members could not discriminate.  In consequence, ingroup members with full control would discriminate less than those with partial control (Ng, 1981).

In order to test this hypothesis, Ng (1981) randomly assigned twenty-two subjects to two conditions:  sole control and joint control.  In each condition, subjects were arbitrarily divided into two groups.  Members from both groups generated lists of words which were summed in order to be converted into payment for subjects (at one cent per word).  In announcing the total number of words generated in each experimental session, the experimenter emphasized that each group had contributed equally to the total.  Subjects were asked to divide the money between an ingroup member and an outgroup member (excluding self) using 10 point scales.

In the joint control condition, it was stressed that ingroup
and outgroup members had joint and equal control over the
final amount of money given to one particular set of
recipients. In the sole control condition, subjects were
merely told that their decisions would determine the amounts
allocated to those recipients. No mention was made of the
fact that outgroup members would also be allocating pecuniary
points to the same two recipients.

Manipulation checks revealed that subjects in the
sole control condition reported higher levels of perceived
control than those in the joint control condition. In
accordance with Ng's (1981) hypothesis, results indicated no
discrimination -- only parity -- in the sole control
condition and significant, but low, discrimination in the
joint control condition. Although results from the joint
control condition concurred with traditional minimal group
results, Ng (1981) was cautious about generalizing since his
subjects made decisions knowing that the total amount of
money available for distribution was based on the joint and
equal efforts of all subjects. This may have induced an
implicitly cooperative orientation in the experiment that is
absent in the traditional minimal group studies.

One alternative explanation suggests that the
categorizations were more salient in the joint, rather than
sole control conditions. The instructional emphasis on

equal, but _joint_ control may not only have induced
perceptions of equal control, but may have, inadvertently,
enhanced the salience of ingroup/outgroup distinctions and
led to higher levels of discrimination (e.g., Brewer, 1979).
Interestingly, previous research has suggested that the
maintenance of clear group boundaries inhibits the resolution
of social conflict even during intergroup cooperation (e.g.,
Worchel, Andreoli & Folger, 1977; Worchel, Axsom, Ferris,
Samaha & Schweitzer, 1978; Worchel, 1979). Notwithstanding
explanations based on category salience for Ng's (1981)
results, some important methodological and theoretical issues
relevant to minimal group discrimination were raised.

The degree of control that group members perceive
themselves and others to have in the traditional minimal
group paradigm needs to be assessed. Theoretically, the
control factor may be related to the more general issue of
power and distribution of resources in intergroup relations.
Whereas Sherif (1966), Doise (1978), and Tajfel and Turner
(1979, see below) address the questions of what _causes_
discrimination, Ng (1982) is concerned with what makes
discrimination _possible_ (see ch. 4). As Ng (1984) wrote...

> "...in order to be able to favour the ingroup, one
> must first of all be able to participate in the
> distribution process; and being able to participate
> in the distribution process in such a way as to
> allow one to give rewards away at will, is to
> occupy a position of power" (p. 636).

Intergroup discrimination predicted by various causal variables (e.g., categorization) is only possible if the power relations between groups can sustain such discrimination, or if there is a powerful third party that permits discrimination. For instance, Ng (1982) argued that in the traditional minimal group experiments, an implicit bilateral equal power relation imposed by the experimenters 'allowed' intergroup discrimination to occur (see ch. 4).

Power relations between groups may also constrain and change the _modus operandi_ of subjective motivations (e.g., positive self-evaluation and social identity) and striving for more 'objective' resources. Surprisingly, social psychologists investigating intergroup relations have paid little systematic attention to the issues of power in intergroup relations. When they have (e.g., Ng, 1980, 1981, 1982), their studies have been fraught with methodological difficulties (see above and ch. 4). Thus, the question of the role of power in intergroup relations is, at present, largely speculative, with little substantiating empirical research (e.g., Apfelbaum, 1979; Deschamps, 1982). As a first step, study 2 (ch. 4) was designed to investigate the baseline effects of power on intergroup behaviour within the minimal group paradigm.

Although Ng (1981) assumed that group members' expectations about others' allocation strategies guided their

behaviour, neither Ng nor other previous minimal group
studies have actually obtained such expectations. Some
studies have examined the impact of feedback about others'
strategies on subjects' behaviour following initial
discrimination. Results of minimal group studies conducted
by Locksley et al. (1980) and Griffin (1977, cited in Brown &
Ross, 1982) suggested that feedback about the discriminatory
behaviour of outgroup _and_ ingroup members increased levels
of intergroup discrimination. Locksley et al. (1980) also
suggested that feedback about the non-discriminatory
behaviour of ingroup and outgroup members tended to decrease
levels of intergroup discrimination.

It may be argued that social categorization _per se_
leads to expectations of discriminatory behaviour.
Interestingly, St. Claire and Turner's (1982) subjects in
their "prediction" (or simulation) condition expected parity
to be the dominant strategy that categorized subjects would
follow. However, it is noteworthy that subjects in this
"prediction" condition were never assigned to contrasting
social categories by the experimenters. Unlike previous
studies, all experiments conducted in the present research
(studies 1-4) obtained categorized subjects' expectations
concerning others' behaviour.


Social Identity Theory: In contrast to Doise (1978) and Ng

(1981), Tajfel and Turner's (1979) Social Identity Theory
(S.I.T.) proposes a self-evaluative motivational process to
account for minimal group discrimination. The main points of
S.I.T. may be summarised as follows:

1. It is assumed that individuals desire and strive
for a positive self-image.

2. In <u>intergroup</u> settings, individuals use the
superimposed categorizations to define themselves
as well as others in terms of their group
memberships.

3. In such settings, individuals strive for a
positive social identity since they need to belong
to groups that contribute positively to their
self-images.

4. But the establishment of a positive social
identity is a relative matter. Favourable social
comparisons need to be established between the
ingroup and relevant outgroups on valued
dimensions.

5. Therefore, individuals' desire to achieve (or
maintain) a positive social identity through
favourable social comparisons leads to
discriminatory behaviour. In this manner
intergroup discrimination confers a positive social
identity which contributes positively to their

self-images.

Accordingly, in the traditional minimal group experiments, it was not minimal social categorization that caused discrimination, but that motivations for positive self-evaluation could only be expressed by using the experimentally imposed categorizations in a discriminatory fashion (see Turner, 1975). Three sets of evidence from previous studies support the self-evaluative motivational hypothesis.

First, the single most important motive in the minimal group experiments appears to be 'group winning' (e.g., MD) even when this motive directly conflicts with maximising absolute ingroup profit and self-interest (see Turner et al., 1979; Turner, 1980). Other studies, though not minimal group studies (e.g., Ferguson & Kelley, 1964; Sherif et al., 1961 discussed above), also reported spontaneous social rather than realistic competitive group orientations (see Turner, 1975). According to Tajfel and Turner (1979), "the former is motivated by self-evaluation and takes place through social comparisons, whereas the latter is based on 'realistic' self-interest and represents embryonic conflict" (p. 41). Moreover, Turner (1978) obtained evidence for the hypothesis that self-evaluative motivations would lead to greater discrimination when minimal group allocations represented

symbolic, rather than real monetary, value.

Secondly, there is some evidence that allowing subjects to directly evaluate themselves positively leads to reduced levels of intergroup discrimination. Turner (1978) asked subjects to distribute pecuniary points between themselves and other subjects. Subjects either made 'other-other' choices or 'self-other' choices. Since 'others' were either ingroup or outgroup members, subjects could display ingroup favouritism on self-other and other-other choices. The order in which subjects completed other-other and self-other choices was reversed in different conditions. Overall, self-favouritism was the most significant strategy regardless of the order of completion of self-other and other-other choices. When other-other choices followed self-other choices, ingroup favouritism was observed in other-other, but not self-other, choices. Categorization per se appears not to be sufficient for intergroup discrimination. Furthermore, experimentally imposed social categorizations were employed to discriminate when subjects were denied direct means to positive self-evaluation.

When other-other choices preceded self-other choices, subjects favoured ingroup others more than outgroup others in both conditions. In addition, subjects tended to show less self-favouritism against other ingroup than outgroup members once they had discriminated on other-other choices. In other

words, once subjects had acted in terms of their superimposed categorizations, they appeared to maintain this distinction in their subsequent self-other choices even at the cost of sacrificing absolute self-gain. These results clearly provide impressive support for S.I.T.

Thirdly, in accordance with S.I.T., Oakes and Turner (1980) obtained evidence suggesting that discriminating minimal group members (experimental condition) had a higher self-esteem than those not given the opportunity to discriminate (control condition). Although the method of imposition of social categorization and measurement of self-esteem were equivalent across conditions, the actual tasks completed by control and experimental subjects differed. The experimental subjects completed the traditional Tajfel matrices, and discriminated, while control subjects read a newspaper.

The differential salience of group membership due to engaging in different tasks (higher salience in experimental condition) may be responsible for the observed variations in self-esteem (Oakes & Turner, 1980). This alternative explanation suggests that motivations for positive self-esteem may be affected to a greater degree in intergroup contexts than in interpersonal, or less salient intergroup contexts. However, Turner (1984) reports data to the contrary. Turner and Spriggs (1981, cited in Turner, 1984)

obtained results suggesting that both self-favouritism in self-other choices (other as an individual) and ingroup favouritism in intergroup allocations led to equivalent increases in self-esteem. At the very least, these results reinforce the notion that subjects do evaluate themselves in terms of their group memberships in the minimal group paradigm.

In the usual minimal social categorization studies, the categories are arbitrary and artificial, without established a priori evaluative connotations. As indicated earlier, Tajfel et al. (1971) also examined the effects of categorization on dimensions that may have a priori evaluative significance (see their 'value' conditions). However, their results revealed no difference in allocations between subjects in 'value' categorization conditions and those in the 'neutral' categorization conditions. Commins and Lockwood (1979) performed an almost identical manipulation, i.e., categorizations were based on accuracy of performance on a dot estimation task. They referred to this manipulation as a status difference -- an evaluation of superiority/inferiority on a valued dimension of comparison (i.e., accuracy).

Though all status groups tended to be discriminatory, contrary to Tajfel et al. (1971), high status groups were more discriminatory than low status groups. The discrepancy

in results between Tajfel et al. (1971) and Commins and
Lockwood (1979) has yet to be resolved. Other researchers
employing different dimensions of status, either in the
laboratory (e.g., Branthwaite et al., 1979) or in the field
(e.g., van Knippenberg, 1978; Bourhis & Hill, 1982; Jaspars &
Warnaen, 1982), have also obtained equivocal results.
Therefore, study 3 (ch. 5) investigated the independent
impact of status differentials on intergroup behaviour.

Intergroup status differentials may be considered to
be part of the sociostructural context to the degree that
members of both high and low status groups share a common or
consensual social-evaluative representation of the
hierarchical relationship between both groups. This is the
assumption that guided Commins and Lockwood (1979), and other
researchers who investigated the impact of status differences
on intergroup behaviour and attitudes. S.I.T is, in essence,
a theory of social-evaluation, since it postulates that
positive social identity is the outcome of a favourable
intergroup comparison on valued dimensions. As such, S.I.T.
is directly applicable to investigations of social
stratification based on status differences. Thus, study 3
(ch. 5) provided a direct test of hypotheses derived from
S.I.T.

Summary

At the beginning of this chapter the pioneering
research of Sherif and his colleagues on intergroup
discrimination was briefly discussed. According to Sherif
(1966), a realistic conflict over scarce resources was
sufficient to elicit hostile intergroup attitudes and
behaviour. Subsequently, a tradition of research, employing
a paradigm diametrically opposed to Sherif, suggested that
social categorization per se is a necessary and sufficient
condition for intergroup discrimination. Sherif's paradigm
created high levels of within group interaction and
functional interdependence within and between groups. The
minimal group paradigm was deliberately artificial,
characterized by a lack of interdependence and social
interaction between anonymous subjects. The two paradigms
were also similar in some respects. Both paradigms employed
groups that were equal in group size, power and status. This
state of affairs leads to a restrictive experimental
psychology of intergroup relations in which groups are
sociostructurally equal.

A number of alternative explanations for minimal
group discrimination were advanced. Three viable (though not
necessarily exclusive) avenues for understanding minimal
group discrimination were identified: cognitive processes of

categorization, degree of perceived control (or power) coupled with expectations concerning others' behaviour, and self-evaluative motivations leading to group identification. The review of studies on minimal categorization included a discussion of some relevant studies of social categorization along dimensions of sociostructural disparity (i.e., differentials in group numbers, power, and status). Some key methodological and conceptual shortcomings of these studies were briefly outlined. Whereas differentials in relative group numbers were discussed under the rubric of salience of cognitive categorizations, status differentials were considered to mediate motivations for positive self-evaluation. These conceptualizations may be useful in understanding how group size and status affect intergroup behaviour (cf. Moscovici & Paicheler, 1978). In this context, control (or power) referred to the production of intended effects (cf. Russell, 1938). More extensive discussions of these issues, including other studies that have assessed the impact of group numbers, power, and status categorizations on intergroup behaviour, are to be found in the following chapters.

Previous experimental research on social categorization suggested that the minimal group paradigm, as developed by Tajfel and his colleagues is a pliable, sensitive and unconfounded way of assessing the 'pure' impact

of social categorization on intergroup behaviour.  As
demonstrated in the following chapters, the minimal group
paradigm may be readily adapted to investigate the impact of
sociostructural variables on intergroup behaviour.  Thus, the
pure (unconfounded) and independent effects of group numbers,
power, and status on intergroup behaviour may be identified.
Methodologically, Tajfel's matrices were employed in all the
studies described below, and constituted the main dependent
measures.  In addition, perceptions of group power and
expectations about others' behaviour were also obtained in
studies 1-4.  These formed part of a postsession
questionnaire which was more extensive than hitherto employed
in minimal group studies.  Subjects' self-reported group
identifications, self-reported distribution strategies,
degree of anticipated liking for ingroup and outgroup
members, and feelings associated with group membership were
also obtained.  Overall, it was anticipated that the results
of the experiments reported in the following chapters would
serve as an empirical baseline for future models of the
sociostructural determinants of intergroup behaviour.

Chapter 3

STUDY 1:   MINIMAL MINORITIES AND MAJORITIES*

Introduction

A number of studies reviewed in the previous chapter
demonstrated that the mere act of categorizing people into
arbitrary groups is sufficient to induce intergroup
discrimination.   Indeed, this robust phenomenon reached
absurd heights in some studies where subjects showed
discrimination even though they were explicitly and visibly
assigned to their groups randomly (e.g., Billig & Tajfel,
1973; Locksley et al., 1980; Turner et al., 1983).
Subsequent research in the experimental social psychology of
intergroup relations has mainly focussed on
sociopsychological variables and generally neglected the
impact of sociostructural contexts that encompass most
real-life intergroup situations (see chs. 1 & 2).   Since most
real-life intergroup relations situations are characterized
by sociostructural asymmetries along group numbers, power,

and status dimensions, it is important to investigate the

'baseline' impact of such asymmetries on intergroup

relations.   The experiment reported in the present chapter

explored the pure and independent effects of group numbers on

intergroup behaviour.

How important can group numbers be in the dynamics of

intergroup relations?   In the nineteenth century, the French

Canadian clergy overtly encouraged "La Revanche des Bercaux"

to counterbalance the rapid increases in English immigration

following British conquest (Henripin, 1970; Bourhis, 1984).

A drastic decline in francophone fertility following the

Second World War alarmed francophone Quebecers.   As Laporte

(1984) wrote,

> "historically, their strength as a national
> minority rested upon their hopes for a stable and
> even growing demographic position as a language
> group...Signs of decline of the francophone
> demographic position exacerbated the francophone
> sense of vulnerability.   Among francophone
> Quebecers this factor was certainly a crucial
> element in the movement which in the late sixties
> gave birth to state intervention on the status of
> the French language.   Made more vulnerable than
> ever in Canada, francophone Quebecers opted for
> maximum linguistic protection within Quebec where
> they could expect to remain the majority." (p.56).

The import of relative demographic position is

evident from the above, albeit brief, description.

Interestingly, Bourhis and Sachdev (1984) provided evidence

that even highly localised demographic variations have a

substantial impact on intergroup relations.   In their study,

English Canadian attitudes towards English and Italian language usage were obtained in two Hamilton (Ontario) school settings. Whereas English Canadians are a definite majority in Canada, they either comprised fifty percent ('equal numbers' setting) or eighty-five percent ('majority' setting) of the school populations from which otherwise matched subjects were recruited. Results indicated that subjects in the 'majority' group school setting were more tolerant of Italian language usage than those in the 'equal numbers' group school setting.

Popular western ideologies concerning the merits of democracies implicitly assume that majority rule should not only prevail, but that it is more often "right" than "wrong". In social psychology, Asch's (1951) classic conformity studies showed that yielders frequently asserted that they conformed in giving wrong answers because they felt that the majority must be right. Furthermore, "to be a member of a majority situates the individual automatically inside the group" (Moscovici & Paicheler, 1978, p. 256). In contrast, minority group members are characterised by difference -- difference from the majority who supply the terms of reference for consensually valued characteristics. This fundamental cleavage probably underlies Brewer's (1979) suggestion that membership in a minority group induces higher category salience than majority group membership.

Implicit in the foregoing is the notion that individuals are either members of a majority group or members of a minority group. However, individuals are usually members of many different majority and minority groups simultaneously, each of which represent varying degrees of emotional and value significance to the individual. For instance, a French Canadian may consider him/her self a member of the majority in Canada by virtue of his/her white skin colour. However, the same individual may also consider him/her self a minority group member by virtue of being a native French speaker in Canada. Sachdev and Bourhis (1984) reported results of a brief survey conducted amongst undergraduates attending university in southern Ontario which indicated that subjects considered themselves majority and minority group members on a number of different dimensions at the same time. For instance, subjects reported being part of a majority by virtue of being predominantly from White Anglo-Saxon Protestant backgrounds, but they also considered themselves as minority group members on dimensions such as the type of alternative 'lifestyles' they led.

Subjects' feelings towards majority and minority group membership were also reported by Sachdev and Bourhis (1984). Results showed that subjects felt more positive, secure, and happy about being part of a majority group than a minority group. These results suggest that it is reasonable

to expect that subjects in experimental studies of majority-minority relations come into the experiment with specific and preset ideologies concerning majority/minority group memberships. Unfortunately, previous laboratory studies of majority-minority relations have failed to take this into account and have, therefore, produced contradictory results. Two important laboratory studies showing such contradictory results are worth discussing briefly.

Gerard and Hoyt (1974) experimentally created groups of various sizes on the basis of categorizing ten subjects as either 'overestimators' or 'underestimators' on a task consisting of guessing the number of dots flashed onto a screen. These U.S. college students were led to believe that their estimation tendencies revealed something about their personalities. However, it was impressed upon them that it was not "better to be one way or the other" (p. 839). Subjects were told that their scores placed them either in two equal subgroups of five subjects, or in two unequal subgroups of eight (majority) and two subjects (minority).

Subjects evaluated the content of two essays ostensibly written by another member of the ingroup and a member of the outgroup. Forming impressions of the ingroup and outgroup authors was also part of the task. The results showed that there were no differences in the content evaluations. But on the writer-impression evaluations

subjects who believed they were in a minority gave more favourable evaluations of the ingroup author than the outgroup author. In contrast, subjects who believed they were in a majority, showed greater favouritism to outgroup than ingroup authors. When groups were of equal size, subjects also showed a nonsignificant tendency towards outgroup favouritism.

Moscovici and Paicheler (1978) obtained opposite results. First year university students in France were divided into equal groups ostensibly on the basis of their preferences for two paintings. In the 'majority' condition they were informed that their preferences situated them in a majority of 81.8% of the total subject population. In the 'minority' condition, subjects were informed that their preferences situated them in a minority of 18.2% of the total subject population. They were then asked to allocate pecuniary points using Tajfel's matrices to members of their own group and the other group. The results indicated that majorities were more discriminatory than minorities. The minorities were more ambiguous in their responses though, overall, their most frequent response was ingroup favouritism.

These contradictory results may be due to differences in subject samples and dependent measures. But the use of different value-laden operationalizations to create

majority/minority groups may be the most important factor
contributing to the difference in results. For instance,
consider subjects being categorized (by a psychologist) into
majority and minority groups on the basis of their
personality scores (Gerard & Hoyt, 1974). Majority group
members may feel that they have 'normal' personality
characteristics, and that the minority group members have
'abnormal' (or even handicapped) personalities. In such
circumstances, especially where the 'abnormal' minority is
not perceived as threatening, the 'normal' majority can
afford to be benevolent towards the 'abnormal' minority (Katz
& Glass, 1979).

Subjects in Moscovici and Paicheler (1978) were
categorized into majority and minority groups on the basis of
their preferences for certain paintings. Ideologically,
majority preference is often considered more "right" or
"correct" than minority preference (e.g., Asch, 1951; Hensley
& Duval, 1976). This may be sufficient to account for
discrimination against minority group members. In addition,
since the paintings were of equivalent artistic value, the
minority group preferences may have been perceived as
threatening by majority group members (cf. Moscovici &
Nemeth, 1974; Schacter, 1951). Under such circumstances,
majority group members probably accentuated their
discrimination against the 'threatening' minority to

extremely high levels (70%).

Thus far, _post-hoc_ interpretations of the differing majority group responses to minority group membership have been presented. However, minority group responses towards majority group members are less diverse in the studies reported above: minorities tend to show substantial amounts of ingroup favouritism. Relatively higher degrees of category salience usually associated with minority than majority group memberships may account for this consistency in responses (Brewer, 1979). In addition, Sachdev and Bourhis (1984) reported that anglophone undergraduates, living in southern Ontario, perceived minority group membership _per se_ to be more negative and insecure than majority group membership. In the previous studies, French and U.S. college students perhaps also implicitly felt negative and insecure about being put in a minority group position, and consequently, discriminated against the majority. Unfortunately, there is no empirical evidence for these _post-hoc_ interpretations in either of the studies reported above.

It is clear from the above discussion that studies of the effects of group numbers on intergroup behaviour suffer from a number of methodological and conceptual weaknesses. The use of different value-laden operationalizations to create majority and minority groups in these studies may have

led to contradictory results. In addition, these studies lack information pertaining to the subjects' perceptions of, and their responses to, the experimental situation. Such information is crucial if the effects of minority/majority group membership on intergroup behaviour are to be understood.

Studies in the minimal group paradigm discussed in the previous chapter suggested that the mere categorization of people into groups is sufficient and necessary to reliably induce intergroup discrimination. The minimal group paradigm was originally developed to assess the unconfounded impact of social categorization on intergroup behaviour. Though traditional minimal groups have implicitly been equal in group numbers, the minimal group paradigm was adapted in this study to assess the independent effects of group numbers on intergroup behaviour.

On this basis, the present experiment had four major aims: (1) to replicate the traditional minimal group experiment; (2) to investigate the relations between extremely arbitrary and anonymous majorities and minorities; (3) to examine the effects of salient and nonsalient majority/minority categorizations on intergroup behaviour; and (4) to obtain subjects' own perceptions of, and responses to being put in majority/minority group positions.

The first aim was to replicate the minimal conditions

under which intergroup discrimination occurs. Following

Billig and Tajfel (1973), and Turner et al. (1983), a random

and arbitrary 'coin-toss' procedure was used to categorize

subjects into equal numbers of ingroup and outgroup members.

The main dependent variable measured the ways in which

subjects distributed points to ingroup and outgroup others

using Tajfel's response matrices (see ch.2). In line with

previous research, hypothesis 1 was stated as follows:

Subjects categorized as members of numerically equal groups

would display significant degrees of intergroup

discrimination.

The second aim of the experiment was much more

exploratory. How do arbitrary and anonymous minorities and

majorities treat each other? The random coin toss procedure

was used to create perceptions of arbitrary formation of

majority and minority groups. This procedure was used to

assess the 'minimal' effects of group size on intergroup

behaviour, uncontaminated by group assignments based on

aesthetic preferences or personality profiles.

According to S.I.T. (see Ch. 2), motivations for a

positive social identity are realised by making favourable

comparisons between the ingroup and the outgroup on relevant

dimensions. In the usual minimal group studies, subjects

positively differentiated themselves from the outgroup on the

only available dimension of comparison - the matrix choices

(see Turner, 1975, ch. 2). In the present study, the ingroup and outgroup also differed on the ideologically laden dimension of group numbers. Those subjects who compared unfavourably on group numbers' dimensions - the minority - were presumably more motivated to achieve a favourable comparison (i.e., a positive social identity) on the alternative dimension - the matrix choices. Conversely, subjects who compared favourably as majority group members were probably less motivated to achieve favourable comparisons on the matrix choices. These considerations led to the formulation of hypothesis 2 as follows: increases in the numerical size of ingroup membership should lead to concomitant decreases in levels of ingroup favouritism and increases in levels of parity. More specifically it was hypothesized that: (2a) majorities would show less ingroup favouritism and more parity than equal and minority groups; and (2b) minorities would show more ingroup favouritism and less parity than equal and majority groups.

The third aim of the experiment was to investigate the effects of salient and nonsalient majority/minority categorizations on intergroup behaviour. Previous studies on majority/minority groups reviewed above assume that majority/minority group perceptions may be created implicitly be referring to the relative sizes of the two groups. No mention of the terms 'majority/minority' was made in the

instructions to the subjects in these earlier studies.
Subjects were to infer that they were in a majority or a
minority from the information provided by the experimenter
about the relative sizes of the two groups.  In the present
experiment, both salient and nonsalient categorizations of
group memberships were manipulated.

The nonsalient categorization was achieved by simply
informing subjects of the relative size of the two groups,
while the salient categorization was created by specifically
pointing out to the subjects that their group size put them
in the 'minority', 'majority' or 'equal' group.  Increasing
the salience of group categorization has been found to
enhance discrimination in previous minimal group studies (see
Brewer, 1979, for a review) and in field studies (Bourhis,
Giles, Leyens & Tajfel, 1979;  Bourhis and Hill, 1982).
These considerations allowed the following formulation of
hypothesis 3:  increasing the salience of group
categorizations would lead to concomitant increases in levels
of ingroup favouritism and decreased levels of parity.

The fourth aim was to obtain information pertaining
to subjects' perceptions of, and responses to, the
experimental manipulations.  Unlike most previous minimal
group studies, subjects' perceptions concerning ingroup and
outgroup power, status and their expectations about the
behaviour of others were obtained (see ch. 2).  Measures

designed to assess group identifications and feelings

associated with group membership were also obtained.   In

addition, the present experiment monitored subjects'

self-reported strategies for allocating matrix points to

ingroup and outgroup others.   Although Nisbett and Wilson

(1977) have raised a number of objections to the use of

verbal self-reports of decision processes, it is important to

note that such reports, and the reasons or rationalizations

which individuals use to justify their own behaviour, may

have considerable psychological relevance.   Indeed, the match

or mismatch between self-reports and actual behaviour may

reveal important insights about majority-minority relations.

## Method

<u>Subjects</u>:   Subjects were 120 (male and female) introductory

psychology undergraduate students who volunteered to fulfill

a course requirement.   All subjects were native

English-speaking Canadians who had lived in southern Ontario

for most of their lives.

<u>Design</u>:   Subjects were run in group sessions (20 subjects

per session), with treatment conditions randomly determined

for each session.   There were six treatment conditions.

Subjects were divided into majority, minority, and equal

numbers groups. The division into these groups was ostensibly based on a random toss of a coin. Half of the subjects were exposed to a manipulation aimed at making their group memberships salient. The other half were in the nonsalient categorization conditions. These manipulations produced 3 x 2 (Group Size x Salience) factorial design.

Procedure: An English speaking Canadian experimenter (E) introduced the study as an investigation into decision-making processes (see appendix 2). Specifically, subjects were told: "The decision task is concerned with how people divide up things. In this study you will be dividing up points. You may think of the points as dollar bills, if you like... Let me stress that you may divide them up in anyway you wish." Subjects were instructed that for the sake of convenience in the decision task they would be divided up into two groups, Group X and Group W. Ostensibly, the outcome of a coin-toss performed by each subject determined his/her group membership. In reality, the actual coin-toss results were irrelevant in assigning subjects randomly to groups.

Arrangements were made for group memberships to remain anonymous. To manipulate group numbers (or size), subjects were given false feedback about the overall frequencies that the coin came up "heads" and "tails".

Subjects were told that the overall coin-toss results situated 16 subjects in one group (majority) and 4 subjects in the other group (minority). Subjects assigned to the equal group conditions were told that the overall coin-toss results situated 10 subjects in one group and 10 subjects in the other group. In reality, fifty percent of the subjects in each session were randomly assigned to each of the two groups.

Previous minimal group studies (e.g., Billig & Tajfel, 1973; Turner et al., 1983) suggested that explicit categorization, operationalized by the mere mention of the label "group" was sufficient to elicit intergroup discrimination. Similarly, in the present study, the salience of group membership was operationalized by providing explict labels for group membership, such as "majority", "equal numbers" or a "minority", in the salient but not the non-salient conditions. Moreover, subjects in the salient categorization conditions were asked to write their own group labels (e.g., "majority", "minority" or "equal numbers") in the response booklets provided.

Subjects were to use response booklets to make their decisions about distributing points to two other anonymous subjects -- a member of the ingroup and a member of the outgroup. On no occasion were subjects allocating points to themselves. The response booklets contained a series of

Tajfel's matrices (see ch. 2). Following the distribution
task, postsession questionnaires were administered. On
completion, subjects were carefully debriefed.


Dependent measures: (a) Tajfel's matrix distributions:
The response booklets comprised three types of matrices
described in Ch. 2 (see appendix 3). Each of these matrix
types was designed to precisely measure the strength or
'pull' of different strategies on subjects' choices. The
matrix types compared (i) parity (P) with ingroup favouritism
(FAV = MIP + MD); (ii) FAV with maximum joint profit (MJP);
and (iii) maximum difference in favour of ingroup (MD) with a
combination of absolute ingroup favouritism (MIP) and maximum
joint profit (MJP). From each matrix type, two pulls may be
calculated (see ch. 2). Detailed descriptions of the
matrices, the strategies assessed, and the scoring procedures
are to be found in Ch. 2 (see also appendix 1). Other
methodological, statistical and scaling issues are also
reviewed in ch. 2.

       Each matrix type was presented once in its original
form and once in its reverse form. This procedure is
identical to presenting the same matrix type once with
allocations for the ingroup on the top row (I/O) and once
with ingroup allocations on the bottom row (O/I). This
amounted to two presentations of the each matrix type, and

six pages in the response booklet as a whole.  Subjects in
all conditions completed the same set of matrices, though the
order of matrix presentation was randomised for each subject.

(b) Postsession questionnaire:  Several items on the
postsession questionnaire assessed the following (see
appendix 4):  (i) subjects' identification with ingroup,
estimates of other subjects' identifications with their
respective ingroups; (ii) subjects' self-reported allocation
strategies and their estimates of others' allocation
strategies; (iii) subjects' feelings about their group
memberships including estimated relative power and status of
ingroup and outgroup; (iv) subjects' anticipated liking for
other ingroup and outgroup members and their estimates of
other subjects' anticipated liking for them and other ingroup
members.  Questionnaire items were answered on seven-point
scales.

## Results

This section is divided into two parts:  analyses of
subjects' matrix strategies, and analyses of subjects'
responses on postsession questionnaire items.

1. Analyses of subjects' matrix distribution strategies:
Following Turner et al. (1979) and Brown et al. (1980; see

ch. 2), 'pull' scores were calculated for each strategy. Two sets of analyses were conducted on these: (a) strategy analyses __within__ each treatment condition, and (b) strategy analyses __between__ treatment conditions.

(1a) Table 1 presents the mean pull scores within each treatment condition. These were calculated and tested by performing Wilcoxon Matched Pairs tests on the difference in scores between the I/O and O/I versions of each matrix type.

## Table 1

__Mean 'pulls' of subjects' matrix distribution strategies__

| Pull | MINORITY | | EQUAL | | MAJORITY | | X |
| | Non-salient (NS) | Salient (S) | Non-salient (NS) | Salient (S) | Non-salient (NS) | Salient (S) | |
|---|---|---|---|---|---|---|---|
| P on FAV | 3.8* | 0.6 | 3.1* | 6.6** | 3.4* | 4.8** | 3.7 |
| FAV on MJP | 2.5* | 1.6 | 4.7** | 2.0** | 5.0** | 4.1* | 3.3 |
| MD on MIP+MJP | 2.7* | 3.2* | 4.9** | 1.7 | 2.3* | 3.9* | 3.1 |
| FAV on P | 2.5** | 3.2** | 4.4** | 1.1 | 1.0 | 3.3** | 2.6 |
| MIP+MJP on MD | 2.3** | -0.3 | -0.2 | -0.2 | -0.4 | 1.0 | 0.4 |
| MJP on FAV | 0.7 | 0.0 | -0.2 | 0.8 | -0.2 | -0.3 | 0.2 |

** = $p < .01$; * = $p < .05$.

Overall, the strengths of each variable declined in magnitude in the order of P on FAV, FAV on MJP, MD on MIP+MJP, FAV on P, MIP+MJP on MD, MJP on FAV. To test for artifactual dependence between any two pulls obtained from the same matrix type, correlations were calculated between the 6 cell deviations of each pull and the absolute cell means of the appropriate obverse pull. No correlations were significant, indicating that the obtained values of any two strategies calculated from the same matrix type may be taken to be mathematically independent measures of subjects' choices.

The results replicated the usual minimal group findings (hypothesis 1) in the case of nonsalient equal groups, who clearly discriminated against one another. Indeed, maximum differentiation (MD on MIP+MJP) was the most influential strategy for this group (see Turner, 1980; ch. 2). Contrary to prediction, salient equal group members were overwhelmingly parity oriented.

Some support was also obtained for hypothesis 2. The pull of ingroup favouritism pitted against parity (FAV on P) was significant in all conditions except the nonsalient majority and salient equal conditions (hypothesis 2a). In support of hypothesis 2b, all groups showed significant amounts of parity (P on FAV) except for the salient minority

groups. Maximum joint profit (MJP on FAV) was the least influential strategy across all conditions. Pull scores reported in Table 1 provided little systematic support for hypothesis 3 (see below).

(1b) To better assess the degree of support for hypotheses 2 and 3, a group numbers (majority - equal - minority) x salience (nonsalient - salient) multivariate analysis of variance (MANOVA) was conducted using subjects' scores on the six matrix strategies as dependent measures. The overall MANOVA revealed two significant effects: (i) a group numbers x salience interaction $F(12, 218) = 2.01$, $p < .02$; and (ii) a main effect for group numbers, $F(12, 218) = 2.43$, $p < .01$. Univariate analyses of the interaction indicated that it was reliable for three strategies: (a) FAV on P, $F(2, 114) = 3.77$, $p < .02$; (b) P on FAV, $F(2, 114) = 4.28$, $p < .02$; (c) MIP+MJP on MD, $F(2, 114) = 3.9$, $p < .02$.

Univariate analyses of the MANOVA interaction and subsequent comparisons (Duncan's Multiple Range test) provided some support for hypothesis 2 (a & b): (i) Nonsalient equal groups showed more ingroup favouritism (FAV on P) than nonsalient majority groups ($p < .05$). (ii) Salient equal and salient majority groups showed more parity (P on FAV) than salient minority groups ($p < .05$). (iii) Nonsalient minority groups showed greater pulls of the

absolute ingroup and joint profit combination (MIP+MJP on MD) than nonsalient majority, nonsalient equal and salient equal groups ($p$ < .05). Since MJP had no effect (Table 1) this result probably reflects the influence of MIP in isolation.

Univariate analyses of the MANOVA Group Numbers main effect also provided some support for hypothesis 2b. Univariate analyses revealed a marginally significant effect for P on FAV, $F(2, 114) = 2.77$, $p$ < .07). Inspection of the means for P on FAV indicated that minority group members ($M = 2.2$) showed less parity than equal groups ($M = 4.8$). However, caution should be exercised in interpreting this main effect since the overall MANOVA interaction was also significant.

The overall 3 x 2 MANOVA provided no support for the hypothesized effects of salience (hypothesis 3). Increasing the salience of group categorization did not lead to concomitant increases in levels of ingroup favouritism. Instead, analyses of the MANOVA interaction effect indicated that salient equal groups showed less ingroup favouritism (FAV on P) than nonsalient equal groups ($p$ < .05), while salient minorities showed less ingroup and joint profit (MIP+MJP on MD) than nonsalient minorities ($p$ < .05).

The effects of salience on majority/minority categorizations may have been obscured by the impact of the salience manipulation in the equal group conditions. To

evaluate the effects of the salience manipulation on majority

and minority conditions only, 2 x 2 ANOVAs

(nonsalient-salient x majority-minority) were conducted on

each matrix strategy.  These 2 x 2 ANOVAs revealed a similar

pattern of results to those obtained from the 3 x 2 MANOVA

analyses.  No significant main effect for salience was

obtained on any of the matrix strategies, thus confirming

that the salience manipulation did not lead to increased

discrimination (hypothesis 3).

However, the 2 x 2 ANOVAs did reveal a Group Numbers

main effect on matrix measure FAV on MJP, $\underline{F}(1, 76) = 4.73$,

$\underline{p} < .05$, which was not obtained in the 3 x 2 MANOVA

analysis reported above.  Contrary to hypothesis 2, majority

group members ($\underline{M} = 4.6$) showed more ingroup favouritism

than minority group members ($\underline{M} = 2.0$, $\underline{p} < .05$) when it

was pitted against maximum joint profit (FAV on MJP).  Closer

inspection of FAV on MJP in the context of other matrix

strategies (Table 1) suggested that levels of FAV on MJP may

reflect a greater influence of MD (as opposed to MIP) in the

majority than in the minority group conditions.  Evidence in

support of this analysis was obtained from intracell

correlations between FAV on MJP and MD on MIP+MJP for all

majority and minority conditions.  These correlations were

significantly positive ($\underline{p} < .01$, 18 $\underline{df}$) in both majority

group conditions ($\underline{r} = .58$ for NS; $\underline{r} = .72$ for S), but not

significant in the minority group conditions ($r$ = .43 for

NS; $r$ = .40 for S).

2. Analyses of Postsession Questionnaire Items: Since a

large number of questionnaire items were used, an overall

Group Numbers x Salience MANOVA was conducted on all items.

This revealed only a main effect of Group numbers, $F(64,$

166) = 1.5, $p$ < .02. Univariate analyses indicated that

this effect was mainly due to subjects' responses on two

questions: "How much power do you think the other group

has?" and "How much did you favour your own group in

distributing the points?" Analyses of the 'power' question

will be considered later. Analyses of the 'ingroup

favouritism' question will be considered in conjunction with

other dependent measures also used to assess subjects'

self-reported allocation strategies.

In order to assess self-reported parity, subjects

were asked how "fair" they were. They were also asked how

much they favoured their ingroup, how much they tried to

maximize points for both groups and how much they favoured

the outgroup in their distributions. Table 2 reports

correlations between self-reports and matrix pull scores.

## Table 2

### Correlations between self-reported and Tajfel's matrix strategies

| Strategy self-reported | matrix | Correlation r |
|---|---|---|
| Parity | P on FAV | .29, p < .01 |
| Ingroup favouritism | FAV on MJP | .66, p < .01 |
|  | MD on MIP+MJP | .60, p < .01 |
|  | FAV on P | .59, p < .01 |
| Maximum joint profit | MJP on FAV | .06, n.s. |

Results in Table 2 show that variations in matrix strategies were, in general, significantly and positively related to subjects' self-reports. Univariate ANOVA analyses of self-reports revealed two effects: (i) A marginal main effect for group numbers on self-reported ingroup favouritism, $F(2, 114) = 2.86$, $p = .06$. This indicated that minority group subjects reported showing less ingroup favouritism ($M = 3.7$) than either equal ($M = 4.6$) or majority ($M = 4.7$) group subjects. (ii) A significant group numbers x salience interaction on self-reported parity, $F(2, 114) = 3.34$, $p < .05$. Duncan's Multiple Range Test yielded two significant comparisons: (i) Nonsalient minority group subjects reported showing greater parity than nonsalient equal group subjects ($p < .05$); and (ii) Nonsalient majority group subjects reported showing greater

fairness than nonsalient equal group subjects ($\underline{p}$ < .05).

The mean scores for self-reported strategies are presented in Table 3. Overall, subjects appeared to self-report high levels of parity and ingroup favouritism. Use of maximum joint profit and outgroup favouritism were not reported by subjects to any great extent.

Table 3

Self-reported distribution strategies

| Strategy | MINORITY | | EQUAL | | MAJORITY | | |
|---|---|---|---|---|---|---|---|
| | NS | S | NS | S | NS | S | |
| Parity | 5.3 | 4.2 | 3.4 | 4.7 | 4.9 | 4.7 | 4.5 |
| Ingroup favouritism | 3.9 | 3.5 | 5.0 | 4.3 | 4.9 | 4.5 | 4.4 |
| Maximum joint gain | 3.4 | 2.8 | 2.2 | 3.3 | 2.8 | 2.9 | 2.9 |
| Outgroup favouritism | 2.5 | 2.7 | 2.1 | 2.3 | 2.9 | 2.8 | 2.6 |

Note: The higher the mean rating on the 7 pt. scale, the higher the score on the item.

Overall, self-reported strategies appeared to be concordant with actual matrix strategies. However, closer examination of Tables 1 and 3 suggested that correspondence between self-reports and actual matrix choices was not clear cut across all cells in the design. In particular, while parity was virtually absent as a matrix choice for

salient minority group members, they, nevertheless, reported
slightly higher than average use of this strategy in their
self-reports. Both salient and non-salient minorities had a
slight tendency to underestimate their use of ingroup
favouritism in their self-reports.

Comparison of self-reports and matrix strategies of
ingroup favouritism as a whole (i.e., FAV on MJP, MD on
MIP+MJP, FAV on F and MIP+MJP on MD) suggested that majority
group members' accurately self-reported their matrix
strategies. Nonsalient equal group members also accurately
reported their consistent use of ingroup favouritism
strategies on the matrices. However, salient equal group
members overestimated their use of ingroup favouritism
relative to actual usage on the matrices.

What were subjects' estimates of the strategies that
other ingroup and outgoup members employed relative to them?
Since these could not be directly assessed from the MANOVA
analyses, univariate repeated measures ANOVAS were conducted
on subjects' estimations of strategies employed by
themselves, other ingroup and outgroup members. To avoid
inflation of Type 1 error, a strict and a priori
significance criterion of $p$ < .001 was used for each test.
The analyses indicated main effects for the repeated
measures' factors of parity, $F(2, 228) = 16.25$, $p$ < .001;
ingroup favouritism, $F(2, 228) = 16.79$, $p$ < .001; and

maximum joint profit, $F_{(2, 228)}= 13.3$, $p < .001$.

Duncan's pairwise comparisons showed that subjects' felt that they ($M = 4.5$) were more parity oriented than other ingroup ($M = 4.1$) and outgroup members ($M = 3.7$, $p < .01$). Subjects also estimated that other ingroup members showed more parity than outgroup members ($p < .01$). Furthermore, subjects' felt that outgroup members ($M = 5.0$) and other ingroup members ($M = 4.9$) showed more ingroup favouritism than themselves ($M = 4.3$, $p < .01$). These patterns of results suggest that while parity may have been perceived as the most socially desirable strategy, ingroup favouritism was probably perceived as the least socially desirable response strategy. Finally, subjects' estimated that both other ingroup members ($M= 3.6$) and outgroup members ($M = 3.4$) used maximum joint gain more than themselves ($M = 2.9$, $p < .01$).

It was noted earlier that the 'outgroup power' item on the postsession questionnaire contributed to the overall MANOVA main effect of Group Numbers. A more appropriate repeated measures ANOVA was conducted to see if majority, equal numbers and minority groups perceived a power differential between ingroup and outgroup. This revealed no significant effects (Grand $M = 3.8$). A similar analyses of perceived ingroup and outgroup status also revealed no significant differences between conditions (Grand $M = 3.9$).

A number of postsession questionnaire items asked subjects how much they would <u>like</u> other ingroup and outgroup members. Repeated measures ANOVAS, with an <u>a priori</u> significance criterion of $p < .001$ for each test, were conducted. The analyses revealed the following main effects for repeated measures factors: subjects' liking for others, $\underline{F}(1, 114) = 21.72$, $p < .001$; other ingroup members' liking for others, $\underline{F}(2, 228) = 64.95$, $p < .001$; and outgroup members' liking for others, $\underline{F}(2, 228) = 69.55$, $p < .001$. Pairwise comparisons showed that subjects liked ingroup members ($\underline{M} = 4.8$) more than outgroup members ($\underline{M} = 4.3$, $p < .01$). Subjects also felt that other ingroup members would like them ($\underline{M} = 5.0$) and other ingroup members ($\underline{M} = 5.0$) more than outgroup members ($\underline{M} = 3.9$, $p < .01$). Moreover, subjects estimated that outgroup members would like other outgroup members ($\underline{M} = 5.3$) more than themselves ($\underline{M} = 4.1$) and other members of the subjects' own group ($\underline{M} = 4.0$, $p < .01$).

Subjects' reports of own group identifications and their estimates of other subjects' identifications with their respective ingroups were analysed in a similar manner to the 'liking' measures above. The identification measures yielded no significant differences between conditions (Grand $\underline{M} = 4.5$). Finally, regardless of condition, subjects also appeared to agree highly with the formation of the groups on

the basis of a toss of a coin (Grand $\underline{M}$ = 5.5).

Were subjects aware of the purposes of the
experiment? While 59 subjects reported that they were not at
all aware of the experimenter's hypotheses, responses from 58
others suggest that these subjects felt that the experiment
was concerned with ingroup favouritism. However, these
subjects were not distributed in a systematic manner across
the six experimental conditions. In addition, as Table 4
shows, these subjects' responses were not predictive of the
subjects' actual choices on the matrices. Finally, three
subjects reported that the experiment was concerned with
majority-minority relations, but their matrix responses did
not appear to be systematically affected by this knowledge.


Table 4

Breakdown of subjects' matrix strategies as a function their
suspicions about the experimental hypotheses

Subjects' suspicions

| Strategy: | Miscellaneous | Ingroup favouritism |
|---|---|---|
| P on FAV | 3.7 | .3.7 |
| FAV on MJP | 3.3 | 3.3 |
| MD on MIP+MJP | 3.3 | 3.0 |
| FAV on P | 2.6 | 2.6 |
| MIP+MJP on MD | 0.5 | 0.3 |
| MJP on FAV | 0.1 | 0.2 |

Discussion

The overall results revealed a systematic though complex pattern. Results of subjects' matrix choices are discussed first followed by subjects' self-reported strategies and other postsession questionnaire data. As expected on the basis of hypothesis 1, nonsalient equal groups were unambiguously discriminatory, replicating previous minimal group findings (see Turner, 1981; ch. 2). However, salient equal groups were extremely parity oriented, though they showed significant degrees of ingroup favouritism when this strategy was pitted against maximum joint profit (FAV on MJP).

Support for hypothesis 2, though equivocal, was also obtained. Though majorities were generally parity oriented (hypothesis 2a), they also showed ingroup favouritism (MD and MIP). Nonsalient majorities only showed ingroup favouritism when parity was not the opposing variable, while discriminating less than nonsalient equal groups. But salient majorities showed significant amounts of discrimination even when parity was the opposing variable. Despite this increase in discrimination, parity still tended to exert a greater pull than ingroup favouritism and salient majorities showed more parity than salient minorities.

In accordance with hypothesis 2b, minority group

members tended to show less parity (P on FAV) than equal group members. Salient minorities did not show any significant degree of parity, while discriminating at both absolute and relative levels (FAV on P, MD on MIP + MJP). Nonsalient minorities also discriminated, differing most from the other groups through their use of absolute ingroup favouritism (MIP).

The matrix results discussed so far support predictions derived from Social Identity Theory (see ch. 2). It was argued that since minority group membership confers a relatively insecure and negative social identity, minorities should show more discrimination and less parity than majorities. Discrimination, according to S.I.T., serves to achieve (or maintain) a positive social identity. Conversely, since majority group membership confers a comparatively secure and positive social identity, majorities can afford to show parity to minorities. The matrix results discussed so far provide some support for this account.

The applicability of the above explanation is undermined by two sets of results. Firstly, contrary to hypothesis 2a, majorities showed greater ingroup favouritism than minorities on matrix FAV on MJP. Analyses suggested that, unlike minority groups, the majorities' FAV on MJP responses may be mainly influenced by MD rather than MIP. Thus, majorities appear to be more concerned than minorities

about maintaining differentials while attempting to keep
their matrix choices closer to maximum parity than minority
group members. Minority group members, on the other hand,
seemed to employ a combination of relative (MD) and absolute
ingroup profit (MIP) strategies. This may serve the dual
purpose of positive differentiation from the majority groups,
and may also provide absolute compensation for their
disadvantage on the group numbers dimension.

Secondly, subjects from majority, equal and minority
groups did not report feeling differentially secure or
positive about belonging to their respective groups. As in
previous minimal group studies, the adoption of maximum
differentiation (MD) by all groups (except salient equal)
suggested that these groups 'competed' (Turner, 1975) for
positivity on the matrix choices. This may account for the
findings that majority, equal and minority groups did not
feel differentially secure or positive about their group
identities by the time they completed the postsession
questionnaire (cf. Oakes & Turner, 1980; see ch. 2).

Whereas hypotheses 1 and 2 were supported to a fair
degree by the results, hypothesis 3 received little support.
Increasing the salience of categorizations did not produce a
unidirectional tendency for discrimination. In fact,
increasing the salience of equal numbers groups resulted in
reduced discrimination and overwhelming parity. Demand

characteristics in favour of parity (or equality) may have been triggered by requesting subjects in this particular condition to label themselves as members of the "equal numbers group" in their matrix response booklets.

Increasing the salience of majority and minority group categorizations appeared to have little effect in increasing discriminatory responses. Within treatment condition analyses revealed that whereas nonsalient majorities were not discriminatory when ingroup favouritism was pitted against parity (FAV on P), salient majorities showed significant amounts of FAV (on P). Similarly, although nonsalient minorities displayed significant amounts of parity (P on FAV), salient minorities did not display any parity (P on FAV). However, these apparent increases in discrimination as a function of salience were not significant according to the between-conditions analyses. Future research may shed light on these issues by employing a different manipulation of majority/minority group salience.

Overall correlations between matrix and self-reported strategies suggested that subjects were generally quite aware of their use of various distribution strategies. Specific comparisons suggested that majority and equal group members accurately reported the distribution strategies they used, except for salient equal group members who tended to overestimate their use of ingroup favouritism strategies.

Salient equal group members may have overestimated their use of the little discrimination they exhibited due to the emphasis placed on equality through the salient equal numbers manipulation.

Salient minorities overstated their use of the parity strategy relative to their actual usage on the matrices. Though all groups discriminated to some degree in their matrix choices, minorities tended to underreport their reliance on ingroup favouritism strategies relative to majority and equal group members. A plausible explanation for this discrepancy suggests that minority group members (especially in nonsalient conditions) may have perceived their use of the absolute ingroup profit strategy as 'fair' or 'just' compensation for being situated in the ideologically disadvantageous minority group position (cf. Lerner, 1977).

Results of self-reported strategies suggested that subjects' self-reports were influenced by social desirability biases. Billig (1973) and Turner (1981) reported that parity is considered the socially desirable strategy in minimal group experiments. In accordance with this, subjects in all conditions reported that they and their ingroup members showed more parity than outgroup members. In addition, subjects felt that they showed less ingroup favouritism than other ingroup and outgroup members.

The results of this study demonstrate the usefulness of obtaining self-reports of subjects' own behaviour, as well as their perceptions of, and reactions to, the experimental situation. Unfortunately, most laboratory studies investigating intergroup behaviour do not incorporate such features within their designs. The inclusion of such measures in future studies should provide invaluable information concerning group members' normative expectations and rationalizations regarding their intergoup behaviour. Finally the present experimental results argue for the inclusion of demographic or group numbers' factors in theorizing and research on intergroup behaviour (cf. Bourhis & Sachdev, 1984).

By using a random and extremely arbitrary procedure for creating numerical majority and minority groups, the 'minimal' effects of group size on intergroup behaviour have perhaps been identified. Relations between real-life majority and minority groups, such as those in South Africa, are also profoundly affected by the power and status differentials that exist between groups. Future research may now build on the 'baseline' majority-minority effects obtained in this study by creating majorities and minorities that differ on power and status dimensions. Overall, results of the present study suggested that majority/minority categorizations _per se_ have a significant effect on the

conduct of intergroup relations.

## Summary

Using a variant of the minimal group paradigm, the
present study investigated the intergroup behaviour of
university undergraduates categorized as numerical minority,
majority or equal numbers, group members.  The effects of
salient (S) versus nonsalient (NS) group categorizations were
also examined.  These manipulations yielded a three-by-two
design matrix consisting of majority-equal-minority by
nonsalient-salient group conditions.  Unlike most previous
studies using this paradigm, an extensive postsession
questionnaire was used to obtain subjects' perceptions of,
and responses to the experimental situation.  In addition,
subjects' responses on Tajfel's matrices were supplemented
with subjects' self-reported distribution strategies.

As expected, minimal group results were replicated in
the NS equal group condition such that the mere
categorization into groups was sufficient to foster
intergroup discrimination.  However, salient equal group
members displayed a large degree of parity in their
allocations.  Minorities were generally less parity oriented
than equal groups, showed high levels of absolute ingroup
favouritism, while simultaneously attempting to establish

positive distinctiveness from majorities.  Though majority

group members kept their allocations closer to the point of

maximum parity than minority group members, they also

maintained small but definite differentials in favour of

their own group.

Results indicated a close correspondence between

self-reported and matrix pull scores and, therefore,

generally corroborated the construct validity of Tajfel's

matrices.  Interestingly, minority group members and salient

equal group members tended to be less accurate in their

self-reports.  Overall, results of the present study are

consistent with hypotheses derived from Social Identity

Theory.  But they also show that sociostructural variables,

such as group numbers, have a significant impact on

intergroup behaviour.

Chapter 4

STUDY 2:   MINIMAL SOCIAL CATEGORIZATION AND POWER
DIFFERENTIALS*


Introduction


    - In this chapter the issue of power is discussed with

reference to the classic minimal group studies (see also ch.

2).   As the second of a series of experiments investigating

sociostructural factors, the present study was designed to

explore the baseline effects of power differentials between

groups on patterns of intergroup behaviour.   Group power was

defined as the degree of control members of one group have

over their own fate and that of outgroup members (see ch. 1).

    In the world outside the laboratory, instances of the

impact of group power abound, ranging from enslavement and

genocide of large collectivities to guaranteeing freedom from

oppression and provision of access to resources.   Social

psychologists, such as Apfelbaum (1979) and Ng (1980), have

argued for a recognition of the central role that power

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differentials play in intergroup relations. However, social
psychologists pursuing experimental analyses of intergroup
behaviour have seldom considered the relevance of power in
their research formulations, experimental designs or
interpretations of data. Typically, experimental subjects
are placed in situations in which they can freely distribute
resources or make evaluations, without reference to the power
relations between groups. The aim of such studies is to
experimentally eliminate (or equalize) considerations of
power across experimental conditions.

In the usual minimal group studies, categorized
subjects were asked to allocate pecuniary points to other
ingroup and outgroup members. Subjects were given the
freedom to make their distributions without concerning
themselves with the degree of control they had over their own
and others' fate in the experiment. Rather than eliminating
power considerations, this procedure essentially created a
situation where ingroup and outgroup members have equal power
in their decisions to distribute resources, knowing that the
experimenter would enforce their decisions (Ng, 1982). Thus,
the designs of minimal group experiments not only induced
social categorization, but also implicitly introduced a
bilateral and equal power relation. Ng (1981, 1982) argued
that the presence of a bilateral equal power relation
introduced a realistic possibility of change from a

previously 'equal' to an 'unequal' intergroup situation.
Since intergroup discrimination was observed under these
conditions, it is likely that without a permissible power
relation, group members might not have discriminated.

The empirical evidence for the above analysis is
tentative at best.   Ng (1982) categorized schoolboys into
teams which were to compete in a game of quoits for the
opportunity to play TV soccer.   Only members of one team
('dominant') were asked to distribute quoits between the
ingroup and an absentee outgroup.   Their decisions were
either binding ('secure' power) or not binding ('insecure'
power) on the subordinate group.   In the 'insecure' power
conditions, dominant members' were told that they could be
disqualified from the opportunity to play TV soccer if
subordinate group members rejected their proposed
distributions.   As expected 'secure' dominant group members
discriminated more than 'insecure' group members in their
distributions of quoits.

A second experiment by Ng (1982) set up a more
complex though indirect power relation situation.
Introductory psychology students were randomly categorized
into two groups where ingroup members were to compete with
outgroup members on a series of arithmetic problems.
Ostensibly, since only one calculator was available for use,
members of one group were to distribute 'calculator-time'

between an ingroup and an outgroup member (the dependent measure). The calculator served as the critical 'power' tool for winning the institutionalized competition. The proposed distributions would then be passed or vetoed by a smaller voting committee. Before subjects made their distributions they were told that the voting committee either comprised a majority, equal numbers, or a minority of ingroup members. Results showed that whereas all subjects displayed discrimination in their distributions, subjects in the majority condition were more discriminatory than those in the equal and minority conditions.

Though temptations to conclude that "discrimination ... is contingent upon a permissive intergroup power relation" and "discrimination increases when the power advantage becomes decisive" (Ng, 1982, p. 204) are great, Ng (1981) obtained opposite results (see ch. 2 for extensive discussion). In Ng (1981), group members with 'sole' control discriminated _less_ than those with 'joint' control over intergroup allocations. Evidently, the independent effects of intergroup power differentials have not been identified. Alternative explanations based on the implicitly cooperative intergroup situation and differential salience of categorization in Ng (1981) were proposed in ch. 2.

Ng's (1982) experiments also were 'non-minimal'. An explicit intergroup competition situation was set up,

self-interest as a motive (especially in Experiment 1) was
not eliminated and face-to-face interaction between group
members was permitted. As was discussed in ch. 2, all these
factors have been found to powerfully affect intergroup
behaviour by increasing patterns of intergroup discrimination
(e.g., Sherif, 1966). Finally, information pertaining to the
subjects' perception of, and their responses to the
experimental situation were not obtained and limit our
understanding of the effects obtained in these studies.

On the basis of the above discussion, the present
experiment had three major objectives: first, replication of
the minimal group discrimination effect; second,
investigation of the independent effects of arbitrarily
created power differentials on intergroup behaviour; and
third, examination of how salient and nonsalient power
categorizations affect intergroup behaviour. As in previous
minimal group studies, several criteria were fulfilled in the
experimental procedures to accomplish these aims. These
included obviating confounding factors such as a realistic
conflict of interests, self-interest and face-to-face
interaction. In addition, complete anonymity of group
membership was preserved, while the Tajfel matrices provided
subjects with a full range of response strategies. Subjects'
responses consisted of real decisions about the distribution
of important resources (course credits). These procedural

operations enabled the assessment of the minimal or 'baseline' effects of group power on intergroup behaviour.

As in study 1, the first objective entailed replicating the traditional minimal group experiment. Undergraduates, arbitrarily categorized into two groups, were asked to distribute course credit points to ingroup and outgroup others using Tajfel's matrices (see ch. 2). This represented the typical minimal group situation, where both social categorization and an implicit equal bilateral power relation existed. Under these classic minimal group conditions hypothesis 1 was formulated as follows: minimally categorized subjects would show intergroup discimination.

The second aim was to assess the independent impact of arbitrarily established power differentials on intergroup behaviour. The role of power in previous minimal group experiments has been discussed above. It was suggested that the implicit, bilateral and equal (50%) power relation allowed group members to discriminate effectively in order to achieve a positive social identity. Real-life intergroup relations situations with groups of equal power are rare. Therefore the present experiment involved groups that shared power to varying degrees. In two conditions, the impact of extremes in possible power differentials was explored by creating an intergroup situation in which one group had 100%

control (absolute power group) while the other group had no
(O%) control (no power group) over the distribution of
resources to ingroup and outgroup members. In two other
conditions, the impact of intermediary power differentials on
intergroup discrimination was explored by creating an
intergroup situation in which one group had 70% control (high
power group) while the other group had only 30% control (low
power group) over the distribution of resources to ingroup
and outgroup members.

According to S.I.T., subjects in the traditional
minimal group experiments realised their motivations for a
positively social identity by intergroup discrimination.
Conceptually, having power enables group members to actualize
and achieve a positive social identity by successfully
establishing favourable ingroup comparisons with outgroups.
In other words, whereas motivations for a positive social
identity are causal to observed discrimination, group
members' actual decision-making power for allocations allows
such motivations to bear fruit. The hypothesized need for a
positive social identity coupled with the perception of
having power (albeit equal) enabled subjects to adopt a
behavioural strategy that maximized the relative superiority
of the ingroup over the outgroup. Based on this, it was
hypothesized (hypothesis 2) that increasing ingroup
members' decision-making power would lead to concomitant

increases in discrimination against outgroup members. Thus dominant group members would show greater discrimination than subordinate group members. Conversely, subordinate group members were expected to show lower discrimination than dominant group members.

As in the previous experiment (study 1), the third aim constituted investigating the effects of salient and nonsalient power categorizations on intergroup behaviour. Previous minimal group studies (see Brewer, 1979, for a review) and field studies (e.g., Bourhis et al, 1979; Bourhis & Hill, 1982) have shown that when individuals' group memberships become more salient, their behaviour is guided more by their own group memberships than by intra-individual and interpersonal factors. The characteristic behaviour under conditions of high category salience has been intergroup discrimination. Past research examining intergroup power differentials has often manipulated power in an indirect nonsalient manner (e.g., Ng, 1982) with the power relation being vaguely specified. Therefore the present experiment also assessed the baseline effects of salient and nonsalient group power categorizations. For purposes of comparison, the salience manipulation was operationalized by a labelling procedure similar to that employed in study 1. As in study 1, hypothesis 3 was formulated thus: increasing the salience of social categorization should

polarise intergroup behaviour i.e., increase patterns of intergroup discrimination.

Finally, as in study 1, to better assess the impact of our manipulations, subjects' perceptions of, and responses to the experimental situation were also monitored. Tajfel's matrix allocations were supplemented with subjects' self-reported allocation strategies and their expectations of others' distribution strategies. Identification measures, feelings associated with group membership, anticipated liking measures, as well as perceived group status, power and group size, were also obtained. These self-report and perceptual measures were designed to provide additional insights about relations between subordinate and dominant group members in minimal group situations.

## Method

**Subjects:** Subjects were 200 (male and female) Introductory Psychology students who volunteered to fulfill a course requirement. All subjects were English-speaking Canadians who had lived in southern Ontario for most of their lives.

**Design:** Subjects were run in group sessions (20 per session), with treatment condition randomly determined for each session. There were ten treatment conditions.

Perceptions of differential power were created by randomly giving each group varying degrees of control (0% to 100%) over the distribution of course credits. Half the subjects were exposed to a manipulation aimed to make their group memberships salient. The rest were in the nonsalient categorization conditions. These manipulations yielded a 5 x 2 design matrix consisting of five levels of power: none, 0%; low, 30%; equal, 50%; high, 70%; and absolute, 100%; and two levels of salience (NS and S).

Procedure: A male English-speaking Canadian experimenter introduced the study as an investigation into decision-making processes (see appendix 2). Subjects were told that they would be making decisions about the distribution of important resources which were not scarce. Specifically, subjects were to make decisions about the distribution of course credits which they could receive for participating in the experiment.

Subjects were instructed that for the sake of convenience in the decision making task, they would be randomly divided into two groups -- Group X and Group W. Ostensibly, the outcome of a coin toss performed by each subject would determine his/her group membership. Subjects were randomly assigned to their groups and arrangements were made for group memberships to remain anonymous.

The decision making task consisted of subjects allocating course credits to _other_ subjects. It was explained to the subjects that they would all receive one course credit for participating in the experiment. However, they also had the chance to give and receive a second course credit which would exempt them from writing an obligatory essay for their introductory psychology course. Thus, experimental course credits were important resources for subjects in the present study. At the end of the experiment all subjects actually received two credits for participating in the experiment, thus fulfilling their course requirements for the semester.

It was stressed to the subjects that on no occasion would they be distributing course credits to themselves. They would always be alloting credits to _other_ subjects, i.e., members of the ingroup and members of the outgroup who were identified only by their personal code letters and their respective group memberships. In this manner, self-interest as a motive was eliminated and the experimental situation kept totally anonymous. Subjects used Tajfel's matrices to allocate course credits to ingroup and outgroup members. On each page of a matrix booklet subjects awarded credits to two different people. It was explained that each point in the matrices represented a fraction of one course credit. At the end, the total number of points given to each individual

would ostensibly be summed up to determine the total number of course credits he/she received.

Before subjects began the decision task, the independent variables were manipulated by a set of further instructions. To manipulate the power variable, subjects (except for those in equal power groups) were told: "To make matters easier and faster for us, we are going to give different weights to the decisions made by members of the two groups...Decisions made by members of one group will have a greater influence on the final number of credits you receive than decisions made by members of the other group...". At this stage specific instructions pertaining to the different degrees of power were given.

The 100% and 0% power groups were told that only one group's decisions (100%, absolute power group) would be used to work out the final credit totals. The other group's decisions (no power group) would not be used for this purpose and thus contributed 0% towards final course credit totals. The 70% and 30% power groups were told that one group's decisions (70%, high power group) would contribute 70% towards the final credit totals, whereas the other group's (30%, low power group) decisions would contribute 30% towards the final credit totals for each subject. Subjects in the equal power conditions were told that decisions made by members of both groups would have an equal influence (50%,

equal power group) on subjects' final course credit totals.

Perceptions of arbitrary power differentials were created by a random toss of a coin to determine which group had greater power. In some sessions Gp. W was the dominant group while GP. X was the subordinate group. For the other sessions this pattern was reversed. It should be noted that as far as the subjects were concerned, the power manipulations were accepted as a matter of administrative convenience. It was impressed upon subjects that the experimenter was only interested in how people make decisions about the distribution of important resources regardless of the influence their decisions had on the number of credits that subjects actually received at the end of the experiment.

Results of previous minimal group studies conducted by Billig and Tajfel (1973) and Turner et al. (1983) suggested that an explicit categorization operationalized by the mere mention of the label "group" was a sufficient baseline manipulation for eliciting minimal group discrimination. Similarly, as in study 1, the present study operationalised salient power categorizations by providing subjects with explicit labels for groups such as "No, Low, Equal, High or Absolute power groups". Moreover, subjects were asked to clearly identify their own group by writing these labels in the matrix response booklets. This

manipulation was designed to investigate the baseline effect of a salient categorization on minimal group discrimination. In the nonsalient power categorization conditions, subjects were only provided with group labels such as "Gp. X" or "Gp. W". The term "power" was not introduced or mentioned at any point in the instructions for subjects in these conditions (cf. study 1).

Following the matrix decision task, postsession questionnaires were administered to the subjects. On completion, subjects were carefully debriefed.

Dependent measures: (a) Credit distributions: Subjects used matrix response booklets to distribute course credits to anonymous members of the ingroup and outgroup (excluding themselves). The response booklets contained three types of choice matrices identical to those employed in study 1 (see appendix 3). The matrix types used in this study were those comparing: 1) parity (P) with ingroup favouritism (FAV = MIP + MD); 2) ingroup favouritism (FAV = MIP +MD) with maximum joint profit (MJP); and 3) maximum difference in favour of ingroup (MD) with a combination of absolute ingroup favouritism (MIP) and maximum joint profit (MJP, i.e., MIP + MJP). From each matrix type, two pulls were calculated (range -12 to +12). Each matrix type was presented once in its original form and once in its reverse form. This

amounted to two presentations of each matrix type, and six

pages in the response booklet as a whole. Subjects in all

conditions completed the same set of matrices though the

order of matrix presentation was randomised for each subject.

(b) Postsession questionnaire: This was very similar

to the postsession questionnaire employed in study 1 (see

appendix 4). Several items on the postsession questionnaire

assessed subjects' self-reported strategies and their

expectations concerning distribution strategies employed by

other subjects. Group identification, intergroup perception

measures along with manipulation checks were also obtained.

In addition, some items asked subjects to estimate ingroup

and outgroup position on group numbers and status dimensions.

Questionnaire items were answered on seven point rating

scales.


## Results

This section is divided into two parts: analyses of

subjects' matrix strategies and analyses of subjects'

responses on postsession questionnaire items.


1. Analyses of subjects' matrix distribution strategies:

Pull scores were calculated for each strategy. Two sets of

analyses were conducted on these: (a) strategy analyses

within each treatment condition; and (b) strategy analyses

between treatment conditions.


Table 1

Mean pulls of subjects' matrix distribution strategies

| | Group Power | | | | | |
| Matrix Strategy | No 0% | Low 30% | Equal 50% | High 70% | Absolute 100% | X |
|---|---|---|---|---|---|---|
| Nonsalient P on FAV | 6.9** | 5.9** | 3.5** | 3.2** | 6.0** | 5.7 |
| Salient | 8.1** | 7.7** | 7.5** | 4.4** | 4.2** | |
| Nonsalient MD on MIP+MJP | 0.4 | 1.5 | 4.0** | 5.5** | 1.5* | 3.0 |
| Salient | 0.7 | 2.6** | 4.4** | 4.7** | 4.9** | |
| Nonsalient FAV on P | 0.7 | 2.6 | 4.3** | 5.2** | 3.5** | 3.0 |
| Salient | 0.3 | 2.4* | 1.8 | 6.0** | 3.1* | |
| Nonsalient FAV on MJP | -0.2 | 0.8 | 4.8** | 6.5** | 2.5** | 2.9 |
| Salient | -1.1 | 1.4 | 4.3** | 5.6** | 4.3** | |
| Nonsalient MIP+MJP on MD | 4.9** | 3.6** | 1.1 | 2.6** | 2.5 | 2.7 |
| Salient | 4.4** | 2.0* | 1.7* | 3.7** | 1.0 | |
| Nonsalient MJP on FAV | 0.1 | 1.5 | -1.0 | -0.5 | 0.7 | 0.2 |
| Salient | 1.2 | 0.2 | 1.0 | -0.5 | -0.5 | |

** = p < .01
 * = p < .05

(1a) Table 1 presents the mean pull scores of each strategy for each cell in the design. These were calculated and tested by performing Wilcoxon Matched Pairs tests on the difference in scores between the ingroup/outgroup and outgroup/ingroup versions of each matrix type. Overall, the strengths of each variable declined in magnitude in the order of: P on FAV, MD on MIP + MJP, FAV on P, FAV on MJP, MIP + MJP on MD, and MJP on FAV.

To test for artifactual dependence between any two pulls calculated from the same matrix type, correlations were calculated between the cell deviations (s.d.) of each pull and the absolute cell means of the appropriate obverse pull (see Turner et al., 1979). Three correlations were significant: i) absolute P and s.d. of FAV ($r$ = -.84, 8 df, $p$ < .01); ii) absolute MD and s.d. of MIP + MJP ($r$ = -.82, 8 df, $p$ < .01); iii) absolute MJP and s.d. of FAV ($r$ = -.68, 8 df, $p$ < .05).

The variances of these pull scores were examined to further investigate the implied artifactual influences. Homogeneity of variance tests indicated that the variances of pulls obtained from matrices P on FAV, and MD on MIP + MJP were not significantly different across the design. Whereas the variances of FAV (on MJP) scores were also not significantly different, the cell variances of MJP (on FAV) tended to be greater in the low and no power than in the

equal, high and absolute power groups ($F$.max = 8.64, $p$ < .01). These results suggest that the obverse pulls obtained from the same matrix type are not likely to be artifacts of compressed ranges.

Results from nonsalient equal power groups (Table 1) supported hypothesis 1. Subjects in this condition clearly discriminated against outgroup members by employing significant levels of maximum differentiation (MD on MIP + MJP) at the cost of sacrificing joint ingroup and outgroup profit (MIP + MJP on MD). As in previous minimal.group studies these discriminatory responses were moderated by the significant pull of parity (P on FAV) in all conditions. Contrary to prediction, salient equal power groups were overwhelmingly parity oriented though ingroup favouritism strategies were employed when P was not the opposing variable.

Support for hypothesis 2 was also obtained. Results of matrices tapping ingroup favouritism clearly show that absolute, high and equal power group members were more disriminatory than low and no power group members (Table 1). For instance, whereas the pull of MD (on MIP + MJP) was significant in the absolute, high and equal power groups, it was not significant in the low (nonsalient) and no power conditions. The same hypothesized pattern was obtained for FAV on MJP scores. Moreover, absolute, high, and nonsalient

equal power groups displayed significant amounts of FAV (on F). However, this pull was also significant in the salient low power condition.

The pull scores reported in Table 1 provide little systematic support for hypothesis 3. Making power categorizations salient did not lead to increased levels of discrimination.

Results in Table 1 also indicate that though maximizing joint profit (MJP on FAV) was the least influential strategy, MIP + MJP (on MD) was significant in all conditions except for the absolute power and the nonsalient equal power groups. The use of MIP and MJP in combination by low and no power groups is interesting since neither MJP (on FAV) nor ingroup favouritism were used in isolation to any great extent in these conditions.

(1b) To better assess hypotheses 2 and 3, a power (five levels) by category salience (two levels) multivariate analysis of variance was conducted with the six matrix pull scores as dependent measures. The overall MANOVA revealed only a main effect for the power variable, $F(24, 647) = 2.82$, $p < .001$. Univariate analyses indicated that the power main effect was reliable for four strategies: i) FAV (on MJP), $F(4, 190) = 13.94$, $p < .001$; ii) MD (on MIP+ MJP), $F(4, 190) = 5.92$, $p < .001$; iii) FAV (on P), $F(4, 190) = 5.28$, $p < .001$; iv) P (o) FAV), $F(4, 190) = 3.37$,

$p$ = .01. Subsequent comparisons (Duncan's Multiple Range test -- all comparisons at $p$ < .05) indicated a large degree of support for hypothesis 2 and little for hypothesis 3.

Overall, the following matrix results clearly indicated that dominant group members were more discriminatory than subordinate group members. In accordance with hypothesis 2, absolute ($M$ = 3.4), high ($M$ = 6.0) and equal ($M$ = 4.5) power groups displayed higher FAV (on MJP) than low ($M$ = 1.1) and no ($M$ = -0.7) power groups. In addition, high ($M$ = 5.1) power groups showed greater MD (on MIP + MJP) than both low ($M$ = 2.0) and no ($M$ = 0.5) power groups. Absolute ($M$ = 3.2) and equal ($M$ = 4.2) power groups also employed this strategy to a greater extent than no power groups. Interestingly, when FAV was pitted against P, the high power groups ($M$ = 5.6) were more discriminatory than all other groups. Equal ($M$ = 3.1) and absolute ($M$ = 3.3) power groups also showed more FAV (on P) than no ($M$ = 0.5) power groups. Finally, though all groups showed significant amounts of P (on FAV), the no ($M$ = 7.5) and low ($M$ = 6.8) power groups showed more parity than the high ($M$ = 3.8) power groups.

Univariate analyses also suggested that the results of matrix strategy MIP + MJP on MD may have marginally contributed to the MANOVA main effect for power, $F$(4, 190)

= 2.3, $\underline{p}$ = .06. No and low power group members tended to use MIP + MJP (on MD) more than absolute, high and equal power group members.

Results of the overall 5 x 2 MANOVA provided no support for hypothesis 3. The suggestion of salience effects on matrices FAV (on P) and P (on FAV) from the nonparametric analyses (see Table 1) was not supported by univariate ANOVAs conducted on these matrix scores. The manipulations aimed to make categories more salient did not seem to affect intergroup behaviour.

2. **Analyses of postsession questionnaire items**: Due to a large number of questionnaire items, an overall power by salience MANOVA was conducted on all items. A significant main effect was obtained for the power variable, $\underline{F}(196, 569)$ = 3.06, $\underline{p}$ < .001. Univariate analyses indicated that this effect was reliable for questions concerning the degree of comfort, satisfaction and happiness associated with own-group membership. The MANOVA main effect was also reliable for other single dependent variables which were more appropriately analysed by 'repeated measures' analyses reported later.

Table 2 presents the means and univariate $\underline{F}$s for how comfortable, satisfied and happy subjects felt about their group memberships. Since salience did not affect

subjects' responses, these results were collapsed across salience of condition. Duncan's Multiple Comparisons tests indicated that absolute, high and equal power group members felt more comfortable, satisfied and happy than both low and no power group members. In addition, absolute power group members also felt happier than equal power group members about their group membership.

Table 2

Means and univariate F ratios for power main effect on feelings associated with group membership (collapsed across salience)

| | Group | Power | | | | |
| Variable | No 0% | Low 30% | Equal 50% | High 70% | Absolute 100% | $F(2,114)$ |
|---|---|---|---|---|---|---|
| Comfortable | 3.8ˣ | 3.7ˣ | 4.9ᵘ | 5.1ᵘ | 5.0ᵘ | 17.94, $p < .001$ |
| Satisfied | 3.2ˣ | 3.0ˣ | 4.7ᵘ | 5.1ᵘ | 5.2ᵘ | 17.17, $p < .001$ |
| Happy | 3.3ˣ | 3.3ˣ | 4.7ᵘ˒ᴸ | 5.0ᵘ | 5.4ᵘ˒ʸ | 22.43, $p < .001$ |

ˣ differs from ᵘ at $p < .01$
ʸ differs from ᴸ at $p < .05$

Subjects' estimates of relative ingroup and outgroup size (majority or minority) and status also contributed to the overall MANOVA main effect. Since these could not be directly assessed from the MANOVA analyses, univariate repeated measures ANOVAs were performed on estimates of ingroup and outgroup status and relative group size.

Table 3

**Means and univariate F ratios for perceived ingroup (I) and outgroup (O) position on status, group numbers and power variables, power x I/O interaction effect (collapsed across salience)**

|  | Group Power | | | | | |
|  | No 0% | Low 30% | Equal 50% | High 70% | Absolute 100% | $F$(2,114) |
| Variable |  |  |  |  |  |  |
| Ingroup Status | 2.7[x] | 2.5[x] | 3.4 | 5.1[u] | 4.9[u] | 65.68, p < .001 |
| Outgroup | 5.2[u] | 5.7[u] | 3.3 | 2.7[x] | 2.8[x] |  |
| Ingroup Majority | 3.2 | 2.9[y] | 3.7 | 4.4[L] | 4.1[L] | 2.72, p < .05 |
| Outgroup | 3.6 | 4.2[L] | 3.6 | 2.8[y] | 3.2[y] |  |
| Ingroup Minority | 3.5[L] | 4.1[u] | 3.4 | 3.0[x] | 3.0[x] | 4.86, p < .001 |
| Outgroup | 2.7[y] | 2.7[x] | ·3.3 | 4.2[u] | 4.2[u] | . |
| Ingroup Power | 2.1[x] | 2.5[x] | 3.8 | 5.6[u] < 5.2[u] |  | 122.35, p < .001 |
| Outgroup | 5.8[u] | 5.9[u] | 3.8 | 2.3[x] ¬ 2.6[x] |  |  |

[x] differs from [u] at p < .01
[y] differs from [L] at p < .05

Table 3 displays the significant power by repeated measures interaction effects obtained from the analyses. Subjects in conditions of unequal power consensually felt that the absolute and high power groups had higher status and were in a majority relative to low and no power groups. Groups of equal power did not perceive a difference in status or group size between the ingroup and outgroup.

Table 4

## Self-reported and matrix strategies correlated (all df: 198)

| Self-report strategy | Matrix strategy | r | p < |
|---|---|---|---|
| Parity | P on FAV | 0.28 | .01 |
| Ingroup favouritism | FAV on P | 0.10 | n.s. |
|  | FAV on MJP | 0.25 | .01 |
|  | MD on MIP+MJP | 0.29 | .01 |
| Maximum joint profit | MJP on FAV | -0.19 | .05 |

Several items on the postsession questionnaire assessed subjects' self-reported distribution strategies. As can be seen in Table 4, correlations computed between self-reports and matrix pull scores show that variations in matrix strategies were in general, significantly and positively related to subjects' self-reports.

Table 5 shows that all groups reported using high levels of parity (P) and maximum joint profit (MJP) strategies and lower amounts of ingroup and outgroup favouritism strategies. MANOVA analysis indicated that there were no differences between the conditions on any of these dependent measures. However, compared to actual behaviour on the matrices, self-reports seem to be exaggerated. Two sets of results illustrated this clearly. First, all groups of subjects overreported their use of MJP since the matrix

results show that MJP never reached significance. Second,
relative to their matrix responses, high power group members
tended to overstate their use of parity and understate
ingroup favouritism in their self-reports.

Table 5

Means for self-reported strategies (collapsed across
salience)

| | Group Power | | | | |
| Strategy | No 0% | Low 30% | Equal 50% | High 70% | Absolute 100% |
|---|---|---|---|---|---|
| Parity | 5.2 | 4.2 | 5.0 | 4.8 | 5.3 |
| Ingroup favouritism | 2.8 | 3.8 | 3.3 | 3.7 | 3.2 |
| Maximum joint profit | 4.9 | 4.4 | 4.1 | 5.3 | 4.8 |
| Outgroup favouritism | 2.7 | 2.9 | 2.6 | 3.1 | 2.4 |

What were subjects' estimates of the strategies that
other ingroup and outgroup members employed relative to them?

Since these could not be assessed directly from the MANOVA
analyses, univariate repeated measures ANOVAS were conducted
on subjects' estimates of strategies employed by themselves,
other ingroup and outgroup members. To avoid inflation of
Type 1 error, a strict and a priori significance criterion
of $p < .001$ was used for each test. The analyses revealed
main effects for the following repeated-measures factors:
Parity (P), $F(2, 380) = 33.68$, $p < .001$; Ingroup
favouritism (FAV), $F(2, 380) = 50.20$, $p < .001$; Maximum

$p < .001$; Maximum joint profit (MJP), $F_{(2, 380)} = 17.59$, $p < .001$. Pairwise comparisons indicated that subjects felt that they ($M = 4.9$) showed more parity than than other ingroup ($M = 4.0$) and outgroup members ($M = 3.9$, $p < .01$). Subjects also estimated that outgroup members ($M = 4.6$) and other ingroup members ($M = 4.4$) showed more ingroup favouritism than themselves ($M = 3.3$, $p < .01$). There was also a marginal tendency (according to the present a priori criterion) for low and no power group members to feel that their outgroup members (high and absolute groups) would be more discriminatory than the outgroups of other groups in the design, $F_{(8, 380)} = 2.99$, $p = .003$. Finally, subjects estimated that they ($M = 4.7$) and other ingroup members ($M = 4.2$) used maximum joint profit (MJP) more ($p < .01$, $p < .05$ respectively) than outgroup members ($M = 4.0$). Use of outgroup favouritism was not reported by subjects to any great extent (overall $M = 2.7$).

A number of items assessing subjects' own group identification and their estimated group identifications of other ingroup and outgroup members were analysed by a repeated measures ANOVA with an a priori significance criterion of $p < .001$. A significant interaction effect of power by estimates of group identification was obtained, $F_{(8, 380)} = 5.25$, $p < .001$. Table 6 shows that all group members moderately identified with their own groups.

Table 6

Means for subjects' estimates of owngroup identification by
themselves, ingroup and outgroup others (collapsed across
salience)

| Owngroup | Group Power | | | | | |
|---|---|---|---|---|---|---|
| | No | Low | Equal | High | Absolute | |
| identification estimates of: | 0% | 30% | 50% | 70% | 100% | X |
| Self | $3.7^{x,y,z}$ | $3.9^{x,y}$ | $4.0^{x,y}$ | $4.5^{a}$ | $4.0^{x,y}$ | 4.0 |
| Ingroup | $4.0^{x,y}$ | $4.1^{x}$ | $4.9^{u}$ | $4.9^{u}$ | $4.7^{u}$ | 4.5 |
| Outgroup | $5.1^{u}$ | $5.1^{u}$ | $5.0^{u,L}$ | $4.6^{L}$ | $4.1^{x}$ | 4.8 |

$x$ differs from $u$ at $\underline{p} < .01$
$y$ differs from $L$ at $\underline{p} < .01$
$z$ differs from $a$ at $\underline{p} < .01$

It is noteworthy that the no power group members did

not differ from low, equal and absolute power group members

on self-reported own group identification. Only high power

group members reported higher levels of own group

identification than no power group members. Results also

showed that no, low and equal power group members felt that

their respective outgroup members would show greater

identification than themselves. Furthermore, no and low

power members felt that absolute and high power group members

would show greater identification with their own groups than

actually reported by high power group members.

The analyses also revealed a main effects for the

repeated measures factors of group identification estimates

for self, ingroup and outgroup members, $F(2, 380) = 23.08$, $p < .001$. Subjects felt that outgroup members ($M = 4.8$) identified with their ingroup more than both other ingroup members ($M = 4.5$) and themselves ($M = 4.0$). The significant interaction obtained (Table 6) on this measure indicated that this pattern was more pronounced for certain groups in the design.

Other items analyses on a series of intergroup liking measures (as in ch. 3) revealed main effects for the following repeated measures factors: (i) subjects' estimated liking for others, $F(1, 190) = 38.06$, $p < .001$; (ii) subjects' estimates of other ingroup members' liking for others, $F(2, 380) = 47.29$, $p < .001$; (iii) subjects' estimates of outgroup members' liking for others, $F(2, 380) = 136.36$, $p < .001$. Duncan's pairwise comparisons indicated that ($p < .01$ for all comparisons): (i) subjects would like ingroup members ($M = 4.9$) more than outgroup members ($M = 4.3$); (ii) subjects also felt that other ingroup members would like them ($M = 4.7$) and other ingroup members ($M = 4.7$) more than outgroup members ($M = 3.9$); (iii) subjects estimated that outgroup members would like other outgroup members ($M = 5.1$) more than themselves ($M = 3.9$) and other members of the ingroup ($M = 3.9$). These perceptions did not seem to be differentially affected by the power and salience manipulations.

In general, subjects agreed with the formation of the
groups on the basis of a toss of a coin (Grand $\underline{M}$ = 5.1).   A
repeated measures ANOVA (power x salience x ingroup/outgroup)
on subjects' estimates of ingroup and outgroup power revealed
a significant power by repeated measure interaction (see
Table 3), indicating a successful power manipulation.   Other
items on the questionnaire indicated that no differences were
perceived between conditions concerning the legitimacy of the
power distribution (Grand $\underline{M}$ = 3.7) and the procedure used
to work out subjects' final course credit totals (Grand $\underline{M}$ =
3.4).   In addition, subjects in the unequal power conditions
generally agreed with the use of a coin-toss to determine
which group had greater power (Grand $\underline{M}$ = 5.1).   The
importance of these results lies in the fact that subordinate
group members, including the 0% power group members, did not
perceive the experimental intergroup situation to be less
legitimate than dominant group members.   Thus the power
differentials established in the intergroup settings of this
experiment were perceived to be moderately legitimate by both
dominant and subordinate group members.

Finally, were subjects aware of the purposes of the
experiment?   Whereas responses from the majority of subjects
(161) suggested that subjects were not aware of the E's
hypotheses, a small minority of subjects (26) felt that the
experiment was concerned with ingroup favouritism.   Analyses

indicated that this minority was not distributed across the
design in any systematic manner. Furthermore, these
subjects' responses were not predictive of their actual
choices on the matrices. Only 13 subjects, fairly evenly
distributed across conditions, indicated any (usually vague)
awareness of experimental hypotheses. However, their
responses also were not predictive of their behaviour on the
matrix choices.

## Discussion

The overall findings are clearcut. Matrix choice
results indicated support for the first two hypotheses but
not for hypothesis 3. As expected on the basis of the first
hypothesis, equal power group members showed significant
amounts of intergroup discrimination, replicating previous
minimal group studies (see ch. 2; Turner, 1980). However,
parity was an important strategy especially for salient equal
power group members. This latter group only employed ingroup
favouritism when it was not pitted against parity.

In accordance with hypothesis 2, subordinate group
members were generally less discriminatory than dominant
group members. The no power group members were the least
discriminatory, displaying less discrimination than absolute,
high and equal power group members on all measures (except

MIP + MJP on MD). Low power group members were less discriminatory than high power group members on all measures (except MIP + MJP on MD). Low power group members also tended to be less discriminatory than equal and absolute power group members on most measures, though these differences were only significant on one matrix measure (FAV on MJP). Moreover, in support of hypothesis 2 results showed that when parity was pitted against ingroup favouritism, no and low power group members displayed more parity than absolute, high, and equal power group members.

Though the overall results support the first two hypotheses, they also revealed some interesting, unhypothesized patterns. In particular, despite the lack of a threat to the stability and structure of the power differential, high power group members tended to be the most discriminatory participants in the study. Indeed, on the FAV on P matrix measure, high power group members displayed significantly more discrimination than all other groups in the design. Discrimination by high power group members (not having total control) may be the beginning of a cycle of events that helps guarantee the continuation and perpetuation of favourable power differentials in real-life intergroup situations (Apfelbaum, 1979). In contrast, absolute power group members were less discriminatory than high power groups. It seems that absolute power group members may have

exhibited a certain degree of benevolent paternalism or
noblesse oblige vis-a-vis their powerless outgroup members.
However, it remains that absolute power group members were
more discriminatory than no and low power group members, and
at least as discriminatory as equal power group members.

Unlike a number of previous laboratory and field
studies (see Brewer, 1979; Bourhis et al., 1979), hypothesis
3 received little support in this experiment. For instance,
the apparent increases in discrimination due to increased
salience in low power conditions failed to hold up in the
between-conditions analysis. As in study 1, increasing the
salience of categorizations by a mere labelling procedure did
not seem to polarise patterns of intergroup behaviour.
Indeed, there was a tendency for salient equal group members
to display patterns of behaviour contrary to hypothesis 3.
Salient equal power group members displayed high levels of
parity and reduced discrimination. As in study 1, it is
likely that demand characteristics in favour of parity may
have been triggered in this condition by requesting subjects
to write the label "Equal power group" in their response
booklets. These apparent changes in behaviour due to the
salience manipulation were not significant in the
between-conditions analyses. Unlike study 1, the use of a
labelling procedure did not even appear to interact reliably
with power categorizations.

Matrix results discussed so far support predictions about the role that power relations play in actualising motivations for a positive social identity. Whereas the 'search for a positive social identity' (Tajfel & Turner, 1979, pg. 42) may be the psychological antecedent to discriminatory behaviour, power enables group members to discriminate effectively (cf. Ng, 1981, 1982). Assuming that members strive for a positive social identity, the greater the power of the ingroup, the more its members will discriminate. Results from the absolute, high and equal power conditions support this hypothesis. In addition, results showed that salient low power group members also discriminated significantly though to a lesser extent than the aforementioned groups. In fact, all these group members employed maximum differentiation (MD) even at the cost of sacrificing absolute ingroup profit. MD has been suggested as the strategy par excellence for demonstrating a competition for a positive social identity in previous minimal group studies (Turner, 1975).

Since discrimination serves to establish a positive social identity, group members who discriminate should have more positive feelings about their group membership than those who do not discriminate (cf. Oakes & Turner, 1980; ch. 2). In the present study this analysis was supported by results showing that absolute, high and equal power group

members reported that they felt more comfortable, satisfied
and happy than low and no power group members about their
group memberships. Furthermore, high power group members who
were the most discriminatory, also reported the highest
levels of identification with their own group. These results
suggest that power and levels of group identification may not
be directly related. Indeed, partial correlations between
group power and degree of identification after statistical
removal of variance due to matrix ingroup favouritism
strategies (MD, FAV) were not significant ($r$ between .15
and .17, 198 $df$, n.s.). Thus, in the present study, group
power was not directly related to degree of group
identification.

The above analysis concerning the role of power in
minimal categorization studies is also supported by comparing
subjects' matrix strategies with intergroup liking measures
obtained in this study. The usual categorization effects
(i.e., intergroup discrimination) were obtained on subjects'
matrix responses in the equal power conditions as well as in
the high and absolute power conditions. However, these
effects were not observed in the no and low power group
conditions where the criteria of categorization were equally
arbitrary and random. In contrast to matrix results, the
usual categorization effects were obtained on <u>intergroup</u>
<u>liking</u> measures across all conditions. Subjects, regardless

of their group power, felt that they would like ingroup
members more than outgroup members. They also expected
ingroup and outgroup others to like their respective ingroup
members more than outgroup members. As in study 1, these
'liking' results perhaps illustrate the cognitive functioning
of the social categorization process, i.e., accentuation of
intergroup differences and intragroup similarities (Doise,
1978; see ch. 2).

However, focus on a purely cognitive analysis
underscores the important implications that such perceptions
have on the social identities of subordinate group members.
In particular, low and no power group members may have
obtained a satisfactory sense of identity by showing
intergroup differentiation on the liking measures but not on
Tajfel's matrix measures. Taken together, matrix and liking
results suggest that though arbitrary categorization may be
the precursor to prejudicial attitudes, 'real' power is
necessary to translate these into effective discriminatory
behaviour. Neither Cognitive Categorization Theory (C.C.T.,
Doise, 1978, see ch. 2) nor Social Identity Theory (S.I.T.,
Tajfel & Turner, 1979) postulate power to be a necessary
condition for intergroup discrimination. Nevertheless, it is
noteworthy that results of this study are quite compatible
with explanations based on motivations for a positive social
identity but not with those that focus solely on processes of

cognitive categorization.

The significant pulls of parity observed in all conditions concur with Billig's (1973) suggestion that fairness is the socially desirable strategy in minimal group experiments. Indeed, all subjects also reported using higher levels of fairness and reduced levels of ingroup favouritism relative to ingroup and outgroup others. Though self-reported behaviours seemed to match subjects' actual matrix allocations in most conditions, there appeared to be at least two notable exceptions. Firstly, high power group members tended to overstate their use of fairness and underreport their use of discriminatory strategies. Interestingly, as Apfelbaum (1979) noted, in real-life intergroup situations, dominant groups are usually able to mask their discriminatory practices by being equipped with greater legitimising tools than subordinate groups. Secondly, all groups overreported their use of maximum joint profit (MJP) relative to their actual MJP matrix choices. This may be considered a socially desirable response as MJP is a fairly rational strategy to follow under minimal group conditions where self-interest and resource scarcity have been eliminated.

Whereas maximum joint profit (MJP) was not employed significantly in any condition, the combination of absolute ingroup and joint profit (MIP + MJP on MD) was a much more

popular strategy. Why did subjects avoid using MJP (on FAV, i.e., MJP in isolation)? Closer inspection of matrix type MJP on FAV shows that the optimum MJP on this matrix coincides with a large differential in favour of either the ingroup or the outgroup (subjects faced both options on this matrix type, see ch. 2). The latter option seems not to have been employed. In contrast, MIP + MJP (on MD), which jointly maximizes absolute ingroup and outgroup profit, tended to be employed by low and no power group members to a greater extent than by absolute, high and equal power group members. Interestingly, this suggests that subordinate groups may have shown ingroup favouritism under very specific circumstances. They followed MIP as a strategy when it was combined with MJP. This attempt to maximize ingroup and outgroup gain simultaneously was, arguably, the most rational and desirable strategy under the arbitrary conditions of this experiment. In terms of the actual matrix points, this strategy provided subjects (excluding self) with the best chance of receiving the maximum number of credits for participating in the experiment.

Other results from the postsession questionnaire suggest that even in such a minimal situation, subjects perceived power, status, and group numbers variables to be positively related. Subjects perceived dominant groups to have higher status and to be in a majority relative to

subordinate groups. Though this supports the wisdom of those theorists who wish to assume that power, status and group numbers, are positively correlated (e.g., Tajfel & Turner, 1979), real-life intergroup situations such as those in South Africa remind us that these factors are orthogonal to each other in some circumstances (see also ch. 1). Future research investigating these sociostructural variables in parametric designs should clarify their interactive effects on intergroup behaviour.

To conclude, the results of the present study have perhaps identified the 'minimal' effects of power on intergroup behaviour. As predicted, the creation of arbitrary power differentials between ingroups and outgroups was sufficient to affect intergroup behaviour. The traditional minimal group discrimination effect replicated under conditions of equal power was systematically eliminated under equally arbitrary categorization conditions of differential group power. As such, the boundary conditions of the much replicated minimal group discrimination effect (see ch. 2) have probably been identified. The results of this study also suggest that whereas minimal categorization may lead to prejudicial attitudes, power differentials may be more predictive of discriminatory behaviour. Power seems to be a necessary condition for effective discrimination.

Summary

The present study investigated the independent
effects of power differentials on intergroup behaviour.
Using a variant of Tajfel's minimal group paradigm (Tajfel &
Turner, 1979), subjects were arbitrarily categorized into
groups of differing power (0%, 30%, 50%, 70% and 100%) at two
levels of salience (NS and S). Subjects were asked to
distribute course credits to ingroup and outgroup others
using Tajfel's matrices. Intergroup perceptions, group
identifications and self-reported strategies constituted the
other dependent measures.

The overall results indicated a main effect for Power
but none for Salience on matrix measures and postsession
questionnaire items. Minimal group results that replicated
in equal power (NS) conditions were systematically eliminated
in unequal power conditions on the matrix measures but not on
the intergroup liking measures. Categorization per se led
to prejudicial attitudes (liking measures) and variations in
group power were more predictive of actual matrix
allocations. Dominant group members were more discriminatory
and felt more comfortable and satisfied than subordinate
group members. Although consistent with Social Identity
Theory (Tajfel & Turner, 1979), boundary conditions for
minimal group discrimination may also have been identified.

Without power, social categorization does not lead to effective discrimination.

Chapter 5

STUDY 3:    STATUS DIFFERENTIALS AND INTERGROUP BEHAVIOUR*

Introduction

        Group status was defined as the relative position

of groups on valued dimensions of comparison such as academic

achievement, occupation, etc.   Tajfel and Turner (1979) claim

that group status has a powerful impact on the social

identities and self-images of group members.   Through

unfavourable comparisons with outgroups, low status confers a

negative social identity and can constitute a threat to

self-esteem.   High status confers a positive social identity

as it implies favourable comparisons on valued dimensions.

Thus, low status group members are expected to be more

concerned about achieving a positive self- and

social-evaluation than high status group members.   The study

described in the present chapter was designed to assess the

independent impact of status differentials on intergroup

behaviour.

        Perhaps, the clearest real-life example of

sociostructural stratification on status dimensions is to be
found in the orthodox Hindu caste system of India (e.g.,
Brown, 1965). The Hindu caste system is essentially a
hierarchical system of religiously ritualised superiorities
and inferiorities. Complex religious norms and taboos
associated with a fear of caste-pollution affect all walks of
life. For instance, exogamy is severely sanctioned, working
and eating with members of a different caste may be
unacceptable for fear of caste-pollution. In its most
extreme form, this system of ritualised superiorities and
inferiorities even proscribes tactile contact with members of
the lowest caste referred to as "untouchables". Individuals'
group identities are determined by birth and individual
mobility is impossible between caste-groups. The Hindu caste
system thus provides a powerful example of the impact of
status differences on real-life intergroup behaviour. Of
course, status superiorities and inferiorities are also
evident in the Western world, albeit in less extreme forms
than those of the Hindu caste system.

Though real-life intergroup situations with groups of
equal status are rare, laboratory investigations such as the
classic minimal group studies have generally investigated
groups that were implicitly of equal status. Results of the
few laboratory studies that have employed members of
differential status groups have been problematic. As

discussed in ch. 2, studies by Tajfel et al. (1971) and Commins and Lockwood (1979) using almost identical manipulations of group status produced inconsistent results. Whereas the former study found no differences in discrimination between high and low status groups, the latter suggested that discrimination increased with status.

Commins and Lockwood's (1979) results tended to be supported in a study by Doise and Sinclair (1973). Their findings suggested that high status group members ('collegiens') discriminated more than low status group members ('apprentis'). Moreover, low status group members appeared to display outgroup favouritism in Doise and Sinclair (1973). However, a reanalysis of Doise and Sinclair's (1973) results suggested that high and low status group members enhanced positive differences on some dimensions and minimised negative differences on others (van Knippenberg & Wilke, 1979). In contrast, Branthwaite et al. (1979) found that low status group members were more discriminatory than high status group members. Results of a complex (though statistically tenuous--48 subjects with 44 dependent measures in an 8 cell design) study by Turner and Brown (1978) were also at variance with the other studies cited above. They suggested that high status groups did not discriminate when their superiority was completely secure. Low status group members displayed outgroup

favouritism when allocating points for status-related performance when their inferiority was perceived to be legitimate and stable.

Some of the variance in previous studies may be due to differences in subject samples, dependent measures and status operationalizations employed in these studies. Other discrepancies may be resolved by differentiating between status-related and status-unrelated dimensions of comparison. It is likely that both high and low status group members would acknowledge their respective superiorities and inferiorities on dimensions related to the status difference (e.g., Doise & Sinclair, 1973; Turner & Brown, 1978). On dimensions unrelated to the status difference, low status group members may be expected to be more discriminatory than high status group members to obtain positive distinctiveness that they are denied on status-related dimensions (e.g., Branthwaite et al., 1979). Unfortunately, such post hoc explanations are tentative at best and await future empirical support.

In all these studies high status and/or discrimination were supposed to provide group members with a positive social identity. Surprisingly, these laboratory studies did not directly assess the hypothesized links between status, discrimination and social identity. Furthermore, status manipulation checks have either not been

successful (e.g., Branthwaite et al., 1979), or have not been employed (e.g., Commins & Lockwood, 1979). Indeed, neither Tajfel et al. (1971), nor Commins and Lockwood (1979) included reference to social 'prestige' or 'status' in their instructional sets or evaluated the importance that subjects attached to the status dimensions.

The equivocal nature of research on intergroup status differentials provided one of the inspirations for the present study. As in previous studies, the minimal group paradigm was adapted to assess the independent impact of status differentials on intergroup behaviour. Four major aims were outlined: (a) replication of the traditional minimal group experiment; (b) investigation of the independent effects of status differentials on intergroup behaviour; (c) examination of the impact of salient and nonsalient status categorizations on intergroup behaviour; (d) to obtain subjects' perceptions of, and responses to, the experimentally imposed status categorizations.

Perceptions of relative status were established by dividing subjects into two groups on the basis of false feedback about their responses to a creativity test. Subjects were specifically informed that creativity was positively related to their social status. Subjects were then asked to rate products ostensibly created by other ingroup and outgroup members using Tajfel's matrices.

Several methodological criteria were employed to enable the
assessment of the independent effects of status differentials
on intergroup behaviour and perceptions.  Subjects neither
faced a group conflict over scarce resources, nor had the
opportunity to engage in direct self-interested actions.
Group memberships were kept anonymous and the Tajfel matrices
provided subjects with a variety of response strategies (see
ch. 2).  Furthermore, products they rated were previously
judged to be equivalent in creativity.

S.I.T. (Tajfel & Turner, 1979) suggests that subjects
in the traditional minimal groups (implicitly of equal
status) fulfilled their motivations for a positive social
identity by establishing favourable intergroup comparisons
(i.e., discriminated) on the only available dimension of
comparison -- Tajfel's matrices.  On the basis of this,
hypothesis 1 was formulated thus:  subjects categorized as
members of equal status groups would positively differentiate
themselves from outgroups on available dimensions of
comparison.

Expectations concerning the effects of high and low
status were derived from S.I.T. (Tajfel & Turner, 1979), and
the discussion above.  In the present study, both high and
low status group members were given an opportunity to rate
the creativity of ingroup and outgroup products using
Tajfel's matrices.  However, creativity was the very

dimension that the experimenter had used to establish the existing status difference. Therefore, it was expected that in order to acknowledge, perhaps even assert, their superiority on status-related dimensions, high status group members would show greater ingroup favouritism than low status groups. To the degree that low status group members accepted the grounds for establishing the status differentials, they were expected to show outgroup favouritism on status-related dimensions.

Predictions about equal status group members relative to other status groups were more complex. Though equal status group members were clearly expected to discriminate more than low status group members on status-related dimensions, it was not apparent how their behaviour would differ from that of high status group members. Conceptually, the concern was with the difference between discrimination to achieve and discrimination to maintain a positive social identity. Empirically, previous studies suggest that high status groups are more discriminatory than equal status groups (e.g., Commins & Lockwood, 1979). It is probably easier for high status group members to maintain and enhance superiorities on existing dimensions than for equal status group members to claim ascendancy on status-related dimensions. This is particularly the case when the status differential is provided by a credible experimenter or a

dominant social consensus. Based on this, hypothesis 2

stated that increasing ingroup status would lead to

concomitant increases in levels of ingroup favouritism.

The third objective was to assess the impact of

salient and nonsalient status categorizations on intergroup

behaviour. Previous laboratory studies (see Commins &

Lockwood, 1979) have often employed nonsalient manipulations

of intergroup status. As pointed out earlier (ch. 2 - 4),

Tajfel (1978), Brewer (1979), Bourhis and his colleagues

(e.g., Bourhis et al., 1979; Bourhis & Hill, 1982) suggested

that increasing the salience of categorization led group

members to show increased levels of discrimination.

Accordingly, hypothesis 3 stated that increasing the

salience should polarise patterns of intergroup behaviour

present in the nonsalient conditions. In order to make the

present study comparable to studies 1 and 2, category

salience was manipulated by providing different group labels

in nonsalient and salient status conditions.

The fourth aim was to obtain subjects' perceptions

of, and responses to, the experimental situation. As in

studies 1 and 2, the postsession questionnaire included items

on self-reported matrix distribution strategies and

intergroup 'liking' measures. Other items of interest were

those designed to provide opportunities for low status group

members to establish favourable self-evaluations within the

experiment.

Low status group members could not legitimately use matrix ratings to claim a positive social identity since matrix ratings were status related. Previous research suggests that low status group members display a variety of psychological reactions to the threat that ascribed status represents to self-esteem. For instance, low status group members may attempt to exclude themselves from their inferior category ascription (e.g., Klineberg & Zavalloni, 1969), and behave as individuals rather than as group members. Group members may also redefine elements of the comparative situation to provide a better chance of comparing favourably (Tajfel & Turner, 1979). This redefinition may take a number of forms such as perceiving the status differentials to be illegitimate and/or the use of alternative groups or dimensions for comparison purposes (e.g., Lemaine, Kasterzstein & Personnaz, 1978). In the present study various items incorporating these strategies were included in the postsession questionnaire. Since previous research is uninformative about the relative use of different strategies to avert negative self-evaluations, specific hypotheses were not formulated. Instead, hypothesis 4 stated that compared to high and equal status groups, low status group members would show lower degrees of group identification and/or engage in greater redefinition of

the intergroup situation. To assess the latter subjects were asked to (i) propose alternative methods of measuring creativity, and (ii) rate the legitimacy of the status hierarchy and the creativity test.

## Method

<u>Subjects</u>: Subjects were 120 (male and female) Introductory Psychology students who had volunteered to fulfill a course requirement. All subjects were English-speaking Canadians who had lived in southern Ontario for most of their lives.

<u>Design</u>: Subjects were run in group sessions (20 per session), with treatment condition randomly determined for each session. There were 6 treatment conditions. Subjects were categorized into different status groups ostensibly on the basis of their performance on a creativity test. Half the subjects were exposed to a manipulation aimed to make their group memberships more salient. The rest were in the nonsalient conditions. These manipulations yielded a 3 x 2 design matrix consisting of three levels of status (high, equal, low) and two levels of salience (NS and S).

<u>Procedure</u>: A male English-speaking Canadian experimenter introduced the study as an investigation of aspects related

to "creativity in academic settings" (see appendix 2).
Subjects were instructed that they would be completing two
creativity tests for this purpose.  It was impressed upon the
subjects that creativity was an extremely important aspect of
intellectual functioning and that it correlated significantly
and positively with social and occupational status both
within and beyond the university setting.  Subjects were then
asked to complete the first  "quick and often used"
creativity test designed to provide an index of their
creativity.  This test was adapted from Moscovici & Paicheler
(1978) and consisted of maximizing the number of possible
arrangements of horizontal bars under specific criteria.  The
criteria for this test were made ambiguous enough to disable
subjects from making realistic estimates of their own
creativity.  Pretesting of this test ensured that subjects
found it to be neither too easy nor too difficult.

     While an assistant busily appeared to score subjects'
responses on the first creativity test, subjects were asked
to complete a second creativity test.  This consisted of
creating a series of titles for an abstract print by an
unknown artist.  Upon completion, subjects were instructed
that the results from the first creativity test were
available.  False feedback about individuals' creativity on
the first test was provided by categorizing individuals
(identified only by personal code-letters) into two groups

(groups X and W) on the basis of their creativity performance. Subjects were, in fact, assigned randomly to these groups.

Specific instructions manipulating the status variable were then given. In the high and low status conditions, subjects were told that their first creativity test scores situated them into one of two groups: those high in creativity (high status) and those low in creativity (low status). Group status was actually assigned randomly to the two groups (X and W) in each condition. In the equal status conditions, subjects were told that though their scores situated them into two equally creative groups these groups differed in the manner in which they completed the test.

Similar to the studies described in previous chapters, group status was made salient by emphasizing the creativity-status link mentioned earlier and by labelling groups in the session explicitly as "high, equal or low status". Subjects were to write these group identification labels in response booklets provided. Though the labelling procedure appeared to have limited success in varying category salience in studies 1 and 2, it was retained largely for comparison purposes. In addition, it was hoped that a re-emphasis on the creativity-status link would bolster the salience manipulation.

The experimenter explained his interest in

investigating how subjects, themselves, evaluated the creativity of others. For this purpose, subjects were asked to give their personal evaluations of the creativity of other individuals on the second creativity test, i.e., the titles generated by others. The actual titles they rated were, in reality, consensually prejudged by 200 other subjects (from the same population) to be equivalent in creativity. The titles were randomly presented as products of two other subjects who were identified only by their personal code-letters and their respective group memberships. Subjects, in fact, always rated products ostensibly created by a member of the ingroup (excluding themselves) and a member of the outgroup. The ratings were made using Tajfel's matrices to award points to sets of titles ostensibly created by other subjects present in the session. Following the matrix distribution task, subjects completed a postsession questionnaire. Finally, subjects were carefully debriefed.

Dependent measures: (a) Matrix ratings: The main dependent measures were subjects' point-allocations to ingroup and outgroup members using Tajfel's matrices. Three matrix types, identical to those used in studies 1 and 2, were used (see appendix 3). Matrix types compared: (i) parity (P) versus ingroup favouritism (FAV = MIP + MD); (ii) FAV versus maximum joint profit (MJP); and (iii) maximizing

the difference in favour of the ingroup (MD) versus absolute ingroup favouritism and maximum joint profit (MIP + MJP). From each matrix type, two pulls can be calculated. Each pull has a theoretical range from -12 to +12. Negative strategy pulls indicate pursuit of their psychological opposites, e.g., negative FAV indicates outgroup favouritism, etc. The order of matrices presentation was randomised for each subject. Each matrix type was presented once in its original form and once in its reversed form in order to obtain pull scores (see Turner et al., 1979). This amounted to six matrix presentations in total.

(b) Postsession questionnaire: As in studies 1 and 2, several items on a postsession questionnaire assessed subjects' social identifications, intergroup perceptions and responses to the experimental situation. Self-reports about their matrix ratings and their expectations about other subjects' ratings and identifications were also obtained. Perceptions of the legitimacy of the intergroup situation and creativity test were obtained. In addition, status manipulation checks and assessments of perceived ingroup and outgroup power were also obtained. Questionnaire items were generally answered on seven point scales. An open-ended question required subjects to suggest alternative methods of measuring creativity.

Results

This section is divided into two parts: analyses of subjects' matrix ratings and their responses on postsession questionnaire items.

1. Analyses of subjects' matrix distribution strategies: As in the previous studies, 'pull' scores were calculated for each strategy. Two sets of analyses were conducted on these pull scores: (a) strategy analyses within each treatment condition; (b) strategy analyses between treatment conditions.

(1a) Table 1 presents the mean pull scores of each strategy for each cell in the design. These were calculated and tested by performing Wilcoxon Matched Pairs tests on the difference in scores between the two versions of each matrix type. Overall, the strengths of each variable declined in magnitude in the order of: P on FAV, MD on MIP + MJP, FAV on P, FAV on MJP, MIP + MJP on MD, and MJP on FAV. To test for artifactual dependence between any two pulls calculated from the same matrix type, correlations were calculated between the cell deviations of each pull and the absolute cell means of the appropriate obverse pull (see ch. 2). No correlations were significant, suggesting that obverse pulls obtained from the same matrix type were not artifacts of compressed ranges.

## Table 1

## Mean 'pulls' of subjects' matrix distribution strategies

| Pull | STATUS: LOW Non-salient (NS) | Salient (S) | EQUAL Non-salient (NS) | Salient (S) | HIGH Non-salient (NS) | Salient (S) | X |
|---|---|---|---|---|---|---|---|
| P on FAV | 7.0** | 8.7** | 6.1** | 6.8** | 4.7** | 4.6** | 6.3 |
| FAV on MJP | -2.6** | -2.3** | 4.4** | 4.3** | 5.5** | 4.2* | 2.3 |
| MD on MIP+MJP | -1.9 | -1.7 | 7.1** | 3.7** | 6.2** | 5.7** | 3.2 |
| FAV on P | -1.3 | -0.3 | 3.8** | 3.1** | 4.7** | 4.7** | 2.5 |
| MIP+MJP on MD | 1.9** | -0.2 | 0.4 | 0.6 | 1.2 | 1.4* | 0.9 |
| MJP on FAV | 1.0** | 0.4 | 0.6 | 0.1 | 0.1 | -0.5 | 0.3 |

** = $p < .01$.
* = $p < .05$.

Table 1 shows that the pull of parity (P on FAV) was strong in all conditions. Despite the strong pull of parity across all conditions, clear and systematic variations in the use of other strategies emerged. As can be seen in Table 1, results in the equal status conditions supported hypothesis 1. Equal status group members clearly discriminated by employing significant levels of relative and absolute ingroup favouritism (MD on MIP + MJP, FAV on P, & FAV on MJP).

Support for hypothesis 2 was also obtained. Whereas high status group members discriminated a great deal, low status group members showed outgroup favouritism. The pulls of ingroup favouritism (MD, FAV) were significantly positive in the high status conditions and negative or not significant in the low status conditions (Table 1).

The 'within conditions' analyses provided little systematic support for hypothesis 3. However, there were some indications that salience did affect intergroup rating strategies. For instance, increasing the salience of categorization tended to lead low status group members to reduce levels of strategies such as maximizing joint profit (MJP on FAV) and maximizing combined absolute ingroup and joint profit (MIP + MJP on MD). Though MJP (on FAV) was the least influential strategy overall, it may have contributed to a significant and positive MIP + MJP (on MD) pull in the nonsalient low status condition. In contrast, relative to nonsalient high status group members, salient high status members displayed significant levels of MIP + MJP (on MD). These apparent changes as a function of category salience remain to be supported in between conditions analyses.

(1b) To better assess hypotheses 2 and 3, a status (three levels) by category salience (two levels) multivariate analysis of variance was conducted on the six matrix pull scores. The overall MANOVA revealed only a main effect for

the status variable, $F(12, 218) = 7.21$, $p < .001$.

Univariate analyses indicated that the status main effect was reliable for four strategies: (i) FAV (on MJP), $F(2, 114) = 44.54$, $p < .001$; (ii) MD (on MIP+ MJP), $F(2, 114) = 31.15$, $p < .001$; (iii) FAV (on P), $F(2, 114) = 18.18$, $p < .001$; (iv) P (on FAV), $F(2, 114) = 5.07$, $p < .01$. Subsequent comparisons (Duncan's Multiple Range test -- all comparisons at $p < .05$) indicated a large degree of support for hypothesis 2.

In accordance with hypothesis 2, high ($M = 4.9$) and equal ($M = 4.3$) status group members discriminated by displaying higher FAV (on MJP) than low ($M = -2.4$) status group members. In addition, high ($M = 5.9$) and equal ($M = 5.4$) status group members showed greater maximum differentiation (MD) than low status group members ($M = -1.8$). When FAV was pitted against P, the high ($M = 4.7$) and equal ($M = 3.4$) status group members were also more discriminatory than low status group members ($M = -0.8$). As noted earlier the negative scores on these measures indicate outgroup favouritism by low status group members. Finally, though all groups showed large amounts of parity (P on FAV), low ($M = 7.8$) status group members displayed more parity than high ($M = 4.7$) status group members. However, contrary to hypothesis 2, there were no indications that high status group members discriminated more than equal status

group members.

Results of the overall 3 x 2 MANOVA provided no support for hypothesis 3. The suggestion of salience effects from the nonparametric analyses (above) was not supported by univariate ANOVAs conducted on these matrix scores. The manipulations aimed to make categories more salient did not seem to affect intergroup behaviour.

2. **Analyses of postsession questionnaire**: Due to a large number of questionnaire items, an overall status by salience MANOVA was conducted on all dependent measures. A significant main effect was obtained only for the status variable, $F(78, 152) = 5.99$, $p < .001$. Univariate analyses indicated that this main effect was highly reliable for items listed in Table 2. As salience did not seem to affect subjects' responses, the results are presented collapsed across salience of condition. The MANOVA main effect was also reliable for other dependent variables which were more appropriately analysed by 'repeated measures' analyses that are reported later.

Results in Table 2 show that high and equal status group members had more positive feelings associated with their group membership and the status differential than low status group members. Duncan's Multiple Comparison tests indicated that high and equal status group members felt more

comfortable, satisfied and happy than low status group members. Indeed, high status group members were also more positive about their group membership than equal status group members on these measures.

Table 2

Perceptions of group membership and status differential
(collapsed across salience)

| Variable | STATUS : LOW | EQUAL | HIGH | $F$(status) (2, 114) | $p$ < |
|---|---|---|---|---|---|
| Comfort with group | 2.6ˣ | 4.9ᵁˑˣ | 5.7ᵁ | 43.96 | .001 |
| Satisfied with group | 2.2ˣ | 4.3ᵁˑˣ | 5.9ᵁ | 66.62 | .001 |
| Happy with group | 2.2ˣ | 4.3ᵁˑˣ | 6.0ᵁ | 73.46 | .001 |
| Fairness of creativity test | 3.1ˣ | 4.4ᵁ | 4.2ᵁ | 8.69 | .001 |
| Fairness of categorization | 2.7ˣ | 3.8ᵁ | 3.9ᵁ | 9.64 | .001 |
| Legitimacy of status differential | 2.2ˣ | 3.9ᵁ | 3.6ᵁ | 18.87 | .001 |
| Personal value of creativity | 5.2ʸ | 5.8ᴸ | 5.8ᴸ | 3.22 | .05 |

ᵁ differs from ˣ at $p$ < .01.
ᴸ differs from ʸ at $p$ < .05.

As expected on the basis of hypothesis 4, low status group members found the experimental procedures for measuring creativity and categorizing subjects to be less acceptable than high and equal status group members (Table 2). Low status group members perceived the status differential to be

less legitimate than high and equal status group members.

Interestingly, though all subjects valued creativity highly

(all group means over 5 on a 7-point scale), low status group

members seemed to undervalue creativity relative to the other

groups (Table 2). Results of the open-ended question that

required subjects to suggest alternative ways of measuring

creativity were not informative as few subjects responded to

this question.

Results in Table 3 display subjects' self-reported

distribution strategies on the matrices. In general,

analyses indicated no differences between conditions on

self-reported strategies (Table 3). There appeared to be a

general tendency for mid-scale responses on most of these

measures.


Table 3

Means for self-reported strategies (collapsed across
salience)

| Self-report of strategy | LOW | STATUS<br>EQUAL | HIGH |
|---|---|---|---|
| Parity or equality | 3.8 | 3.8 | 3.6 |
| Ingroup favouritism | 3.1 | 3.2 | 3.8 |
| Maximum joint profit | 3.5 | 2.6 | 2.7 |


Indeed, unlike studies 1 and 2, matrix ratings and

self-reported strategies were not significantly correlated on

most measures. The one exception to the above results were responses on self-reported outgroup favouritism (Table 4) which also contributed significantly to the overall MANOVA status main effect. Low status group members appeared to accurately report their use of outgroup favouritism.

What were subjects' estimates of the strategies that other ingroup and outgroup members employed relative to them? Since these could not be assessed directly from the MANOVA analyses, univariate repeated measures ANOVAS were conducted on subjects' estimates of strategies employed by themselves, other ingroup, and outgroup members. To avoid inflation of Type 1 error, a strict and a priori significance criterion of $p < .001$ was used for each test. The analyses revealed two significant effects: (a) a main effect for estimates of ingroup favouritism, $F(2, 228) = 17.65$, $p < .001$; (b) an interaction effect for status group x estimates of outgroup favouritism, $F(4, 228) = 25.82$, $p < .001$. Pairwise comparisons indicated: (a) subjects felt that they ($M = 3.4$) showed less ingroup favouritism than other ingroup ($M = 4.1$) and outgroup members ($M = 4.2$, $p < .01$); (b) low status group members reported showing more outgroup favouritism than all other group members. However, low and equal status members did not expect other subjects (ingroup or outgroup) to show outgroup favouritism. In contrast, high status group members did expect low status

group members to favour high status group members in their

ratings (Table 4).


Table 4

Means for outgroup favouritism (collapsed across salience)

| Outgroup favouritism by: | LOW | STATUS EQUAL | HIGH |
|---|---|---|---|
| Self | 4.3$^{\sqcup}$ | 2.2$^{\times}$ | 2.5$^{\times}$ |
| Ingroup | 3.0$^{\times,\curlyvee}$ | 2.6$^{\times}$ | 2.7$^{\times}$ |
| Outgroup | 2.7$^{\times}$ | 2.7$^{\times}$ | 3.9$^{\sqcup,\llcorner}$ |

$^{\sqcup}$ differs from $^{\times}$ at $p < .01$.
$^{\llcorner}$ differs from $^{\curlyvee}$ at $p < .05$.


A number of items which required subjects to estimate

ingroup identification (of members of both groups) and

anticipated "liking" for members of both groups were analysed

by repeated measures ANOVAS (with an a priori significance

criterion of $p < .001$ for each). One significant

interaction effect was obtained: status x group

identification, $F(4, 228) = 24.80$, $p < .001$. Table 5

shows that the high and equal status group members reported

higher levels of group identification than low status group

members. Indeed, low and high status members appeared to

have similar expectations about the degree of group

identification reported by other low and high status group

members. Both groups felt that high status group members

would identify more than low status group members with their respective ingroups.

Table 5

Subjects' estimates of self and others' owngroup
identification (collapsed across salience)

| Owngroup identification of: | STATUS | | |
|---|---|---|---|
| | LOW | EQUAL | HIGH |
| Self | 3.3ˣ·ʸ | 3.9ᴸ·ˣ | 5.0ᵁ |
| Ingroup | 3.5ˣ | 4.1ᴸ | 5.3ᵁ |
| Outgroup | 4.7ᵁ | 4.1ᴸ | 3.6ˣ |

ᵁ differs from ˣ at $p < .01$.
ᴸ differs from ʸ at $p < .05$.

The analyses also revealed main effects for the following repeated measures factors:  (a) subjects' estimated liking for others, $F(1, 114) = 12.28$, $p < .001$; (b) subjects' estimates of other ingroup members' liking for others, $F(2, 228) = 40.29$, $p < .001$; (c) subjects' estimates of outgroup members' liking for others, $F(2, 228) = 25.28$, $p < .001$.  Duncan's pairwise comparisons indicated that ($p < .01$ for all comparisons):  (a) subjects would like ingroup members ($M = 4.7$) more than outgroup members ($M = 4.3$).  These results mask a marginal tendency (according to the a priori criterion of $p < .001$) by low status group members to report equivalent amounts of liking

for ingroup and outgroup members, $F(2, 114) = 5.41$, $p = .006$; (b) subjects also felt that other ingroup members would like them ($M = 4.9$) and other ingroup members ($M = 4.8$) more than outgroup members ($M = 4.0$); (c) subjects estimated that outgroup members would like other outgroup members ($M = 4.9$) more than themselves ($M = 4.3$) and other members of the ingroup ($M = 4.1$).

Results of manipulation checks revealed that all subjects generally agreed that highly creative people had higher status ($M = 5.6$) than those low in creativity ($M = 3.3$), $F(1, 114) = 208.61$, $p < .001$. These perceptions did not seem to be differentially affected by the status or salience manipulations. A repeated-measures ANOVA (status x salience x ingroup/outgroup) on subjects' estimates of ingroup and outgroup status revealed a significant status by repeated-measure interaction (see Table 6). Duncan's multiple comparison tests showed that all groups accurately perceived the status distributions imposed by the experimenter (Table 6).

Table 6

Subjects' estimates of ingroup (I)/outgroup (O) status and power (collapsed across salience)

| | STATUS | | | |
|---|---|---|---|---|
| Estimated | LOW | EQUAL | HIGH | F for status x I/O (2, 114) |
| Ingroup | 2.4[x,y] | 3.7[x,L] | 5.3[u] | 104.68 |
| STATUS | | | | p < .001 |
| Outgroup | 5.1[u] | 3.5[x,L] | 2.7[x,y] | |
| | | | | |
| Ingroup | 2.9[x,y] | 3.5[x] | 4.1[L] | 42.83 |
| POWER | | | | p < .001 |
| Outgroup | 4.9[u] | 3.1[x] | 2.8[x,y] | |

[u] differs from [x] at p < .01.
[L] differs from [y] at p < .05.

Subjects' estimates of relative ingroup and outgroup power also contributed to the overall MANOVA main effect on the postsession questionnaire. Since these could not be directly assessed from the MANOVA analyses, univariate repeated measures ANOVAs were performed on subjects' estimates of ingroup and outgroup power. These revealed significant status by repeated measures interaction effects (Table 6). As shown in Table 6, subjects in conditions of unequal status consensually felt that the high status groups had higher power relative to low status groups. Groups of equal status did not perceive a difference in power between the ingroup and outgroup.

Finally, were subjects aware of the purposes of the experiment? Whereas responses from the majority of subjects

(102) suggested that subjects were not aware of the experimenter's hypotheses, a small minority of subjects (14) felt that the experiment was concerned with ingroup favouritism. Analyses indicated that this minority was not distributed across the design in any systematic manner. Furthermore, these subjects' responses were not predictive of their actual choices on the matrices. Only 4 subjects indicated any (usually vague) awareness of experimental hypotheses. However, their responses also were not predictive of their behaviour on the matrix choices.

## Discussion

The overall results from this study clearly support S.I.T (Tajfel & Turner, 1979). Matrix ratings of ingroup and outgroup products provided support for hypotheses 1 and 2, but not for hypothesis 3. Support for hypothesis 4 was also obtained on results of the postsession questionnaire.

As expected on the basis of the first hypothesis, the traditional minimal group discriminaton effect was obtained in the equal status categorization conditions. Equal status per se does not provide a positive social identity as it does not imply a favourable comparison with the outgroup. Therefore, equal status group members discriminated on available dimensions of comparison (i.e., the matrix ratings)

in order to achieve a positive social identity. The strong
influence of relative and absolute ingroup favouritism (MD &
FAV) on equal status group members' matrix choices provides
direct evidence for this notion.

The second hypothesis also received clear support
from matrix choice results. In particular, high and equal
status group members were more discriminatory than low status
group members on matrices assessing relative and absolute
ingroup favouritism (MD & FAV). As predicted, low status
group members favoured members of the outgroup on status
related dimensions -- the matrix ratings. However, low
status group members' levels of outgroup favouritism were not
high relative to levels of parity. This suggests that though
low status group members' acknowledged their 'inferiority',
they also attempted to minimize the magnitude of the
unfavourable social comparison through parity responses.
Moreover, the significant levels of MJP and MIP+MJP shown by
nonsalient low status group members may also reflect an
avoidance of unfavourable comparisons (cf. study 2).
Overall, these results lend support to van Knippenberg and
Wilke's (1979) suggestion that negative evaluative
differences are minimised. Conversely, the highly
significant levels of maximum differentiation (MD) obtained
in high status conditions support Van Knippenberg and Wilke's
(1979) suggestion that positive differences are enhanced.

Contrary to expectation, high status group members
did not show more ingroup favouritism than equal status group
members on status-related dimensions.  These results suggest
that the _maintenance_ of favourable status differences may
be as important as the _achievement_ of positive status
differences.

Unlike a number of previous studies (see Brewer,
1979; Turner, 1981), hypothesis 3 received little support.
Increasing the salience of categorizaton did not seem to
polarise integroup behaviour.  As in studies 1 and 2, there
was little indication that labelling procedures were
successful in varying the salience of the intergroup
situation.  Future research employing stronger manipulations
of category salience may prove more informative.

S.I.T. interprets intergroup discrimination as a
means of differentiating the ingroup from the outgroup in a
positively valued direction.  Therefore, discrimination
should lead to a positive social identity (cf. Oakes &
Turner, 1980).  Results from the present study were
consistent with this interpretation.  For example, high and
equal status group members reported that they felt more
comfortable, satisfied and happy about their respective group
memberships than low status group members.

However, status position _per se_, regardless of
actual discrimination, also contributes to group members'

social identities (Tajfel & Turner, 1979). Relative to low and equal status, high status provides a favourable differentiation _before_ subjects are given the opportunity to discriminate. Accordingly, results from the present study suggest that high status group members felt more positive about their group membership and showed higher levels of group identification than both equal and low status group members. Further support for this was provided by supplementary analyses that partialled out the effects of matrix discrimination from correlations between group status and self-reported degrees of group identification. MD (on MIP+MJP), FAV (on MJP), and FAV (on P), were separately partialled out of the correlation between perceived status and degree of group identification. These yielded positive and significant partial correlations between status and identification of .46, .44 and .45 respectively (all $p <$ .001, 118 d.f.). These partial correlations are consistent with the notion that status contributes to group members' social identities over and above the contribution made by discrimination.

In accordance with hypothesis 4, individuals categorized as low status group members reported the lowest levels of group identification in the design. As expected, low status group members believed that the creativity test and resultant status differential were less legitimate than

high and equal status group members. In addition, though all subjects reported that creativity was extremely important to them personally (all means above 5 on a 7 point scale), low status group members undervalued creativity relative to high and equal status group members. This pattern of identifications and perceptions presumably helped low status subjects reduce threats to their self-images implied by the unfavourable experimentally imposed social categorizations. Interestingly, in the present study, the overall results masked a marginal tendency by low status group members not to differentiate in the amount of liking they anticipated for ingroup and outgroup members. These trends appear to be part of a general pattern of attempted psychological rejection of the experimentally imposed low status categorization by subjects ascribed low status.

Unlike results obtained with real-life groups in field studies (Bourhis & Hill, 1982; Jaspars & Warnaen, 1982; van Knippenberg, 1978), low status group members in the present study did not go as far as redefining or creating new dimensions of comparison to bolster their social identity vis-a-vis the high status outgroup. Presumably, the present study created a static and ahistorical intergroup situation that did not allow for the development of such redefinitions. Field studies can incorporate the historical dimension which demonstrably affects the strategies that group members

develop to enhance their social identities (e.g., Vaughan, 1978; Brown, 1978). Future laboratory studies incorporating historical dimensions should assess how and when group members come to employ various strategies of redefinition to serve their social identity needs (cf. Brown & Ross, 1982).

Results of this study suggest that an ascribed negative social identity (e.g., low status) is not readily accepted as part of subjects' self-definition since low status group members reported lower levels of group identification than high and equal status group members. However, even "the subjective denial of one's own group membership may paradoxically demonstrate that identification has taken place, since it is identification that threatens self-esteem and the threat to self-esteem that motivates the denial" (p. 236, Turner et al., 1983). Thus, social identity mechanisms appear to be at the heart of the behaviour exhibited by members of low status groups.

Results of this study reflected Tajfel's (1978) contention that individuals need to belong to groups that provide them with a positive social identity. High status posed no threat to group members' self-images and, in fact, contributed positively to their self-images. Therefore, high status status group members were less likely to separate their social identities from their self-definitions. Accordingly, they reported higher levels of group

identification and perceived the intergroup situation to be
more legitimate than low status group members.

Analyses of measures of anticipated intergroup liking
suggested that, regardless of group status, subjects
anticipated that they would like their respective ingroup
members more than outgroup members. Similar patterns were
obtained in studies 1 and 2 and it was suggested that these
effects were attributable to the operation of basic
categorization processes (e.g., Brewer, 1979).

Whereas low status group members appeared to
accurately self-report their use of outgroup favouritism,
results of other self-reported strategies did not match
actual matrix strategy choices. Across all groups there was
a general tendency to self-report higher degrees of parity
and lower levels of ingroup favouritism. These results do
not concur with the fact that high and equal status group
members were undeniably discriminatory on the matrix ratings.
As in studies 1 and 2, self-reports probably reflect social
desirability biases in favour of reporting parity rather than
discriminatory orientations (cf. Billig, 1973). Indeed, all
subjects felt that they showed less ingroup favouritism than
ingroup or outgroup others.

Other results from the present study suggest that
group members perceive that status confers power. High
status groups were perceived to have greater power than low

status groups. In the previous experiment (study 2, ch. 4)
subjects also had difficulty in disentangling power from
status and group numbers factors. Future laboratory research
employing parametric designs should investigate the
interactive effects of sociostructural variables on
intergroup behaviour. The next, and final, study of the
present research was an exploratory attempt in this
direction.

In conclusion, it is suggested that the present study
obtained the independent and 'baseline' effects of status on
intergroup behaviour. Predictions derived from Social
Identity Theory (Tajfel & Turner, 1979) were well supported
in this study. Methodologically, as in the previous
experiments (studies 1 & 2), the use of an extensive
postsession questionnaire was useful in understanding
relations between different status groups. The structural
constraints implied by status position appear to have
important psychological effects.

## Summary

The present study investigated the independent
effects of status differentials on intergroup behaviour.
Using a variant of the minimal group paradigm (Tajfel &
Turner, 1979), subjects were categorized into groups of

differing status (high, equal, low) at two levels of category salience. Using Tajfel's matrices they rated products ostensibly created by ingroup and outgroup members. Estimates of group identification, perceptions of the experimental situation, and group memberships were also obtained.

Results indicated no effect of salience but a main effect for group status. Other results from the study clearly supported the hypothesis that people seek positive distinctiveness for their own group to protect and enhance their self-esteem (see Tajfel & Turner, 1979). Minimal group results were replicated in the equal status conditions. As expected, high and equal status group members showed more ingroup favouritism than low status group members. High and equal status group members reported higher levels of group identification than low status group members.

The attainment of positive social identity is not an autistic process that ignores stark structural constraints such as low group status. In the present study, low status group members acknowledged their 'inferiority' and favoured the high status outgroup on status-related measures -- the matrix choices. However, to avoid threat to self-esteem implied by low status, results of this study suggested that low status group members reported lower degrees of identification and perceived the intergroup situation to be

less legitimate than high status group members. Overall,
results of this study illustrated the significant impact of
status differentials on social identity and intergroup
behaviour.

Chapter 6

STUDY 4:   THE INTERACTIVE EFFECTS OF SOCIOSTRUCTURAL FACTORS
ON INTERGROUP BEHAVIOUR*


Introduction


Results described in the last three chapters have

established the independent effects of group numbers, power

and status variables on intergroup perceptions and behaviour.

These may be considered the 'baseline' effects of

sociostructural variables on intergroup behaviour.   Real-life

intergroup situations such, as those in South Africa, are

characterized by groups that simultaneously differ on power,

status, and group numbers variables.   Differences in group

power between whites and blacks probably account for the

remarkable resilience of the ruling white minority regime in

their attempts to maintain the status quo.   Whereas

minority group membership leads to feelings of insecurity for

white members of the population, majority group membership

maintains the impetus for blacks who wish to bring about

fundamental social and political changes in South African

society.


* An abridged version of this chapter was
presented at the 46th Annual Convention of the
Canadian Psychological Association, June 1985,
Halifax, Nova Scotia.

Such accounts of the impact of sociostructural factors on behaviour in real-life contexts are necessarily somewhat interpretative due to a lack of control over the host of variables usually present in these situations.  Thus, in line with the general theme of research reported in this dissertation, the next step was to conduct a laboratory study to explore the interactive effects of group numbers, power, and status variables on intergroup behaviour.  As this study was perhaps the most exploratory one in the present series, the design was kept relatively simple.  Furthermore, the replicability of the 'baseline' effects of sociostructural factors on intergroup behaviour was assessed by employing operationalizations comparable to those of studies 1, 2 and 3.

It was proposed that status differentials are _the_ most exemplary social-evaluative dimensions of intergroup relations (e.g., Turner, 1984) and thus contribute directly to the social identities of group members.  Results obtained in study 3 (ch. 5) attest to the validity of this notion, and provided ample empirical support for the link between group status and social identity.  Therefore, the methodology used to investigate status differentials (study 3) was adapted to investigate the interactive effects of sociostructural variables on intergroup behaviour.

Subjects were categorized into two (high and low) status groups by providing subjects with false feedback about their performance on a creativity test. As part of the false performance feedback, subjects were also given information about the number of subjects in each group. This constituted our majority/minority manipulation. Subjects were then asked to rate products ostensibly created by other ingroup and outgroup members using Tajfel's matrices. At this stage, the power manipulations were introduced. Only unilateral power relations were examined in this experiment. This was explored by providing one group with 100% control (absolute power) and the other group with 0% (no power) control over the distribution of resources to ingroup and outgroup members.

As in previous studies (studies 1-3), subjects neither faced a group conflict over scarce resources nor had the opportunity to engage in self-interested actions. Group memberships were kept anonymous and Tajfel's matrices provided subjects with a variety of response strategies. Like previous studies, an extensive postsession questionnaire was also employed to assess subjects' perceptions of, and responses to, the experimental situation. As in study 3, it was expected that the postsession questonnaire would provide a good opportunity for group members with negative identities to question the legitimacy of the intergroup situation.

However, as the results of previous studies have indicated, group members with positive identities also employed the postsession questionnaire for identity maintenance. Overall, as in previous studies, it was felt that the use of an extensive postsession questionnaire would provide important additional insights about the interactive effects of sociostructural variables on intergroup behaviour.

Existing social psychological theory has not been developed sufficiently to make precise predictions about the complex interactive effects of status, power, and group numbers variables on the conduct of intergroup relations. However, a few tentative hypotheses may be formulated on the basis of results obtained in studies 1-3. The basic assumption underlying the following predictions was that group members strive for a positive social identity (Tajfel & Turner, 1979).

Since status differences form an explicit part of the social identity edifice, they served as the building blocks for the predictions. Low group status confers a negative social identity, while high group status confers a positive social identity (Tajfel & Turner, 1979; see study 3). Thus, low status group members were expected to be more motivated than high status group members to achieve a positive social identity. However, it was suggested that low status group members may be unable to fulfill their identity motivations

on dimensions related to a consensual status difference

(study 3). In accordance, results of study 3 showed that low

status group members did not claim that they were 'superior'

on dimensions where the experimenter had categorized them as

'inferior'. Based on this, low status group members were

expected to show less ingroup favouritism on status related

dimensions (i.e., matrix allocations) than high status group

members (hypothesis 1).

Ingroup favouritism by high status group members on

status related dimensions serves to maintain their positive

social identities and high self-esteem. In contrast, the

self-esteem of low status group members is threatened due to

their negative social identity. In accordance with previous

results (study 3), low status group members were expected to

report lower levels of group identification and perceive the

status differential to be less legitimate than members of

high status groups (hypothesis 2).

In contrast to group status, majority/minority

categorizations appeared to have more complex identity

connotations. It was argued that minority group members may

have more insecure social identities than members of majority

groups. Results of study 1 suggested that though both

minimal majorities and minorities discriminated by

employing significant levels of maximum differentiation (MD),

majorities' matrix choices were closer to the point of

parity, while minorities attempted to obtain absolute ingroup profit (MIP). It was suggested that majority group members felt "the security that facilitates largess toward outgroup members" (p. 841, Gerard & Hoyt, 1974), while minority group members attempted to make their group identity more secure and positive by favouring the ingroup at both absolute and relative levels.

The identity connotations of majority/minority categorizations were more explicit in this study than in study 1 (cf. Moscovici & Paicheler, 1978). High status group members who were in a minority were expected to discriminate more than than high status majority group members (also see hypotheses 6-8). In contrast, minority categorizations of low status group members were expected to intensify their feelings of inferiority and lead to higher levels of outgroup favouritism on status related dimensions. Majority categorizations of low status group members were expected to lead to relatively lower levels of outgroup favouritism by low status group members (also see hypotheses 4 & 5). Thus, overall, it was hypothesised that minority group categorizations would polarise intergroup behaviour more than majority group categorizations (hypothesis 3).

In contrast to group status and group numbers, group power did not appear to be related to degree of group identification in an a priori manner (study 2). Within the

framework of S.I.T. group power was conceptualised as a 'tool' to claim (or maintain) a positive social identity. Results of study 2 suggested that the exercise of power in a discriminatory fashion enabled dominant group members to achieve positive social identities. In this vein, unilateral power was expected to be most useful for group members with negative and/or insecure social identities. Thus, it was expected that low status and/or minority group members would discriminate more when they were dominant than when they were subordinate (hypothesis 4). More specifically, subordinate low status minorities were expected to be the least discriminatory groups in the design and were expected to show the highest levels of outgroup favouritism in the present experiment (hypothesis 5).

High status majority group members (dominant and subordinate) were expected to possess positive and secure social identities a priori. Thus, they were expected to display low but significant levels of ingroup favouritism on status related dimensions (hypothesis 6). Whereas group power was not expected to affect the behaviour of high status majority group members, it was expected to affect the behaviour of high status minority group members. Though both subordinate and dominant high status minority group members were presumed to have insecure social identities, unilateral power was expected to provide the means to maintain group

members' positive though insecure social identities.
Therefore, dominant high status minority group members were
expected to be more discriminatory than subordinate high
status minority group members (hypothesis 7). Indeed, it
was hypothesized that dominant, high status minority group
members would be the most discriminatory groups in the
experiment (hypothesis 8).

To recapitulate, the predictions outlined above
essentially suggest that group status and group power might
have statistical main effects on patterns of intergroup
discrimination. Majority/minority categorizations were
expected to affect intergroup behaviour mainly in interaction
with status and power. Specific comparative predictions
about different groups in the design were tentative due to
the paucity of systematic social psychological theory and
empirical research in this area.


## Method

Subjects: Subjects were 160 Introductory Psychology
students (male and female) who volunteered to fulfill a
course requirement. All subjects were English-speaking
Canadians who had lived in southern Ontario for most of their
lives.

Design: Subjects were run in group sessions (20 per session), with treatment condition randomly determined for each session. There were 8 treatment conditions. Subjects were categorized into high or low status groups, of differing size (majority or minority), ostensibly on the basis of their performance on a creativity test. Perceptions of differential power were created by giving group members total or no power over the distribution of course credits. These manipulations yielded a status x group numbers x power design matrix consisting of two levels of each independent variable.

Procedure: A male English speaking Canadian experimenter introduced the study as an investigation of aspects related to "creativity in academic settings" (Instructional sets employed in this study were based on those used in study 3, see appendix 2). Subjects were instructed that the first part of the study assessed their creativity using a standardised test. Subjects then completed a second creativity test and were given an opportunity to evaluate (for themselves) the final products from the second test. Subjects were told that the total number of course credits they eventually received for participation in the experiment was determined by the evaluations of their products by other subjects present in the session. Finally subjects completed a postsession questionnaire.

It was impressed upon the subjects that creativity is
an extremely important aspect of intellectual functioning and
that it correlated significantly and positively with social
and occupational status. Subjects were then asked to
complete a "quick and often used" creativity test designed to
provide an index of their creativity. This test was adapted
from Moscovici and Paicheler (1978) and consisted of
maximizing the number of possible arrangements of horizontal
bars under specific criteria. The criteria of this test were
made ambiguous enough (by pretesting) to prevent subjects
from making a realistic estimate of their own creativity.
Tests identical to those in study 3 were used in the present
experiment.

While an assistant busily appeared to score subjects'
responses on the first test, subjects were asked to complete
a second creativity test. This consisted of creating a
series of titles for an abstract print (by an anonymous
artist). Upon completion, subjects were instructed that the
results from the first creativity test were available.
Feedback (false) about individuals' creativity was provided
by categorizing individuals into one of two groups (group X
or W) on the basis of their creativity performance.
Individuals were identified only by personal code-letters in
order to maintain complete anonymity.

Specific instructions manipulating the status

variable were then given.  In the high and low status

conditions, subjects were told that their creativity scores

from the first test situated them into one of two groups:

those high in creativity and those low in creativity i.e.,

high and low status groups.  The first test feedback also

provided the opportunity to manipulate the independent

variable of group size.  Subjects were instructed that the

first test results situated the majority (80%) of subjects in

one group, and a minority (20%) in the other group.  In

reality, there were equal numbers of subjects (randomly

assigned) in each group.  Status and group size labels were

randomly assigned to groups X and W in each session.

As the experimenter was interested in how subjects,

themselves, evaluated the creativity of others, subjects were

then asked to give their personal evaluations of the

creativity of other individuals (excluding themselves).

For this purpose, they were instructed how to use Tajfel's

matrices to award points to sets of titles ostensibly created

by the other subjects present in the session.  The actual

titles they rated had been prejudged by 200 other subjects

(from the same population) to be equivalent in creativity.

It was explained to the subjects that they would all

receive one course credit for participating in the

experiment.  However, they also had the chance to receive

(and give) a second course credit which would complete their

experimental participation requirements for the semester. Ostensibly, the matrix points awarded to other individuals would determine those individuals' final credit totals for participating in the experiment. It was explained that each point in the matrices represented a fraction of one course credit. Subjects were told that the total number of points awarded to each individual would be summed up to determine the total number of credits he/she received. In reality, all subjects received the maximum number of credits for participation, completing their course requirements for the semester.

It was stressed to the subjects that on no occasion would they be rating their own products and awarding credit to themselves. They would always be rating others' products and awarding credits to _other_ subjects who were identified only by their personal code-letters and group memberships. In this manner, self-interest as a motive was eliminated and the experimental situation was kept totally anonymous.

Before subjects began the rating task, the independent variable of power was manipulated by a set of further instructions. Specifically, subjects were told: "To make matters easier and faster for us, we will only use the ratings made by members of one group to decide how many credits each one of you will receive for participating in the experiment....ratings by members of the other group will not

be used to calculate the final total of credits you get for participating in the experiment." Following the procedure employed in study 2, a coin-toss was used to create a perception of arbitrary power differentials. In some sessions, randomly determined, "Gp. X" was the "absolute (or total)" power group while "Gp. W" was the "No" power group. This pattern was reversed for the other sessions.

Finally, subjects were asked to note their own group status, size and power in their response booklets before starting the rating task. Following the rating task, subjects completed a postsession questionnaire. Upon completion subjects were carefully debriefed.

Dependent measures: (a) Creativity ratings on Tajfel's matrices: As in the previous studies, the main dependent measures were subjects' point-allocations to ingroup and outgroup members using Tajfel's matrices (see appendix 3). Three matrix types identical to those in previous experiments (studies 1-3), designed to precisely measure the strengths or 'pulls' of different strategies on subjects' choices, were used. Matrix types compared: a) Parity (equality, P) versus ingroup favouritism (FAV = MIP + MD); b) FAV versus maximum joint profit (MJP); and c) maximizing the difference in favour of the ingroup (MD) versus combined absolute ingroup favouritism and maximum joint profit (MIP + MJP).

From each matrix type, two pulls were calculated.
Each pull has a theoretical range from -12 to +12. Negative
strategy pulls indicate pursuit of their psychological
opposites, e.g., negative FAV indicates outgroup favouritism,
etc. The orders of presentation of matrices were randomized
for each subject. Each matrix type was presented once in its
original form and once in its reversed form in order to
obtain pull scores (see Turner et al., 1979). This amounted
to six matrix presentations per subject in total. The order
of presentation of each matrix was randomized for each
subject.

(b) Postsession questionnaire: As in previous
studies, several items on a postsession questionnaire
assessed subjects' social identifications, intergroup
perceptions and responses to the experimental situation (see
appendix 4). Self-reports about their matrix allocations and
their expectations about other subjects' allocations and
group identifications were also obtained. Questionnaire
items were generally answered on seven point scales.


Results


This section is divided into two parts: analyses of
subjects' matrix ratings and, their responses on postsession
questionnaire items.

1. <u>Analyses of subjects' matrix distribution strategies</u>:
As in studies 1-3, two sets of analyses were conducted on
matrix pull scores:   (a) strategy analyses within each
treatment condition; (b) strategy analyses between treatment
conditions.

1(a)   Table 1 presents the mean pull scores of each
strategy for each cell in the design.   These were calculated
and tested by performing Wilcoxon Matched Pairs tests on the
difference in scores between the two versions (I/O and O/I)
of each matrix type.   Overall, the strengths of each variable
declined in magnitude in the order of:   P on FAV, MD on MIP +
MJP, FAV on P, FAV on MJP, MIP + MJP on MD, and MJP on FAV.

To test for artifactual dependence between any two
pulls calculated from the same matrix type, correlations were
calculated between the cell deviations of each pull and the
absolute cell means of the appropriate obverse pull (see
Turner et al., 1979).   Only one correlation was significant:
absolute FAV and s.d. of MJP ($r$ = -.78, 6 $\underline{df}$, $\underline{p}$ < .01).
The variances of these pull scores were examined to further
investigate the implied artifactual influence.   Homogeneity
of variance tests indicated that whereas the variances of FAV
(on MJP) pulls were not significantly different, the cell
variances of MJP (on FAV) tended to be greater in the
subordinate groups than in other groups.   Taken in the
context of other results presented below, it is likely that

obverse pulls obtained from this same matrix type were not
artifacts of compressed ranges.


## Table 1

### Mean 'pulls' of subjects' matrix distribution strategies

| | No Power | | Total Power | | |
| STATUS : | Low | High | Low | High | |
| Strategy | | | | | X |
| Minority | 5.4** | 8.5** | 7.5** | 1.1 | 5.6 |
| P on FAV | | | | | |
| Majority | 9.1** | 6.5** | 8.1** | 5.5** | 7.3 |
| | | | | | |
| Minority | -4.2** | 1.6 | 3.8** | 6.1** | 1.8 |
| MD on MIP+MJP | | | | | |
| Majority | 0.4 | 2.3* | 4.2** | 6.4** | 3.3 |
| | | | | | |
| Minority | -3.7** | 1.1 | 3.0** | 5.5** | 1.5 |
| FAV on P | | | | | |
| Majority | -0.3 | 2.1* | 2.8** | 4.7** | 2.3 |
| | | | | | |
| Minority | -2.0 | 1.5 | 2.3** | 4.1** | 1.5 |
| FAV on MJP | | | | | |
| Majority | -0.5 | 2.0* | 3.3** | 4.2** | 2.3 |
| | | | | | |
| Minority | 2.4** | 2.6** | 0.1 | 0.7 | 1.5 |
| MIP+MJP on MD | | | | | |
| Majority | 1.0 | 3.2** | 1.6* | 0.7 | 1.6 |
| | | | | | |
| Majority | 0.4 | 0.3 | 0.1 | 0.2 | 0.3 |
| MJP on FAV | | | | | |
| Minority | 0.9 | 2.0** | 0.1 | 0.5 | 0.9 |

** = $p < .01$.
 * = $p < .05$.


Table 1 shows that the pull of parity (P on FAV) was

strong in all conditions (except in the high status dominant minority). In spite of the strong pull of parity across all conditions, there were some systematic variations in the use of other strategies.

Results displayed in Table 1 provide some support for hypothesis 1 though a clearer picture was expected to emerge from parametric analyses. In accordance with hypothesis 1, all high status group members showed significant degrees of ingroup favouritism on most matrix measures with the exception of subordinate high status minority groups (see FAV on P, MD on MIP + MJP, FAV on MJP in Table 1). As expected, low status group members were more variable in their use of various matrix strategies.

Results in Table 1 also indicate support for hypothesis 4. As expected, relative to subordinate low status group members, dominant low status group members showed highly significant amounts of discrimination (MD, FAV). Furthermore, in accordance with hypothesis 5, subordinate low status minority group members were the only group to show outgroup favouritism (negative MD and FAV) in the design.

Some support was also obtained for hypothesis 6. For instance, subordinate high status majority group members were the only group in the design that employed significant levels of maximum joint profit. Indeed, the results suggest that

subordinate high status majorities were perhaps the most

ambivalent groups in the design as all matrix pulls were

significant in this condition. However, this ambivalence did

not include a display of outgroup favouritism and overall,

ingroup favouritism exerted a low but significant pull on

subjects' choices. Contrary to hypothesis 6, the most secure

dominant high status majority group members did not display

noblesse oblige by showing low levels of discrimination.

In accordance with hypothesis 7, subordinate high

status minority group members were parity oriented and

dominant high status minority group members were

unambiguously discriminatory. Indeed, as expected

(hypothesis 8) dominant high status minority group members

were the most discriminatory group members in the design.

They were the only group members not showing parity

significantly (P on FAV) and displayed highly significant

levels of ingroup favouritism.

Other results in Table 1 suggest that the results of

the combined strategy of maximizing absolute ingroup and

joint profit (MIP + MJP on MD) seemed to be the most

discrepant set with respect to the predictions. Table 1

shows that the pull of MIP + MJP on MD was positive and

significant in almost all subordinate group conditions and

not significant in the dominant group conditions.

Subordinate and dominant low status majority group members

were the exception to this general pattern of results.

1(b)   To further assess the matrix results, a status
(two levels) by power (two levels) by group numbers (two
levels) multivariate analysis of variance was conducted with
the six matrix pull scores as dependent measures.

Table 2

Significant MANOVA effects for matrix measures

| Source | Multivariate df = 6, 147 | | Contributing univariate df = 1, 152 | | |
|---|---|---|---|---|---|
| | $F$ | $p <$ | Strategy | $F$ | $p <$ |
| Status (S) | 8.91 | 0.001 | P on FAV | 8.90 | 0.01 |
| | | | FAV on P | 28.50 | 0.001 |
| | | | MD on MIP+MJP | 17.08 | 0.001 |
| | | | FAV on MJP | 23.68 | 0.01 |
| Power (P) | 19.45 | 0.001 | P on FAV | 6.54 | 0.02 |
| | | | FAV on P | 59.94 | 0.001 |
| | | | MD on MIP+MJP | 47.91 | 0.001 |
| | | | FAV on MJP | 51.44 | 0.001 |
| | | | MIP+MJP on MD | 14.29 | 0.001 |
| | | | MJP on FAV | 4.51 | 0.001 |
| Group Numbers (N) | 2.19 | 0.05 | P on FAV | 5.51 | 0.05 |
| | | | MD on MIP+MJP | 4.10 | 0.05 |
| S x P | 2.73 | 0.02 | P on FAV | 11.13 | 0.001 |
| | | | FAV on MJP | 3.34 | $p = 0.07$ |
| P x N | 2.50 | 0.05 | FAV on F | 6.35 | 0.02 |
| S x P x N | 2.62 | 0.02 | F on FAV | 11.13 | 0.001 |
| | | | MIP+MJP on MD | 4.76 | 0.05 |

The overall MANOVA revealed three significant
interactions and three main effects shown in Table 2.

Univariates that contributed significantly to the overall

MANOVA effects are indicated in Table 2. Subsequent

comparisons were conducted using Duncan's Multiple Range

test.

Results of a variety of matrix strategies

unequivocally confirmed hypothesis 1. Table 3 indicates that

the pull of parity (P on FAV) was greater in low status

conditions than in high status conditions. In addition, on

the ingroup favouritism measures (FAV on F, MD on MIP + MJP,

FAV on MJP), high status group members were more

discriminatory than low status group members (Table 3).

Table 3 also shows the status main effect accounts for

approximately 17-27% of the variance in matrix strategies

(Winkler & Hays, 1975).

Table 3

Univariate matrix strategy means for MANOVA main effect of
Status

| | Status | | V* |
| Strategy | Low | High | % |
| --- | --- | --- | --- |
| P on FAV | 7.5 | 5.4 | 17 |
| FAV on P | 0.4 | 3.3 | 27 |
| MD on MIP+MJP | 1.0 | 4.1 | 21 |
| FAV on MJP | 0.8 | 2.9 | 27 |

V*: refers to approximate amount of variance (%) that status
explains on each significant univariate.

Support for hypothesis 3 was also obtained in that minority group membership polarised patterns of intergroup behaviour. The group numbers main effect indicated that, overall, minority group members ($\underline{M}$ = 5.6) were LESS influenced by parity (P on FAV) than majority group members ($\underline{M}$ = 7.3, $\underline{p}$ < .05). This effect accounted for approximately 10% of the variance in P on FAV scores. When parity was not the opposing variable, majority group members tended to be discriminatory. This effect was only reliable for matrix strategy MD (on MIP + MJP), in which majority group members ($\underline{M}$ = 3.3) were more influenced by maximum differentiation (MD) than minority group members ($\underline{M}$ = 1.8, $\underline{p}$ < .05). Analyses revealed that the group numbers main effect only accounted for approximately 4% of the variance in MD (on MIP + MJP) scores.

Univariates contributing to the power main effect displayed in Table 4 indicate that dominant group members were more discriminatory than subordinate group members. Dominant group members employed MD and FAV strategies to a greater extent than subordinate group members. Furthermore, subordinate group members showed higher levels of parity and maximum joint profit than dominant group members. However, it should be noted that the MJP result is mainly due to one group in the design - the subordinate high status majority

(cf. hypothesis 7). Table 4 shows that the power main effect

accounts for a large amount of variance on ingroup

favouritism measures (49-61%), though only 12 % of the

variance on the matrix that measures the pull of parity (P on

FAV).


Table 4

Univariate matrix strategy means for MANOVA main effect of
Power

| Strategy | Power | | V* |
| | No | Total | % |
| --- | --- | --- | --- |
| P on FAV | 5.5 | 7.3 | 12 |
| FAV on P | -0.2 | 4.0 | 58 |
| MD on MIP+MJP | 0.0 | 5.1 | 61 |
| FAV on MJP | 0.3 | 3.5 | 60 |
| MIP+MJP on MD | 0.8 | 2.3 | 49 |
| MJP on FAV | 0.9 | 0.2 | 23 |

V*: refers to approximate amount of variance (%) that power
explains on each significant univariate


Table 4 also shows that the results of the

nonparametric analyses on matrix measure MIP + MJP on MD were

confirmed by the parametric analyses. Subordinate group

members employed the combination of maximizing absolute

ingroup and joint profit (MIP + MJP on MD) more than dominant

group members. Analyses of the three-way interaction

supported this pattern except for dominant and subordinate low status majorities. Thus, subordinate high status majorities ($p$ < .01) and minorities ($p$ < .05) used this strategy more than dominant high status majorities and minorities. In addition, subordinate low status minority groups employed the combination of maximizing absolute ingroup and joint profit (MIP + MJP on MD) more than dominant low status minority group members ($p$ < .05). This three-way interaction on matrix measure MIP + MJP on MD accounted for approximately 14% of the variance on this measure.

Univariate analyses of the significant three-way MANOVA interaction confirmed that dominant high status minority group members employed parity (P on FAV) less than all other groups in the design ($p$ < .01, hypothesis 8). Subordinate low status minorities and dominant high status majorities also showed significantly less parity than subordinate low status majorities ($p$ < .05). The three-way interaction on matrix measure P on FAV accounted for approximately 22% of the variance in parity scores.

Contrary to hypothesis 7, the results suggested that dominant high status majorities were as discriminatory as dominant high status minorities on other matrix measures. Indeed, univariate analyses of the significant power by status interaction (accounting for 22% of variance, Table 2)

showed that dominant high status groups displayed ($\underline{M}$ = 3.3) less parity (P on FAV) than subordinate high status ($\underline{M}$ = 7.8), and, dominant and subordinate low status group members ($\underline{M}$ = 7.5, $\underline{M}$ = 7.2, $\underline{p}$ < .01, respectively). The marginal status by power interactions on matrix FAV on MJP suggested a similar pattern of results.

As indicated in Table 2, the overall MANOVA also indicated a significant interaction effect of power by group numbers. Analyses suggested that dominant majorities and minorities were more discriminatory on matrix measure FAV on P ($\underline{M}$ = 3.7, $\underline{M}$ = 4.2, respectively) than both subordinate majorities and minorities ($\underline{M}$ = 0.9, $\underline{M}$ = -1.3, respectively, $\underline{p}$ < .01). Furthermore, subordinate minorities differed significantly from subordinate majorities on this measure ($\underline{p}$ < .01). Though these results are significant, the power by numbers interaction only accounted for approximately 5% of the variance in FAV on P scores.

2. <u>Analyses of postsession questionnaire</u>: Due to a large number of questionnaire items, an overall status by power by group numbers MANOVA was conducted on all dependent measures. Only significant main effects were obtained for (i) status, $\underline{F}(50, 103)$ = 11.42, $\underline{p}$ < .001; (ii) power, $\underline{F}(50, 103)$ = 3.63, $\underline{p}$ < .001; and (iii) group numbers, $\underline{F}(50, 103)$ = 1.49, $\underline{p}$ < .05. Each of these is discussed in turn.

(i) Univariate analyses indicated that the status
main effect was highly reliable for items listed in Table 5.
The MANOVA main effects were also reliable for other
dependent variables which were more appropriately analysed by
'repeated measures' analyses that are reported later.

Table 5

Univariates (on postsession questionnaire) contributing to
the overall MANOVA main effect of Status

| Variable | Status Low | High | $F_{(2,114)}$ | $p <$ | V* % |
|---|---|---|---|---|---|
| Comfortable with group | 3.0 | 5.8 | 173.46 | 0.001 | 85 |
| Satisfied with group | 2.2 | 5.9 | 361.26 | 0.001 | 95 |
| Happy with group | 2.5 | 6.1 | 338.09 | 0.001 | 95 |
| Fairness of creativity test | 2.3 | 4.0 | 69.50 | 0.001 | 93 |
| Fairness of categorization with test | 5.1 | 5.6 | 8.51 | 0.01 | 62 |
| Legitimacy of status differential | 2.2 | 4.1 | 91.69 | 0.001 | 92 |
| Agreement with coin toss for power differential | 2.6 | 4.3 | 73.48 | 0.001 | 89 |
| Personal value of creativity | 5.5 | 4.7 | 7.59 | 0.01 | 40 |

V*: refers to approximate amount of variance (%) that status
(main effect) explains on each significant univariate.

In accordance with hypothesis 2, analyses of the

status main effect reported in Table 5 suggest that high status group members had more positive feelings associated with their group membership and the status differential than low status group members. High status group members felt more comfortable, satisfied, and happy than low status group members about their group memberships. In addition, high status group members found the creativity test to be more fair, the use of the test for categorizing subjects to be more agreeable, and the status difference to be more legitimate than low status group members. Interestingly, high status group members reported higher agreement with the coin-toss procedure for establishing power differentials than low status group members.

On all these measures, the status main effect seemed to account for extremely high proportions of variance (between 62-95%, Table 5). Surprisingly (see Study 3), though all subjects valued creativity highly, low status group members seemed to value creativity more than high status group members. The status main effect accounted for approximately 40% of the variance on this measure.

Analyses of the MANOVA main effect for Power (Table 6) indicated that dominant group members felt more satisfied than subordinate group members, though power seemed to account for a very small proportion of the variance (about 1%). In addition, dominant group members reported higher

levels of legitimacy associated with the power differential

and the procedure for calculating credits than subordinate

group members. The power main effect on these measures

accounted for approximately 31% and 40% (respectively) of the

variance in scores.


Table 6

Univariates (on postsession questionnaire) contributing to
the overall MANOVA main effect of Power

| Variable | Power No | Total | $F_{(2,114)}$ | $p <$ | V* % |
|---|---|---|---|---|---|
| Satisfied with group | 3.9 | 4.3 | 3.99 | 0.05 | 1 |
| Legitimacy of power differential | 3.2 | 4.6 | 8.91 | 0.01 | 31 |
| Agreement with procedure for calculating credits | 3.6 | 4.7 | 16.07 | 0.001 | 40 |

V*: refers to approximate amount of variance (%) that power
(main effect) explains on each significant univariate.


Analyses of the MANOVA main effect for group numbers

displayed in Table 7 suggested that majority group members

felt more comfortable, satisfied, and happy about their group

membership than minority group members. However, the group

numbers main effects on these measures only accounted for

approximately 2-6% of the variance in scores. The analyses

also suggested that majority group members reported higher

levels of legitimacy associated with the power differential

and the procedure for calculating credits than minority group members. Minority group members also tended to value creativity more than majority group members. As indicated in table 7, the amount of variance in these scores that the group numbers main effect accounted for, varied between 15-21%.

Table 7

## Univariates (on postsession questionnaire) contributing to the overall MANOVA main effect of Group Numbers

| Variable | Group Numbers Min. | Maj. | $F_{(2,114)}$ | $p <$ | V* % |
|---|---|---|---|---|---|
| Comfortable with group | 4.0 | 4.8 | 12.45 | 0.001 | 6 |
| Satisfied with group | 3.8 | 4.3 | 8.41 | 0.01 | 2 |
| Happy with group | 4.0 | 4.5 | 6.24 | 0.05 | 2 |
| Legitimacy of power differential | 2.2 | 4.1 | 4.92 | 0.05 | 15 |
| Personal value of creativity | 5.4 | 4.8 | 4.59 | 0.05 | 21 |

V*: refers to approximate amount of variance (%) that Group Numbers (main effect) explains on each significant univariate

Three sets of results not revealed in the overall MANOVA analyses are worthy of mention: (a) a significant status x power interaction on the legitimacy of power differentials, $F_{(1, 152)} = 6.55$, $p < .02$, which accounted for approximately 22% of the variance; (b) a significant

status x power interaction on the legitimacy of the procedure

for credit calculations, $F(1, 152) = 5.01$, $p < .05$, which

accounted for approximately 10% of the variance. This effect

was considered in the context of a significant status x power

x group numbers interaction on the legitimacy of the

procedure for credit calculations, $F(1, 152) = 6.81$, $p =$

.01, which accounted for approximately 15% of the variance.

Subsequent comparisons (Duncan's Test) revealed the

following significant results: (a) subjects in subordinate

high status groups ($M = 3.7$) perceived the power

differential to be less legitimate than subjects in dominant

high status, dominant low status, and subordinate low status

groups ($M = 5.3$, $M = 4.8$, $M = 4.7$, respectively, $p <$

.01); (b)  subjects in subordinate high status groups ($M =$

3.2) perceived the procedure for calculating credits to be

less legitimate than subjects in dominant high status,

dominant low status, and subordinate low status groups ($M =$

4.9, $M = 4.5$, $M = 4.0$, respectively, $p < .01$).

Dominant low status group members also tended to perceive the

procedure for calculating credits to be less legitimate than

dominant high status group members ($p < .05$). Results also

suggested that majority/minority categorizations polarised

these patterns further.

Several items on the postsession questionnaire

assessed subjects' self-reported distribution strategies. As

can be seen in Table 8 correlations computed between self-reports and matrix pull scores show that variations in matrix strategies were, in general, significantly related to subjects' self-reports. These results add to the construct validity of matrix pull scores.

Table 8

## Self-reported and matrix strategies correlated (all df: 158)

| Self-report | Matrix strategy | r | p < |
|---|---|---|---|
| Parity | P on FAV | 0.13 | n.s. |
| Ingroup favouritism | FAV on P | 0.20 | 0.05 |
| | FAV on MJP | 0.33 | 0.01 |
| | MD on MJP | 0.30 | 0.01 |
| Maximum joint profit | MJP on FAV | -0.02 | n.s |

Inspection of mean self-reported strategies (Table 9) suggests that, generally most groups tended to self-report their actual matrix strategies accurately. Thus, subordinate low status minorities accurately reported showing the highest levels of outgroup favouritism, and subordinate low status majorities and subordinate high status minorities accurately reported the highest levels of parity and lower levels of ingroup favouritism. Dominant high status majorities also accurately reported lower levels of parity and higher levels of ingroup favouritism.

Table 9

## Means for self-reported strategies

| | STATUS: | No Power | | Total Power | |
|---|---|---|---|---|---|
| | | Low | High | Low | High |
| Strategy | | | | | |
| Parity | Minority | 4.1 | 5.0 | 3.8 | 3.8 |
| | Majority | 4.8 | 4.3 | 4.1 | 3.5 |
| Ingroup favouritism | Minority | 2.2 | 3.0 | 3.3 | 3.3 |
| | Majority | 2.8 | 3.5 | 3.0 | 4.3 |
| Maximum joint profit | Minority | 3.8 | 3.7 | 4.0 | 3.8 |
| | Majority | 3.8 | 3.1 | 2.9 | 3.4 |
| Outgroup favouritism | Minority | 4.6 | 2.4 | 3.0 | 3.1 |
| | Majority | 2.8 | 3.6 | 2.1 | 2.6 |

Furthermore, the main effects for status and power obtained on **matrix** measures of parity (P on FAV, see Tables 3 & 4) were fairly accurately reflected in analyses of self-reported strategies presented in Table 10.

Table 10

## Significant MANOVA effects for self-reported strategies

| Source | Contributing univariate Strategy | $F$ $(1, 152)$ | $p <$ |
|---|---|---|---|
| Status | Parity | 4.86 | 0.05 |
| Power | Parity | 7.98 | 0.01 |
| | Outgroup fav. | 6.27 | 0.05 |
| Group Numbers | Outgroup fav. | 4.42 | 0.05 |

Self-report items indicated in Table 10 contributed significantly to the main effects of status, power and group numbers obtained in the overall MANOVA on the postsession questionnaire. Univariate analyses revealed that high status ($M$ = 4.1), and dominant ($M$ = 3.8) group members accurately self-reported showing lower levels of parity than low status, and subordinate group members ($M$ = 4.2, $M$ = 4.5, respectively).

Other analyses indicated that subordinate ($M$ = 3.3), and minority ($M$ = 3.3) group members reported showing higher amounts of outgroup favouritism than dominant ($M$ = 2.7) and majority ($M$ = 2.7), group members, respectively. This result was probably due to the high levels of outgroup favouritism reported by subordinate low status minority group members.

Inspection of Tables 1 and 9 reveals one notable exception to the generally accurate self-reporting of actual matrix behaviour. Compared to actual behaviour on the matrices, dominant high status minority group members tended to overstate their use of parity and understate ingroup favouritism in their self-reports (Tables 1 & 9).

What were subjects' estimates of the strategies that other ingroup and outgroup members employed relative to them?

Since these could not be assessed directly from the MANOVA analyses, univariate repeated measures ANOVAS were conducted on subjects' estimates of strategies employed by themselves, other ingroup, and outgroup members. To avoid inflation of Type 1 error, a strict and *a priori* significance criterion of $p$ < .001 was used for each test. The analyses revealed three significant main effects and one significant interaction effect: (a) a main effect for estimates of parity, $F(2, 304)$ = 9.53, $p$ < .001; (b) a main effect for estimates of ingroup favouritism, $F(2, 304)$ = 42.17, $p$ < .001; (c) a main effect for estimates of maximum joint profit, $F(2, 304)$ = 8.24, $p$ < .001; (d) an interaction effect for status x power x group numbers x estimates of outgroup favouritism, $F(4, 304)$ = 8.47, $p$ < .001.

Pairwise comparisons indicated: (a) Subjects felt that they ($M$ = 4.2) showed more parity than other ingroup ($M$ = 3.9, $p$ < .01) and outgroup members ($M$ = 3.6, $p$ < .05). Subjects also felt that other ingroup members showed more parity than outgroup members ($p$ < .05). (b) Subjects felt that they ($M$ = 3.1) showed less ingroup favouritism than other ingroup ($M$ = 4.2) and outgroup members ($M$ = 4.3, $p$ < .01). (c) Subjects felt that they ($M$ = 3.5) showed less maximum joint profit than other ingroup ($M$ = 3.9) and outgroup members ($M$ = 4.1, $p$ < .01). (d) Subordinate low status minority group members reported

showing more outgroup favouritism than all other groups.

A number of items requiring subjects to estimate ingroup identification (of members of both groups) and "liking" for members of both groups were analysed by repeated measures ANOVAS (with an _a priori_ significance criterion of $p < .001$ for each). One significant interaction effect was obtained: status x group identification, $F(2, 304) = 47.71$, $p < .001$. This effect accounted for 84% of the variance in identification estimates.

Table 11

Subjects' estimates of owngroup identification by self and others

| Estimated Identification of | Status | |
|---|---|---|
| | Low | High |
| Self | 3.26$^{u,L}$ | 4.74$^x$ |
| Ingroup | 3.61$^u$ | 4.66$^x$ |
| Outgroup | 4.74$^x$ | 3.80$^{u,Y}$ |

$^x$ differs from $^u$ at $p < .01$.
$^Y$ differs from $^L$ at $p < .05$.

In accordance with hypothesis 2, Table 11 shows that the high status group members showed higher levels of group identification than low status group members. Indeed, low and high status members seemed to have similar expectations about the degree of group identification reported by other

low and high status group members. Both groups felt that high status group members would identify more than low status group members with their respective ingroups.

The analyses also revealed main effects for the following repeated measures factors: (a) subjects' estimated liking for others, $F(1, 152) = 24.89$, $p < .001$; (b) subjects' estimates of other ingroup members' liking for others, $F(2, 304) = 59.92$, $p < .001$; (c) subjects' estimates of outgroup members' liking for others, $F(2, 304) = 74.64$, $p < .001$. Duncan's pairwise comparisons indicated that ($p < .01$ for all comparisons): (a) subjects would like ingroup members ($M = 4.8$) more than outgroup members ($M = 4.3$). These results mask a marginal tendency (according to our a priori criterion of $p < .001$) by minority (as opposed to majority) group members not to differentiate between liking for ingroup and outgroup members, $F(1, 152) = 4.28$, $p = .008$; (b) subjects also felt that other ingroup members would like them ($M = 4.7$) and other ingroup members ($M = 4.7$) more than outgroup members ($M = 4.0$); (c) subjects estimated that outgroup members would like other outgroup members ($M = 5.2$) more than themselves ($M = 4.2$) and other members of the ingroup ($M = 4.1$).

All subjects generally agreed that highly creative people had higher status ($M = 5.4$) than those low in

creativity ($\underline{M}$ = 3.5), $\underline{F}$(1, 152) = 211.14, $\underline{p}$ < .001.

These results mask a marginal tendency (according to our a priori criterion of $\underline{p}$ < .001) for subordinate group members to perceive a smaller difference in status associated with creativity than dominant group members, $\underline{F}$(1, 152) = 7.66, $\underline{p}$ = .006.

A repeated-measures ANOVA (status x power x group numbers x ingroup/outgroup) on subjects' estimates of perceived ingroup and outgroup status revealed a significant interaction of ascribed status by perceived ingroup/outgroup status (see Table 12). Duncan's multiple comparison tests showed that all groups accurately perceived the status distributions imposed by the experimenter.

Table 12

Mean estimates of status and power for ingroup and outgroup

| Status: | Low | | High | | $\underline{F}$ for | |
|---|---|---|---|---|---|---|
| Group rated : | In | Out | In | Out | Status x I/O | |
| (2, 114) $\underline{p}$ < | | | | | | |
| Estimated status | 2.51[u] | 5.36[x] | 5.40[x] | 3.08[u],[c] | 234.65 | 0.001 |
| Estimated power | 2.96[u] | 4.53[x] | 4.33[x] | 3.31[u] | 33.14 | 0.001 |
| **Power:** | **No** | | **Total** | | | |
| Estimated power | 2.69[u] | 5.08[x] | 4.60[x] | 2.76[u] | 89.23 | 0.001 |

[x] differs from [u] at $\underline{p}$ < .01.
[c] differs from [u] at $\underline{p}$ < .05.

As can be seen in Table 12, similar analyses of subjects' estimates of ingroup and outgroup power revealed two significant interactions: power by estimates of power (explained approximately 68% variance) and status by estimates of power (explained 25% of variance). Whereas the former interaction revealed that all groups accurately perceived the power distributions imposed by the experimenter, the latter interaction provided an interesting twist. In particular, Table 12 indicates that both high and low status group members perceived high status groups to have more power than low status groups.

Finally, were subjects aware of the purposes of the experiment? Whereas responses from the majority of subjects (143) showed that subjects were not aware of the experimenter's hypotheses, a small minority of subjects (15) believed that the experiment was concerned with ingroup favouritism. Analyses indicated that this minority was not distributed across the design in any systematic manner. Furthermore, these subjects' responses were not predictive of their actual choices on the matrices. Only 2 subjects indicated any though vague awareness of experimental hypotheses. However, their responses were not predictive of their behaviour on the matrix choices.

Discussion

The overall results reveal a systematic though complex pattern. Matrix results are discussed before results of the postsession questionnaire.

As expected (hypotheses 1), high status group members displayed higher levels of ingroup favouritism (MD, FAV) and lower levels of parity (P) than low status group members on matrix measures. Since subjects used the matrices to rate creativity--the dimension on which the status difference was established, it is not surprising that high status group members showed more ingroup favouritism than low status group members (see study 3). Indeed, results of study 3 suggested that low status group members show outgroup favouritism on status related dimensions. The complexity of the present study prevented such a generalized expectation, though certain groups in the design were expected to, and did, show outgroup favouritism (e.g., subordinate low status minorities, hypothesis 5).

According to hypothesis 3, minority group membership was expected to polarise patterns of intergroup behaviour. Analyses of matrix choices revealed some support for this in patterns of behaviour exhibited by subordinate low status group members and dominant high status group members on parity (P on FAV) measures (accounting for 22% of the

variance). In the former there seemed to be a decrease in parity towards significant levels of outgroup favouritism. In the latter, the parity strategy was not even significantly employed. Moreover, a significant main effects for group numbers on parity measures indicated that minority group members were less influenced by parity than majority group members. Interestingly, when parity was not the opposing variable, majority group members tended to adopt maximum differentiation (MD on MIP + MJP) strategies to a greater extent than minority group members. Though these results support results obtained with minimal majorities and minorities (study 1), analyses suggested that the majority/minority main effect only accounted for approximately 4-10% of the variance in matrix choices.

In the present study, unilateral power was conceptualized as providing group members with the opportunity to ensure a positive social identity by establishing favourable comparisons on available dimensions of comparison. For dominant group members enjoying full control over the distribution of resources in the experiment, these favourable comparisons could most easily be established through ingroup favouritism responses on the matrices. The results support this analysis in that dominant group members were more discriminatory (MD, FAV) than subordinate group members. These findings generally replicated results

obtained in study 2 on the minimal effects of power (cf. Ng, 1982).

The one major exception to this overall pattern were results suggesting that subordinate group members employed MIP + MJP on MD to a greater extent than dominant group members. A similar set of results were reported in study 2, and it was suggested that the MIP + MJP combination was arguably the most rational and desirable strategy to follow, since it provided subjects (excluding self) with the best chance of receiving the maximum number of credits for participating in the experiment. As in study 2, dominant group members appeared to be more concerned about establishing differentials in favour of the the ingroup (MD) than subordinate group members even at the cost of sacrificing absolute ingroup profit.

As expected on the basis of hypothesis 4, unlike subordinate low status group members, dominant low status group members displayed significant degrees of discrimination (FAV, MD). The exercise of power in a discriminatory fashion presumably restored some sense of positivity to low status group members (cf. study 2). The results also suggested that levels of discrimination employed by dominant low status group members were lower than those employed by dominant high status group members. It may be argued that the impact of a status difference established by an authority figure (the

experimenter) moderated discrimination by low status group members particularly as matrix measures were considered to be status-related dimensions. Future studies employing dimensions not related to status would be informative in this respect.

Though dominant low status group members may have shown low levels of discrimination, the significant and independent effect of power on low status group members should not be underestimated. Results of the experiment described in study 3 showed that low status group members favoured the outgroup on status-related dimensions. In the present study, dominant low status group members showed significant degrees of ingroup favouritism. The relative change in social orientation from a 'baseline' of outgroup favouritism to ingroup favouritism by low status group members is considerable, and attests to the impact of power in such situations.

As expected in this study, subordinate low status minority groups were the least discriminatory groups in the design. In accordance with hypothesis 5, subordinate low status minorities displayed high levels of outgroup favouritism. Interestingly, subordinate low status majority group members seemed to be the most parity oriented group members in the design, showing neither ingroup nor outgroup favouritism.

Support for hypothesis 6 was equivocal. From an S.I.T. perspective, it was expected that group members with secure and positive social identities would show low levels of ingroup favouritism. In accordance, the behaviour of members of subordinate high status majorities was the most ambivalent in the design, and they showed low but significant levels of discrimination.

Contrary to expectation, dominant high status majority group members did not display noblesse oblige, but were quite discriminatory. A secure and positive social identity was not sufficient to reduce discrimination on matrix measures. Relative to the responses of subordinate high status majority group members, these results effectively suggest that usable power was employed to discriminate regardless of group members' existent positive and secure social identities. Thus, dominant high status group members seem to discriminate in a manner that is not reliably predictable from the tenets of social identity theory (Tajfel & Turner, 1979). Furthermore, whereas real-life 'abuses' of power may be attributable to opportunities for self-gain or a realistic conflict over scarce resources, the present study eliminated self-interest and resource conflict in subjects' choices. It is, therefore, interesting that even under these conditions, power seems to affect high status group members by tending to make them discriminatory in a manner not

readily predictable from the 'objective' aspects of the situation.

In support of hypothesis 7, the relative insecurity in numbers implied by membership in a minority group was countered by discrimination when high status minority group members were dominant, but not when they were subordinate. Furthermore, hypothesis 8 was also supported in that dominant high status minorities were the most discriminatory group in the design. They displayed high levels of discrimination and were exceptional in that parity (P) did not influence their matrix ratings significantly. Interestingly, a number of social scientists have provided real-life instances of the discriminatory behaviour by members of dominant high status minority groups towards subordinate outgroup members (e.g., Sorokin and Lundin, 1959; Clark, 1971). The actions of the ruling white regime in South Africa perhaps provide the most recent example of this phenomena.

Overall, the largest proportions of variance in matrix choices were accounted by the main effects due to power and status. Group power explained between 49-61% of variance in ingroup favouritism scores (MD, FAV, MIP + MJP) and approximately 12% of variance in parity (P) scores. Group status seemed to account for lower amounts (17-27%) of the variance in matrix measures (no significant variance explained by status on MIP + MJP, and MJP scores).

On postsession questionnaire measures such as
reported degrees of group identification and feelings
associated with group membership, group status accounted for
substantially more variance than group power or group
numbers. For instance, on group identification measures,
status alone accounted for approximately 84% of the variance
in self and other identity estimates. Neither group power
nor group numbers were significantly related to self-reported
degree of group identification.

In accordance with hypothesis 2, low status group
members were consensually expected to, and actually did
report lower levels of group identification than high status
group members. Low status group members felt less
comfortable, satisfied, and happy about their group
membership than high status group members. Furthermore as
expected, the experimental procedures for establishing status
(by creativity test) and power (by coin-toss) differentials
were perceived to be less legitimate and acceptable by
members of low than high status groups. These differential
perceptions concur with those obtained in study 3, and
reflect the strong impact of group status on social identity
and self-evaluation (see ch. 5).

Though the above results provide a considerable
amount of support for predictions derived from S.I.T.,
results of how much group members value creativity may be

theoretically discrepant. Contrary to the results obtained in study 3, high status group members tended to devalue creativity relative to low status groups (though mean evaluations of creativity were high overall). Similar results were also obtained in van Knippenberg's (1978) complex field study where high status group members allocated less value to status than low status group members. Van Knippenberg (1978) suggested that this may be interpreted as a strategic ploy by high status group members to "foster the preservation of existing status relationships" (p. 197) that are perceived to be unstable (see also Bourhis & Hill, 1982). In contrast to high status group members, low status group members appeared to enhance the value of "status" when they perceived the intergroup status relationship to be unstable. In the present study, some instability may have been perceived as members of all groups ostensibly had an equal chance of having unilateral power until a coin was actually tossed. This may account for some of the discrepancy between results obtained in study 3 and the present study.

In contrast to group status, group numbers and group power variables accounted for much smaller amounts of variance (approx. 1-5%) in levels of reported group identification and positivity associated with group membership. Nevertheless, majority group members reported feeling significantly more comfortable, satisfied, and happy

about their group memberships than minority group members.
Interestingly, majority group members also tended to perceive
the power differential and procedure for calculating final
experimental credit totals to be more legitimate than
minority group members (explained approx. 15-17% of
variance). These results provide empirical support for the
notion that minority group membership leads to a less secure
identity than majority group membership (Moscovici &
Paicheler, 1978; Gerard & Hoyt, 1974 and, ch. 3). The
under-evaluation of creativity by majority group members may
be related to this notion of security in numbers. Majority
categorization per se may have provided the security that
enabled majority group members to alleviate concerns about
the value associated with creativity.

   As in study 2 variations in group power appeared not
to differentially affect levels of reported group
identification. Other results suggested that dominant group
members felt significantly more satisfied with their group
memberships than subordinate group members. However, this
effect only accounted for a small amount of variance (1%).
Thus unlike group status and group numbers, group power was
not related to degrees of identification, or to feelings
associated with group membership. Presumably arbitrarily
superimposed power differences had fewer a priori
social-evaluative connotations than status and group numbers

differences, which were loaded in their social-evaluative import. In other words, group status and group numbers had a greater impact on group members' self-esteem than group power.

Interestingly, Kipnis (1972) obtained results suggesting that differences in effective managerial power over workers were also not associated with differences in managers' self-esteem. Thus, group power differentials do not appear to have readily translatable effects on self-esteem in a manner similar to group status. Indeed, whereas high group status is positively evaluated, Ng (1980) reported results suggesting that university undergraduates in New Zealand negatively evaluated high power. In contrast, undergraduates who enjoyed power as a result of the experimental manipulations in the present study, perceived the power differential and procedures for allocating course credits to be more legitimate than subordinate group members. As Russell (1938) argued, once group members have had a taste of power they may be extremely wary of giving it up.

Three sets of perceptions reported in the postsession questionnaire seem to suggest that high status confers power. First, though subjects generally perceived power differences accurately (explained 68% of the variance), high and low status group members felt that high status groups had more power than low status groups (explained 25% of variance).

Similar perceptions were also reported by subjects in the experiment described in study 3. Second, subordinate high status group members perceived the power differential to be less legitimate relative to other subjects including subordinate low status group members (explained 22% of variance). Third, subordinate high status group members perceived the procedure for calculating their final credit totals as being less fair than other subjects including subordinate low status group members (explained 10% of variance). This pattern was further accentuated by minority group membership (accounting for a further 15% of the variance). Since matrix allocations were status-related dimensions, the power implied by high status may be referred to as legitimate or expert power (cf. French & Raven, 1959). These results suggest that future research should explore the effects of different types of power in intergroup relations.

In general, results of subjects' self-reported matrix strategies appeared to match their actual matrix allocations. However, there appeared to be at least one notable exception. Members of dominant high status minority groups under-reported their discriminatory strategies while overstating their parity orientations. As in previous studies (e.g., Billig, 1973; studies 1-3), these results probably reflect the influence of social desirability compounded by the insecurity of being in a minority. In

contrast, dominant high status group members who were in a majority could afford to be less concerned about social desirability and thus accurately self-reported high degrees of ingroup favouritism and lower levels of parity. However, the influence of social desirability was evident across all groups. As in previous studies (1-3) members of all groups reported that they were less discriminatory and more parity oriented than other ingroup and outgroup members. In addition, group members also felt that other ingroup and outgroup members would show more maximim joint profit (MJP) than themselves. Since subjects were asked to compare the relative creativity of other subjects' products, pursuance of MJP may have been considered as undesirable or inappropriate (cf. study 2).

Finally, estimates of outgroup favouritism suggest that dominant high status majority group members and subordinate high status minority group members expected their outgroups (i.e. subordinate low status minority and dominant low status majority, respectively) to show more outgroup favouritism than other members of their own group including themselves. Similar expectations were reported by high status subjects in study 3. The present results indicate that whereas subordinate low status minority group members complied (and accurately self-reported this), they did not expect other ingroup (or outgroup) members to do the same.

In contrast, dominant low status majorities neither showed nor expected other ingroup members to show outgroup favouritism.

Evidently, sociostructural position on dimensions of status, power and group numbers systematically affected matrix allocations and responses to a variety of postsession questionnaire items. However, estimates of intergroup liking appeared not to be highly related to sociostructural position. Overall, analyses revealed that most subjects tended to like ingroup members more than outgroup members. Furthermore, subjects also felt that other subjects would like their respective ingroup members (including self) more than outgroup members. As in previous experiments, these results seem to illustrate the classic minimal group prejudice effect. However, closer inspection of the results revealed that subordinate low status minority group produced the lowest amount of differentiation between ingroup ($\underline{M}$ = 4.8) and outgroup ($\underline{M}$ = 4.9) liking and may even have tended towards outgroup favouritism. The results of matrix measures for this group indicated similar though significant patterns of outgroup favouritism. Thus, subordinate low status minority group members appeared to have accepted the negative group definition imposed by the experimenter.

To conclude, the present study obtained evidence that status, power and group numbers, independently and in

combination, have a strong impact on intergroup behaviour and perceptions. Overall, group numbers variables accounted for small proportions of the variance in the data relative to status and power variables. Whereas group power accounted for the greatest amount of variance in matrix measures, group status was highly related to intergroup perceptions, identifications, and feelings associated with group membership. In accordance with the experiment reported in study 2, it may be suggested that power appears to be more predictive of actual behaviour than status or group numbers variables.

## Summary

This study explored the interactive effects of sociostructural variables on intergroup behaviour. Using a variant of the minimal group paradigm, the behaviour of subjects categorized into groups that varied on status (high or low), group numbers (majority or minority) and power (dominant or subordinate) dimensions, was assessed. Subjects were asked to rate products and distribute credit points to others on the basis of their ratings.

Results showed that increases in group power and group status led to increased differentiation in favour of the ingroup. Minority group membership tended to polarise

intergroup behaviour. Minority group members who were dominant and of high status were the most discriminatory, while subordinate low status minorities were the least discriminatory and were exceptional in showing outgroup favouritism.

Results also revealed that group members systematically biased their perceptions concerning the legitimacy of the intergroup situation and reported differential levels of group identification to maintain positive social identities or avert low self-esteem. Relative to group numbers and group status, group power was more predictive of actual behaviour on the matrices. However, group status accounted for greater variance in intergroup perceptions and identifications. Overall, the present study indicated that group numbers, power and status, independently and in combination, have a strong impact on intergroup perceptions and behaviour.

Chapter 7


CONCLUDING NOTES


This final chapter comprises four sections.  Some

general methodological issues stemming from studies 1-4 are

the first topic under consideration.  Second, a brief

overview of the main findings of the experiments reported in

the previous chapters is presented.  Third, various

conceptual questions within the frameworks employed in the

present research are discussed.  The final section considers

the broader implications of these studies for the social

psychology of intergroup relations.


## Methodological issues

Independent variables:  Operationalizations of

sociostructural disparity between groups employed in studies

1-4 were quite successful in systematically affecting

intergroup behaviour and perceptions.  Though

operationalizations of group numbers and group power were

perhaps more 'minimal' than those of group status, it should

be noted that they are consistent with definitions presented

in ch. 1.  Furthermore, as noted in ch. 2, more 'minimal'

manipulations of group status (e.g., Tajfel et al., 1971;

Commins & Lockwood, 1979) have yielded contradictory results. It was argued that at the very least, studies 1-3 have identified the independent and baseline effects of group numbers, power, and status variables on intergroup behaviour. Study 4 (ch. 6) was an exploratory extension of the baseline studies in that it assessed the interactive impact of sociostructural disparity between groups on intergroup behaviour.

Previous studies (e.g., Billig & Tajfel, 1973; Turner et al., 1983) found that arbitrarily labelling an anonymous collection of individuals as "group" members was sufficient to elicit intergroup discrimination. In contrast, results reported in studies 1-3 suggested that simple labelling procedures designed to increase the salience of categorization along sociostructural dimensions were generally not successful. Future research employing stronger manipulations of category salience should clarify the issue.

Dependent measures: Results across all studies indicated that the overall strengths of matrix strategies declined roughly in the order of parity (P on FAV), ingroup favouritism (MD on MIP+MJP, FAV on MJP and P) and joint gain (MIP+MJP on MD, MJP on FAV). Two points are noteworthy about these overall findings. First, it should be pointed out that the fundamental empirical question in these studies was not

concerned with the relative magnitudes of P, FAV etc., but

> "whether subjects' responses vary around the point
> of exact fairness or deviate in a consistent
> direction towards either the ingroup or outgroup
> favouritism pole of the behavioural continuum" (p.
> 137, Turner, 1980).

Secondly, results revealed systematic variations on matrix pull scores due to variations in the independent variables. As in the large number of studies reviewed in ch. 2, pull scores obtained from Tajfel's multi-choice matrices in all the present studies appeared to be reliable, sensitive and representative barometers of subjects' social orientations.

Unlike most previous minimal group studies, Tajfel's matrix scores were supplemented with subjects self-reported strategies. Intercorrelations between matrix pull scores and self-reported strategies indicated that pull scores had good construct validity. However, specific comparisons of self-reported strategies with actual matrix pull scores revealed some discrepancies. Generally, these indicated a tendency to underreport the use of socially undesirable strategies such as ingroup favouritism and overstating the use of socially desirable strategies such as parity and maximum joint gain. The operation of a social desirability bias in self-reported behaviour was indicated more generally across all studies in that subjects expected other ingroup and outgroup members to display higher levels of ingroup favouritism than themselves.

Interestingly, though matrix measures were sensitive to manipulations of sociostructural variables in all studies, intergroup liking measures were not. Indeed, responses on liking measures appeared to be unrelated to matrix measures. Several recent studies including an extensive field study conducted by Brewer and Campbell (1976, also see Turner et al., 1979, and Brown, 1984) also found that effects on behavioural measures (e.g., Tajfel's matrices) were not related to those on affective measures (e.g., Likert scales on liking, friendliness). Previous researchers have had difficulty in explaining these discrepancies. In study 2, it was suggested that ingroup favouritism on the matrix allocations represented discrimination, and ingroup favouritism on the liking measures reflected prejudice. Future research should employ similar methodological tools to address the more general and complex issues related to discrepancies between attitudes and behaviour.

Finally, the use of an extensive, though cumbersome, postsession questionnaire yielded useful insights concerning the perceptions that group members had about the intergroup situation. Substantive implications of subjects' responses on various aspects of the postsesion questionnaire were discussed in detail in previous chapters and are addressed briefly below in the context of other findings.

Overview of major findings

Results of studies 1-3 replicated the traditional
minimal group findings in that groups equal in power, status,
and group numbers (studies 1-3) discriminated significantly
on matrix measures. Generally, subjects in these conditions
identified moderately with their groups, perceived no
difference in power between ingroup and outgroup members and
also felt that outgroup members would be more discriminatory
than ingroup members. The main findings about groups that
differed on group numbers, power and status dimensions are
discussed below.

Group Numbers: Majority/minority categorizations were
'minimal' in study 1, but were superimposed on status and
power categorizations in study 4. Results of both studies
suggested that, in general, majority group members were more
parity oriented than minority group members. Minority group
membership tended to polarise intergroup behaviour. For
instance, minority group membership appeared to most polarise
behaviour in dominant high status and subordinate low status
conditions of study 4. Group members in the former condition
were the most discriminatory and did not employ parity
significantly. Subordinate low status minority group members
were clearly the least discriminatory group members since

they were exceptional in displaying outgroup favouritism.

<u>Group Status</u>:  Status differentials predictably led to increased differentiation on status-related dimensions by high status group members relative to low status group members (studies 3 & 4).  Indeed, low status group members showed outgroup favouritism on status-related dimensions (study 3).  Results from the postsession questionnaire (studies 3 & 4) suggested that low status group members expressed greater concerns about the legitimacy of the intergroup situation than high status group members.

Results of studies 3 and 4 indicated that status was related directly to the levels of identification reported by group members.  Low status group members reported low levels of group identification, and high status group members reported comparatively higher degrees of identification with their respective ingroups.  Indeed, relative to group numbers and group power, group status accounted for the highest proportions of variance on group identification measures and on a variety of postsession questionnaire items that assessed subjects' perceptions of, and responses to the experimental situation (see study 4).

<u>Group Power</u>:  Results of studies 2 and 4 unambiguously showed that dominant group members were more discriminatory

than subordinate group members on matrix measures. The discriminatory exercise of power appeared to have reached its peak in two cases. First, group members who had high (70%), but not absolute, power over subordinate group members displayed the highest levels of discrimination in study 2. Second, dominant high status group members who were in a minority were the most discriminatory in study 4. Unilateral power also enabled low status majority and minority group members to discriminate, without fear of reprisal, on dimensions related to the status difference (study 4).

Reductions of ingroup power vis-a-vis the outgroup produced corresponding decreases in levels of ingroup favouritism. In contrast to dominant group members, subordinate group members were parity oriented. Interestingly, they also reliably employed that strategy combination which maximized absolute ingroup and outgroup gain simultaneously (studies 2 & 4).

## Conceptual Issues

Conceptual issues stemming from the present research are considered in terms of two general, though interrelated themes. Firstly, implications for minimal group discrimination are addressed. Secondly, issues of social identification and sociostructural disparity along group

numbers, power, and status dimensions are discussed.


The Minimal Group Disrimination effect revisited:

Traditional minimal groups that so consistently displayed
intergroup discrimination were implicitly equal in group
numbers, power, and status (see ch. 2).  Results of studies
1-3 confirmed these findings in conditions of equal group
power, status, and numbers.  Some researchers (e.g., Ng,
1981; see ch. 2) have suggested that subjects' expectations
that outgroup members would be discriminatory were
responsible for the minimal group discrimination effect.
Results from the present series of studies suggested that
these expectations were present also under conditions in
which minimal groups were unequal in group power and group
numbers.  However, these expectations are not predictive of
the differential effects that were actually obtained on
Tajfel's matrices.

It was suggested in ch. 2 that the most promising
explanation for the minimal group discrimination effect was
in terms of Social Identity Theory (Tajfel & Turner, 1979).
According to S.I.T., group members in the traditionally
unstratified minimal group settings (e.g., Tajfel et al.,
1971) discriminated to achieve positive social identities.
Moreover, results showed that members of arbitrary majority
and minority groups did not appear to differ from members of

equal-numbers groups in a clear and systematic fashion (study 1). Arbitrary categorization thus appeared to be sufficient in eliciting intergroup discrimination.

Matrix allocations of arbitrarily categorized subjects who differed in degrees of randomly established group power (study 2) suggested that such a conclusion is premature. Relative to equal power group members, dominant group members maintained high levels of discrimination while subordinate group members displayed little intergroup discrimination on Tajfel's matrix allocations. The minimal group discrimination effect was thus extinguished under conditions of low ingroup power. Thus, neither categorizarion _per se_ nor motivations for a posive social identity were sufficient in eliciting intergroup discrimination in low power conditions.

As argued in ch. 4, group power may contribute to social identity in an _a posteriori_ fashion by differentially enabling members of different groups to actualise their motivations for positive social identities. It was suggested that the implicit and bilaterally equal power that minimal groups enjoyed in the classic studies gave ingroup members the capability to discriminate and achieve positive distinctiveness since they expected the experimenter to enforce their decisions. Without power, group members did not discriminate (study 4).

Finally, in contrast to Tajfel's matrix measures, intergroup liking measures in the present studies revealed the usual minimal categorization effects (e.g., Tajfel et al., 1971; see ch. 2) which were largely independent of group members relative sociostructural positions. The use of matrix _and_ affective measures was useful in redefining the effects of categorisation _per se_ on intergroup relations. Social categorization _per se_ may be a sufficient condition for prejudicial attitudes, but usable ingroup power is a necessary condition for discriminatory behaviour (see ch. 4). Thus the minimal group 'discrimination' effect may be more accurately referred to as the minimal group _prejudice_ effect.

_Social identification and Sociostructural disparity_: It was argued (ch. 1) that the experimental social psychology of intergroup behaviour had largely focussed on sociopsychological factors at the cost of neglecting the impact of the sociostructural contexts within which intergroup behaviour occurs. This was further compounded by the tendency to treat demographic, status, and power dimensions of social stratification as interchangeable factors having similar effects on intergroup behaviour. However, to assume dimensional identity may be problematic, particularly as real-life instances of orthogonality between

group numbers, status and power can always be cited (see ch.
1). In this section the discussion focusses on how
sociostructural differentials may be conceptually related to
existing social psychological accounts of intergroup
behaviour.

Tajfel and Turner (1979) referred to Social Identity
Theory as an "integrative" theory of intergroup relations.
Results obtained in studies 1-4 attest to the validity of
their claim. S.I.T. is integrative in that it postulates
that intergroup behaviour is the outcome of the convergence
of the processes of social categorization, social
comparison and social identification (see ch. 2). It also
provides the most systematic account of the sociostructrural
context in its treatment of the impact of status
differentials on the conduct of intergroup relations (see ch.
5).

S.I.T. postulates that a desire for a positive social
identity motivates group members to differentiate the ingroup
from the outgroup on some positively valued dimension.
Tajfel and Turner (1979) assert that the content of social
identity and the choice of dimensions for comparison are
socially determined. As such S.I.T. is in danger of becoming
tautological as any dimension potentially involves a
different comparative value, especially with subjects
defining the value dimensions that are selected for

intergroup evaluations. Thus, the predictive utility of S.I.T. is considerably reduced.

Tajfel (1978) and Turner (1984) include group numbers and power under the rubric of social status, and variations on these dimensions are conceptualized as conferring similar positive or negative social-evaluations. In this manner group numbers, status, and power dimensions of stratification are reduced to unitary variables differing quantitatively on a single dimension. S.I.T. (Tajfel & Turner, 1979) thus focusses on the _degree_ rather than the _type_ of stratification. However, results of studies 1-4 (chs. 3-6) show that group numbers, power and status differentials have qualitatively different and complex effects on intergroup behaviour. For instance, as results in study 4 showed, members of a social group which has a low ascribed status, but is dominant, behave differently from members of a group which has high ascribed status but is in a subordinate position. Generally, results of studies 1-4 confirmed that group numbers, power, and status are neither equivalent nor do they have similar effects on intergroup behaviour.

In accordance with Tajfel and Turner (1979), group status was considered as directly contributing to the positivity of one's sense of social identity (see ch. 5). Minimal majority and minority categorizations (see ch. 3) were discussed in terms of the _a priori_ contributions they

make to the salience and security of group members' social identities. In contrast, group power was conceptualized as affecting the _actual_ acquisition of a positive social identity by 'allowing' group members to discriminate without fear of reprisal (ch. 4). In this manner, conceptual links were forged between sociostructural differentials and social identification.

Results of the studies 1-4 provided empirical support for a number of hypotheses derived from these links between hypothesized motivations for a positive social identity and sociostructural differentials between groups. For instance, high status group membership was positively related to degree of _a priori_ group identification (studies 3 & 4) but group power was not (studies 2 & 4). Though identity connotations for majority and minority group membership were not as clear cut as those of status, there was some indication that minority group members reported greater insecurity with their group membership than majority group members (study 4).

Group status and group numbers factors are best considered as being causally related to variations in observed intergroup discrimination. Group status and group numbers are _causal_ in the sense that they make direct contributions to the _a priori_ positivity and security of group members' social identities that motivate subsequent intergroup behaviour. In contrast, group power is perhaps

best conceptualised as affecting the range of <u>behavioural</u> options available to group members <u>regardless</u> of their degree of identification with the ingroup. Enforcers of law and order (e.g., the police) perhaps provide a realistic example that captures the flavour of these distinctions.

The relationship between group numbers, power, status, and social identity received empirical support in studies 1-4. However, one set of findings appeared to be an interesting exception. These indicated that members of subordinate groups (studies 2 & 4) employed the combinatorial matrix strategy of maximizing ingroup and joint gain (MIP + MJP on MD) to a significantly greater extent than members of dominant groups. This was perhaps the most desirable and 'rational' strategy under the circumstances as it jointly maximized ingroup and outgroup gain. The use of such a <u>cooperative</u> strategy by subordinate group members (chs. 3 & 6) presumably revealed a desire to achieve a common social identification with all other subjects which was different from that ascribed, arbitrarily, by the experimenter. Interestingly, Tajfel et al. (1971), in their seminal experiments, reported that the maximum joint gain strategy was only employed when allocations were made to two ingroup members. The use of maximum joint gain in allocations to members of different groups may thus indicate shared social identifications with categories that transcend existing ones

i.e., _superordinate_ categories.  This is an interesting

issue for future research to pursue.

Although results of experiments reported in this

thesis provided a fair amount of support for S.I.T., there

were also indications that a relatively assured positive

social identity was not enough to reduce patterns of

discrimination.  Perhaps the clearest example of this were

members of high status majority groups who were assumed to

have the most secure and positive social identities in the

final experiment (study 4).  Results of study 4 showed that

unlike _subordinate_ high status majority group members,

_dominant_ high status majority group members displayed high

levels of discrimination.  Thus, the levels of discrimination

displayed by dominant high status majority group members were

not related to self-interest, objective conflicts over scarce

resources or motivations for a positive social identity.

These are intriguing findings that merit future empirical and

conceptual consideration.


Broader implications for the social psychology of intergroup
                            relations

The experimental approach of studies 1-4 was

deliberately 'static'.  Simple linear designs were employed

and the effects of independent variables were measured at a

single moment in time.  A static approach was

methodologically convenient and allowed direct comparison

with results from the well established minimal group paradigm

(see ch. 2). As the results of the present research

indicate, such an approach may be the most fruitful first

step to investigating the impact of sociostructural factors

on intergroup relations.

Since the interactive and dynamic aspects that

characterize intergroup relationships outside the laboratory

were not investigated, perhaps the most contentious issue

concerns the external validity (Campbell, 1957) of the

present research. The basic question may be stated thus:

Can results of the present studies be generalized to

realistic intergroup settings? In discussions of the

generality of experimental findings it is important to

remember that the artificiality of laboratory findings stems

from their avowed aim of conceptual purity. Laboratory

experiments are designed to embody theoretically simpler

conditions than those present in realistic intergroup

situations. Experimental social psychologists generalise

from such 'artificial' and conceptually pure data to the real

world indirectly on the basis of theory, not in terms of

direct empirical generality.

The above reasoning may be illustrated by a

consideration of research on intergroup behaviour. It is

generally accepted by both layman and social scientist, that

an important factor in intergroup discrimination is conflict over tangible, but scarce resources. However, the variable of social categorization _per se_ is always confounded with intergroup discrimination in real-life. Traditional minimal group research stemming from Tajfel et al. (1971) attempted a conceptual purification of social categorization and assessed its minimal effects on intergroup behaviour unconfounded by a host of other variables such as self-interest, group interaction etc. Much to the researchers' surprise, they discovered that social categorization _per se_ was necessary and sufficient in eliciting intergroup discrimination. As the review in ch. 2 concluded, results of multi-paradigmatic research reinforced the notion that social categorization was _the_ significant conceptual variable in minimal group discrimination.

Theoretically, the most tenable explanation was in terms of assumed motivations for a positive social identity (Tajfel & Turner, 1979). It is this theoretical structure that has been directed at assessing the external validity of research from the minimal group tradition. It should be remembered that the practical purpose of attempting to conduct externally valid research is to be able to predict what is likely to happen in real-life settings on the basis of results obtained in the experimental setting. The crucial consideration in applicability and generalization is the

anticipation of future events and not mere empirical

repetition. For the present purposes, hypotheses derived

from S.I.T have been applied and tested in a wide variety of

real-life contexts, including crowd or 'mob' behaviour

(Reicher, 1984), sex stereotypes (Huici, 1984; also see

Williams & Giles, 1978), linguistic conflict between

contrasting groups (e.g., Bourhis et al., 1979), intergroup

behaviour and attitudes in industrial (Brown, 1978),

educational (van Knippenberg, 1978) and professional (Bourhis

& Hill, 1982) settings. These studies have shown the

usefulness and limitations of a social identity perspective

on intergroup relations.

Considerations of external validity are not limited

to predictions of real-world events but also include

predictions about other laboratory situations. For instance,

in study 2 (ch. 4), it was argued that minimal categorization

was always confounded with usable ingroup power in previous

minimal group experiments. Predictably, by systematically

varying degrees of ingroup and outgroup power it was possible

to determine some of the boundary conditions of the minimal

group discrimination effect. The results of these studies

were interpreted within a social identity framework.

In the present research perhaps the clearest example

of generalization through theory extension was provided by

study 3 which investigated the independent effects of status

differentials on intergroup behaviour. Results of minimal
categorization, replicated in equal status conditions, were
generalized to relations between groups of differential
status by postulating that status differences made definite
and unambiguous contributions to group members' social
identities. Essentially, the 'artificial' effect of minimal
group discrimination was sought for its clear theoretical
meaning and it was this theoretical meaning that defined the
settings to which it was generalized.

Though the experimental research described in this
dissertation was artificial and static, the theoretical
framework within which it was investigated -- S.I.T. -- is
dynamic, and incorporates some of the changing aspects of
intergroup relations. S.I.T. postulates that social change
will occur when a positively valued identity cannot be
attained by group members. An unfavourable comparison on a
valued dimension will create pressures to change the values
of that dimension, or the actual dimension of comparison.
This account of social change appears to be limited to social
evaluative dimensions.

Social change in real-life occurs not only on social
evaluative dimensions, but also occurs along other
'objective', sociostructural dimensions such as group power
and group numbers (e.g., "the revenge of the cradle", ch. 3).
Indeed, the panacea for many oppressed groups often is social

change along power and group numbers dimensions. Social

change along status dimensions alone is not enough. Two

aspects of social change phenomena are worth pointing out in

the present context. Firstly, S.I.T suggests that the

genesis of social change along status dimensions may reside

in the beliefs that group members hold about the legitimacy

and stability of the intergroup status heirarchy. Empirical

support for these notions is at present equivocal and

requires future validation (see Turner & Brown, 1978;

Caddick, 1982; Bourhis & Sachdev, 1985; Bourhis, Sachdev &

Begin, 1985). Furthermore, the degree to which beliefs about

the legitimacy and stability of power and group numbers

differences contribute to intergroup behaviour and

perceptions also needs to be investigated.

Secondly, similar to the acquisition of a positive

social identity, social change does not occur in a vacuum.

It requires the acceptance by the outgroup(s) of the new

social order. Notions of social validation and social

recognition have received very little attention in the social

psychological literature (cf. Moscovici, 1976; Mugny, 1984).

Indeed, it may be argued that intergroup sociostructural

disparity may be the most crucial factor in understanding

issues related to social validation and social recognition.

For instance, relative to minority group members, membership

in a majority group may augur well for the social validation

of group members' perceptions, especially in democratic societies. In contrast, membership in a dominant group may allow group members to be less concerned about social validation than subordinate group members. A focus on sociostructural disparity may thus illuminate processes of social validation and legitimisation of existing intergroup relations situations.

At the beginning of the present research, it was proposed that the first step to completing the sociostructural lacuna of intergroup relations was to conduct studies designed to assess the independent and combined effects of group numbers, power and status on intergroup behaviour. Research reported in this dissertation has begun this task. Apart from conceptual and empirical replication, the next step may be to assess the interaction between sociopsychological variables such as the beliefs that group members hold about the legitimacy or stability of the intergroup situation and sociostructural disparity. The role of attributions concerning the locus of variations in legitimacy and stability of the intergroup situation also needs to be incorporated within existing analysis (cf. Hewstone & Jaspars, 1982).

Like the majority of experimental studies of intergroup behaviour, the present studies focussed on two-group situations in the laboratory. In the wider social

systems of the real world, two-group situations are rare.

Individuals are usually immersed in multigroup situations and

also simultaneously identify with a large number of social

categories (cf. study 1, ch. 3). Experimental research .

remains to be conducted on multigroup situations and multiple

group membership (see Wong-Reiger & Taylor, 1981; Giles & 

Johnson, 1981).

Interestingly, it may be argued that the present

series of studies were, in fact, three-group situations with

the experimenter representing the third social group. The

experimenter may not represent a neutral social category,

i.e., one with no psychological relation to the behaviour of

subjects (cf. Billig, 1976). Within the experimental

situation, the experimenter provides subjects with their

social meaning and their social realities. For instance,

subjects in the present studies may have accepted the

experimenters' conceptions and treated the intergroup

situation as a two-group situation. However, there were also

indications that group members such as those in subordinate

groups (ch. 4 & 6), may have attempted to identify with the

superordinate category of subjects vis-a-vis the

experimenter. Clearly, future studies explicitly

investigating the role of the experimenter as a third party

need to be conducted.

Throughout the present research it has been

implicitly assumed that the relationship between the individual and the wider social context is essentially a two-way process. In other words, the individual produces his/her own social reality and likewise, the social context moulds the individual's conception of social reality. The behaviour of members of different social groups was seen as a joint function of certain social psychological processes and of the structure of the "objective" relations between the groups.

Though group numbers, power and status variables were treated as orthogonal to each other, there was some evidence that subjects perceived them to be positively correlated. As Bourhis, Giles and Rosenthal (1981) have suggested, such perceptions may not accurately match the groups' actual sociostructural positions and could be crucial in determining patterns of intergroup behaviour. Analyses of the sociostructural determinants of intergroup behaviour should be conducted at 'objective' and 'subjective' levels. Objective assessments of sociostructural variables using demographic, economic, sociological and historical documents should be complemented with the perceptions that group members hold about the relative sociostructural positions (e.g., Bourhis & Sachdev, 1984).

A social psychological approach, by its very nature, may only play a small part in analyses of intergroup

relations relative to other approaches such as those that focus on economic, sociological, historical, and political dimensions.  However, it should be noted that the bewildering complexity of intergroup relations makes assessment of the relative import of these perspectives a somewhat fruitless enterprise.  Like the blind men describing an elephant to Buddha, these various perspectives provide <u>different</u>, not better or worse, ways of looking at a common cluster of problems.

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Appendix 1

SCORING PROCEDURES FOR TAJFEL'S MATRICES*

Introduction

There are four main variables which can be combined in a number of ways to investigate various strategies in the allocation of points and rewards. These are: Maximum Ingroup profit (MIP); Maximum Difference (MD); Maximum Joint Profit (MJP) and Parity (P). (See ch. 2 for definitions and examples of matrices).

For each matrix type, there are basically two forms of the matrix. Form 1 is where the maximal values of all three strategies coincide at one end of the matrix, and form 2 is where maximal values of two strategies are at one end, and those of the third strategy are at the opposite end of the matrix. These two forms are referred to as "strategies together" and "strategies opposed". In practice the simplest way to achieve these two forms is simply to invert the two "targets" for the point allocations i.e., allocations to ingroup members are on the top row in one presentation of the

* These instructions are adapted from Brown, R., & Bourhis, R. Y. (1978). Instructions for scoring intergroup matrices as developed by Tajfel, Flament, Billig & Bundy (1971) and Turner & Brown (1978). University of Bristol Mimeo.

matrix, and in the bottom row for the other presentation of the same matrix.

Example: For a member of group X allocating points to two targets: Group X and Group W on the following matrix type:

This form is where strategy maxima are opposed (or conflictual).

```
Group X     19   18    17..........9   8   7

Group W      1    3     5.........21  23  25
          MIP+MD                      MJP
```

This form is where strategy maxima are together (or coincident)

```
Group W     19   18    17..........9   8   7

Group X      1    3     5.........21  23  25
                              MIP+MD and MJP
```

Procedure for scoring the pull of A+B on C:

1. Identify type of matrix (see ch. 2).

2. Do the two sets of strategies COINCIDE or are they OPPOSED?

3. Locate the maximum value of the "stationary" variable (or pair of variables) i.e., the one you are measuring the pull on. In this case it is C.

4. Count the number of ranks (columns) from this end, to the point the subject has chosen, starting at zero.

5. Repeat for the other form of the matrix.

6. For each separate pull that you are interested in, calculate the mean number of ranks from the stationary variable:

    a. when the strategies are COINCIDENT (or together)

    b. when the strategies are OPPOSED.

       The differences between the two means (b-a) is the mean pull of the variables A+B on the stationary variable, C.

7. The mean pull of C on A+B is calculated in a similar manner, though it is simpler to use the formula: (12 - b) - a.

Appendix 2 continued

Instructions for study 2 on power differences


The main purpose of this study is to investigate the psychology of important-decision making. In our everyday lives we are constantly making all kinds of decisions - decisions about jobs, decisions about what universities we go to, the kind of courses we take, who to socialize with, how to spend our money etc. So decision making is an integral part of our lives.

Today we are going to be looking at one specific aspect of decision making - how people divide up and distribute resources. Everyday we are faced with such decisions, like how we divide up and distribute our time and effort between work and leisure, between studying and not. So you have to make a lot of decisions about distributing resources such as money, time, effort etc.

I am going to ask you to make decisions about the distribution of 1A6 experimental credits. It's possible for you to earn 2 credits instead of one for your participation in this experiment. I'll come back to this later.

Firstly, in order to make things more convenient, we will give you a target for your decisions. We are going to call you up, one by one, and have you toss a coin. This coin

toss will determine whether you will be assigned to either
Gp. X or Gp. W. So it will be purely a matter of chance
whether you will be in group X or whether you will be in
group W.

In addition, each of you will be given a personal
identification letter between A and Z (all subjects were
actually given one of only four letters: B, G, E, or N).
Your personal identification letter will be written on page 1
of your booklet which will be given to you in a moment. You
should not reveal this identification letter or group
membership to anyone else as we are only interested in your
own private responses.

O.K., now I'm going to give you specific instructions
about what you are required to do. The booklet which you
will receive contains a number of pages. On each page you'll
find a matrix which looks like this (show example of matrix).
Notice that each matrix contains 13 boxes. On the left of
the matrix are the personal identification letters of two
other subjects and the groups to which they belong. It is
your task to divide and distribute points to different
subjects using matrices like this one. These points on the
matrix represent some percentage of a credit which I will
elaborate on in a little while.

Let me first explain to you how to use these
matrices. You distribute points by only choosing 1 box per

matrix, etc. (give example). You will always be distributing
points, which will be translated into credits later, between
2 other subjects; but you will never under any circumstances
be awarding points to yourselves. We've arranged the
booklets so that your personal identification letter never
appears in your booklet. We do not want you to give credits
to yourselves. Each point in these matrices is
mathematically worth exactly .16% of one credit (write 0.16%
on the board).

So you will be dividing up and distributing 1A6
credits between other people in this class using the points
on these matrices. I spoke before about how you can receive
an extra 1A6 credit and I'll elaborate on that now.

Let me give you an example. Suppose that you are C
(that is your personal identification letter is C) and you
are in group X. Other students in this room will be
distributing points between you and other subjects according
to matrices like this one (point to example). At the end of
this session we will add up the total number of points given
to member C of group X and multiply this total by .16%. And
on the basis of the total number of points awarded to you,
you may or may not be awarded the extra credit. Obviously,
the greater the number of points any one group member is
awarded the greater is his or her chance of receiving the
extra credit.

So it must be clear that you will be making important decisions about the number of credits that will be awarded for your participation in this experiment. Therefore, when you make decisions think very carefully about the numbers of each matrix.

I'm going to start the proceedings. I'll call you up one by one, have you toss a coin to determine which group you will be in and hand you a matrix booklet. Please mark your name on the outside of the booklet but do not open your booklets yet. Please do not start until I ask you to.

(subjects come up to desk, toss coin, results are recorded, subject is assigned to group)

O.K., before you start there are a few things I'd like to say.

1) Work carefully and sequentially through the booklets.

2) Do not talk to anyone else or look around.

3) Let me remind you that you are going to be making important decisions about the distribution of 1A6 credits to other people in this room. Let me also stress that you may distribute them in any way you wish. We are only interested in HOW you make such decisions.

(Next: manipulations)


Nonsalient absolute and no power conditions: As you may imagine our task of going through all your booklets to

calculate each of your credit totals after the session could
be quite cumbersome.  In order to make matters easier and
faster for us, we will use the decisions made by members of
only one group to decide how many credits each of you get.
Decisions made by the other group will not be used to
calculate the final total of credits you get for
participating in this experiment.  Thus, decisions made by
members of one group will contribute 100% towards the
allocation of credits to each of you, and decisions made by
members of the other group will contribute 0% to the
allocation of credits to each of you.  Clearly this means
that one group's decisions will totally determine the final
credit totals that you receive.  To decide which group's
decisions will count, we shall toss this coin.  If it's
heads, then only Gp. X's (or W) decisions will count; if it's
tails only Gp. W's (or X) decisions will be used to work out
your final tally of credits for participating in this
experiment.

(E tosses coin)

It's heads (or tails)!  Thus only decisions made by
members of Gp. X (or W) will be used to work out your final
credit totals.  Decisions made by members of Gp. W (or X)
will not be used to work out your final credit totals.  In
other words, Gp. X (or W) has 100% or all the control over
the number of credits you receive while Gp. W (or X) has 0%

or none of the control over the number of credits you receive
for participation.


Salient absolute and no power conditions:   (These

instructions followed directly from instructions for the

nonsalient conditions.)   Since only group X's (or W)

decisions will count, we shall call group X the "Absolute

Power Gp. X" (write label on board).   Conversely we can label

Gp. W the "No Power Gp. W (write on board).   Can you please

write these labels in your booklets to remind us which group

you are in.


Nonsalient high and low power conditions:   As you may

imagine our task of going through all your booklets to

calculate your credit totals after the session could be quite

cumbersome.   To make matters easier and faster for us we are

going to give different weights to the decisions made by

members of the two groups present here.   Decisions made by

members of one group will have a greater influence on the

final number of credits you receive than decisions made by

members of the other group.   I will specify that decisions

made by members of one group will contribute 70% towards the

allocation of credits to each of you, and decisions made by

members of the other group will contribute 30% in the

allocation of credits to each of you.   Clearly this means

that one group's decisions will have more impact on the final
credit totals that you receive than the other group's
decisions.  To decide which group's decisions will count
more, I will toss this coin.  If it's heads, then Gp. X's (or
W) decisions will have a greater weight, i.e., 70%; if it's
tails, then Gp. W's (or X) decisions will have a greater
weight.

(E tosses coin)

It's heads!  Thus group X's (or W) decisions will
have a greater weight (write 70% on board next to group X)
than group W's decisions (write 30% next to group W on board)
in determining the total number of credits each of you get
for participating in this experiment.  In other words, Gp. X
has 70% control over the number of credits you receive whilst
Gp. W has only 30% control over the number of credits you
receive for participation.


Salient high and low power conditions:  Since group X's (or
W) decisions will have a greater impact on credit totals than
group W's (or X) decisions, we can label group X the "High
Power Gp. X" (write label on board).  Conversely we can label
Gp. W the "Low Power Gp. W"  since their decisions will have
only a small impact on the final total of credits that you
will receive for participating in this experiment.  (write
label on board)  Can you please write the label that applies

to you in your booklets to remind us which group you were in.

Nonsalient equal power conditions:  As mentioned before decisions made by members of both groups will be used to decide how many credits each of you get.  Thus, decisions made by members of each group will contribute 50% towards the allocation of credits to each of you.  Clearly this means that both groups' decisions will have an equivalent impact on the final credit totals that you receive.  In other words, Gp. X has 50% control over the number of credits you receive and Gp. W also has 50% control over the number of credits you receive for participation.

Salient equal power conditions:  This means that both Gp. X and Gp. W have equal power to determine how many credits you eventually get.  We can thus give you labels of "equal power Gp. X" and "equal power Gp. W" (write these on board).  Can you please write down these group labels in your booklets to remind us which group you were in.

O.K., let me just remind you to make your decisions carefully as they concern important resources.  Work through each page of the booklet in sequence, without turning back. You have five minutes to complete the task, after which I will ask you to make decisions of other kinds.

(Then administer postsession questionnaire.)

(Thank, and debrief.)

Appendix 2:   INSTRUCTIONAL SETS

Instructions for study 1 on differences in group numbers

Today you will be participating in a study which is
concerned with how people make certain kinds of decisions.
Decision making is a very important process for all of us.
We have to make all kinds of decisions during our daily
lives.   This study is designed to investigate one of the most
fundamental aspects of decision making.

The first thing I will do for the sake of convenience
is to randomly assign you to one of two groups -- X or W.
using a coin toss (write Gp. X and Gp. W on blackboard).   You
will then be making decisions about how people divide up
things.   After you have made these decisions, I would like
you to make other decisions on a questionnaire that I will
pass out.

When I have finished giving these instructions, I
will ask you to approach me one at a time.   I will then give
you a coin, which I would like you to toss.   Depending on
what side of the coin comes up, I will indicate which group
you are in, and write it in your personal booklet which you
will be given at the time.   It is critical that you do not
tell anyone what side of the coin came up or what group you
are in -- we are only interested in your private decisions.

Please be completely silent at all times.

Let me tell you a little about your decision task for today. When you receive your booklet you will find a number of pages in it. Each page in the booklet consists of 13 boxes containing numbers or points. As I mentioned before, the decision task is concerned with HOW people divide up things. In this study you will be dividing up points on matrices. You may think of the points as being dollar bills. Let me stress that you may divide them up in any way you wish. We are only interested in HOW you accomplish this.

In order to make your decisions you are to use the boxes or columns on each page of the booklet that you have been provided with. (Explain how to use matrices with two or three examples.)

Now if everyone is ready I shall ask you to approach me one at a time. (Have subjects toss a coin; give matrix booklets out after filling in group membership).

Before you start, let me remind you to work slowly and carefully through the booklets. Also I would like you to note down in your booklets the number of people in your group and the other group. This is useful for statistical purposes and also safeguards against your booklets getting mixed up with other experiments that we are conducting at present.

(next were instructions to manipulate independent variables)

**Nonsalient majority/minority manipulations**: So let me now tell you the number of members in your group and the other group. By tossing the coin twenty times we have 16 subjects in Gp. X (or W--randomly pick one) and 4 subjects in Gp. W (or X). (Write these down on board). Please write these numbers in your booklets.

**Salient majority/minority manipulations**: (After subjects are given the information on group sizes):

This means that Gp. X (or W) is in the majority (write majority on board next to appropriate group letter). We can therefore label it the MAJORITY group. Conversely, those of you who are in Gp. W (or X) are in a minority (write on board next to appropriate group letter). We can therefore label it the MINORITY group.

I would like you to note down your own group labels in your booklets before you start.

**Nonsalient equal-numbers conditions**: So let me now tell you the number of members in your group and the other group. By tossing the coin twenty times we have 10 subjects in Gp. X (or W--randomly pick one) and 10 subjects in Gp. W (or X). (Write these down on board). Please write these numbers in your booklets.

<u>Salient equal-numbers conditions</u>:  This means that both Gp.
X and Gp. W have equal numbers.  We can therefore label them
"equal numbers" groups (write "equal numbers" on board next
to group letter).


  You may start working through the booklets now.  Make
sure you answer all questions.  Work carefully through the
booklets.  You have five minutes to complete this task.

  (After subjects have finished with matrix booklets,
administer postsession questionnaire).

  (Thank, and debrief.)

Appendix 2 continued

Instructions for study 3 on status differentials


The main purpose of this study is to investigate creativity in academic settings. Generally, creativity is an important criteria in the evaluation of your essays, papers and assignments. Creativity is used by professors and teaching assistants, alike, to rate your performance in a course and ultimately plays a role in determining your success or failure at university.

Two questions are of specific interest in the present study:

1) How creative are students? In the first part of the study you will be asked to complete two tasks to give us some index of your creativity.

2) Secondly, I am interested in how students themselves -- not professors or T.A.s -- evaluate the creativity of other students. Later in this study you will be called upon to rate the creativity of other students here today.

I'll be elaborating on these points as the experiment continues. Let me tell you a little about the current research on creativity.

As I am sure you are all aware, creativity is an

extremely important part of intellectual functioning. A
number of psychologists have shown that creativity is
positively correlated with general intelligence. In other
words, highly creative people also seem to be highly
intelligent. Some researchers have gone further and argue
that in order for a person to be highly intelligent he must
also be highly creative. So they argue something like this:
(E goes to board and writes "high IQ = high creativity" and
"low IQ = low creativity").

Past research on creativity has also shown that
highly creative and intelligent people often hold very
prestigious, high status jobs and positions in society, such
as architects, physicists, doctors, geologists, surgeons,
nobel prize winners etc. Therefore, on the basis of this
research, we may conclude that high creativity and
intelligence often lead to high status jobs and positions.
Research suggests a relationship like this: (Go to board and
add "high status" & "low status" to the statement on
equivalence of IQ and creativity). It is important to note
that most of these people who are highly intelligent and
creative, and who do hold such "high status" jobs in society,
are trained at universities like McMaster and are, of course,
found amongst the university students.

Now that you know a little about the general research
findings on creativity I'm going to give you specific

instructions on how to complete the first task.

The first task is a creativity test, and we're going to use this to give us an index of your creativity. The creativity test is called "Riguet's Test". It is certainly the quickest, and most often used test of creativity. The test consists of trying to find the maximum number of different or unique figures from seven short sticks or lines.

I would like you to arrange SEVEN sticks in various ways to obtain the greatest possible number of different combinations.

Let me give you an example (point to overhead slide, see examples below). Suppose that I have FIVE sticks $\left(\text{fig. } 1\right)$
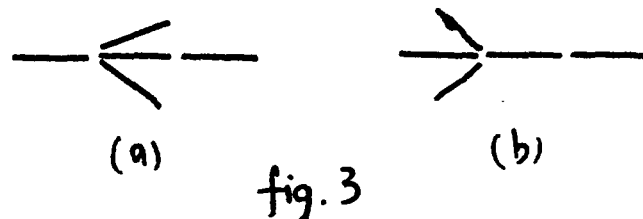
— — — — —

Fig. 1

I can make a number of different combinations with these sticks, like the ones on this overhead slide. In order to make these different combinations ONLY 3 conditions need to be satisfied:

1) You are not allowed to have closed figures such as these (point to first set of combinations). $\left(\text{fig. } 2\right)$

Fig. 2 .

2)   No one figure should result from another by
simple rotation of sticks.   For example (point to
slide) you can have (a) or (b) (below), but not
both. (fig. 3)



(a)          fig. 3          (b)

3)   And thirdly, the first stick in each of your
figures must be horizontal, and at least one other
stick in the figure must be co-linear with this
first stick (in other words along the same
imaginary line). (fig. 4)



Fig . 4.

O.K., these were examples with five sticks or lines.
Now, I would like you to generate the maximum number of
figures using SEVEN sticks, following the rules outlined

above.

You have beside you a sheet on which to draw these
figures which you generate - please do not turn it over yet.
On this sheet there is space for your name and student
number, so could you please fill it in.  In addition, on this
same sheet you'll find a "PERSONAL IDENTIFICATION LETTER",
some letter from A to Z (Subjects were, in fact, all assigned
one of only four letters: B, G, E, or N).  Remember this
letter, as it is how you will be identified for the duration
of the experiment.  It is, in effect, your code-name.  I also
ask that you do not show your identification letter to
anyone, and that you take pains to hide it.  It will become
obvious why your anonymity is important.  Please do not look
around at anyone else's work, as we are only interested in
your own.  YOU HAVE FIVE MINUTES TO COMPLETE THIS TASK.

(After 5 minutes.....)

Stop writing!  Please turn your sheets over and pass
them along.  My assistant will now score the Riguet's test of
creativity which you have just completed.  I shall give him a
hand in a moment.  These can be scored rather quickly.  To
score this particular test we look for a number of key,
criterial figures whose presence gives a reliable index of
creativity.  Of course, the more you have the greater is your
score (assistant busily scores tests).  While these are being
scored, I would like to you to work on the next part of

today's study.  The second task is also used to assess your creativity.

When writing an essay or a paper of some sort, you create the body of the essay or report, and also you create some name or label for your work.  So often, not only is the content of your work evaluated on the basis of your creativity, but the titles or labels you assign to it are evaluated as well.  I think this is rather obvious when one considers the immense amount of care which people take in "getting the right" title for that report you've put so much work into.

Psychologists, such as Dr. Jackson and his colleagues, have often used this endeavour of creating new and original titles or names to assess creativity.  Thus, in this second part of the study, I would like you to create suitable titles for a piece of art.

Here is an abstract print, done by a student at the Dundas Valley School of Art.  I would like you to generate three titles for this print on the sheet next you.  Do it carefully.  Remember it is your creativity which I am interested in.

When you turn over the sheets you will find space for your personal identification letter, so please fill it in. There is also a space labelled "Group".  Leave this blank until we have scored the first test.  You may start now.  You

have five minutes.  (Meanwhile assistant busily scores with experimenter helping him.)

(Five Minutes later...depending on condition insert one subset of instructions below).

Instructions to manipulate NONSALIENT high and low status:
Can I have your attention please.  The results of the first test you completed -- Riguet's test -- are now available. Interestingly, the results show that we can divide you up into two 'creativity groups':  those who scored within the lower creativity range and those who scored within the higher creativity range.  These range from 46-60 and 70-82 respectively.  Let us label those who scored lower as group X (or W), and those who scored higher as group W (or X) (write these on board with "high" and "low" creativity next to groups).  We also have your individual scores as they fall into these two groups.  After I have written these down, I would like you to fill in, appropriately, the space labelled "Group" on the sheets on which you created your titles, with the group that you fell into -- X or W.  The following people fell into the group that scored high (or low) on the creativity test (slowly write down individual code letters for different groups on board etc.).

*********************************************************************

*********************************************************************

As mentioned earlier, all subjects actually had only received

one of four personal (randomly chosen) identification

letters: B, E, G, N.  Thus, subjects were categorized as high

or low status, by randomly including two of these letters in

each group of ten letters (X and W) during the false-feedback

results of Riguet's test.

*********************************************************************

*********************************************************************


Instructions to manipulate SALIENT high and low status were

next:  (This paragraph of instructions was not used in the

nonsalient instructions).

        If we reconsider our earlier discussion on the

relationship between creativity, intelligence, and status,

the results of Riguet's test suggest that these people (point

to board) in group Gp. X (or W) have a greater chance of

landing high status jobs and positions, while those in group

W (or X) have a relatively worse chance of landing such jobs

and positions and may end up in low status jobs.  Thus your

performance on creativity tests such as these may have a

powerful impact on your eventual position in society as such

tests are often used in personnel testing situations.  On

this basis, we could label Gp. X (or W) the "high status"

group (write on board) and Gp. W (or X) the "low status" group.

Please mark in your group membership on the sheet with the titles you have created, if you have not done so already. Please turn them over and pass them to us. We are going to be assessing these at a later date. (Assistant collects sheets and leaves room).

We have now completed the first part of our study. In the first part we wanted to see how creative you were. We gave you results of Riguet's test and we will be scoring the creativity of your titles at a later date.

Now we can move on to the second major aim of this experiment. As I mentioned before, we also want to know how students like you rate the creativity of other students in the room. In a moment you will receive the titles generated by one person in Gp. X and one person in Gp. W. I would like you to evaluate the creativity of these titles. However, as we will not have enough titles to go around, my assistant has gone to make photocopies of the titles you generated. He will also staple a blank sheet on top of each set, so that other people are not tempted to see which titles you are rating. In the meantime, let me explain how you are going to rate these titles.

You will be given two copies of titles:   one

generated by a member of Gp. X. and one generated by a member

of Gp. W. In addition to the titles, you have been given a

booklet (hold up example booklet) that contains matrices like

the ones WE use to rate the titles.

Each page in the booklet contains a series of

matrices which look like this (point to example). The left

of each matrix tells you the author of the titles you will

rate. We want you to rate each set of titles as a whole, not

singly. Therefore we want you to give points to the set of

titles from one person versus the set of titles from the

other person. You are to do this by only picking one box or

column per matrix. You are not allowed to choose numbers

from two different boxes or columns on each matrix

(illustrate). In addition, for obvious reasons, on no

occasion will you be rating your own titles. (Give concrete

example about how matrices are to be used).

So this is how you are to use the matrices. Each

matrix booklet contains different types of matrices. Each

one measures creativity in a different way. So I would like

you to fill each page independently of another. In other

words, when you have finished one page, go to the next and

please do not turn back.

Can you now fill in your name on the front page of

the booklets. Also fill in your personal code letter, and

the group you are in -- from the results of Riguet's test

(point to board). My assistant and I will then come round and give you two sets of titles that you are to rate. Please do not start the rating task until I ask you to do so. (Assistant & experimenter pass out titles).

Now that you all have the titles let me just give you a brief recap of what we have done today. Our first aim was to see how creative you are. For this you completed Riguet's test and we got the following results (point to board and recap results). Now I would like you to begin rating the titles you have been given. Make sure you fill in all the pages clearly and carefully. If you have any questions, raise your hand. You have four minutes to complete the task.

(Then postsession questionnaire).

(Thank, and debrief).


Instructions for NONSALIENT equal status condition: Can I have your attention please. The results of the first test you completed -- Riguet's test -- are now available. Interestingly, the results show that we can divide you up into two 'creativity groups' which did not differ in their actual creativity and scored about average, i.e., your scores ranged between 60-70%. They only differed in the manner in which you completed the creativity test. We also have your individual scores as they fall into these two groups. After I have written these down, I would like you to fill in,

appropriately, the space labelled "Group" on the sheets on which you created your titles, with the group that you fell into -- X or W. The following people fell into Gp. X (or W) (slowly write down individual code letters for different groups on board etc.).

Instructions for SALIENT equal status groups: If we reconsider our earlier discussion on the relationship between creativity, intelligence, and status, the results of Riguet's test suggest that people (point to board) in group Gp. X and Gp. W will have good chances of landing jobs and positions of equal status. Thus, your performance on creativity tests such as these may have a powerful impact on your eventual position in society as such tests are often used in personnel testing situations. On this basis, we could label both Gp. X and Gp. W as "equal status" groups (write on board).

Appendix 2 continued

Instructions for study 4 on the interactive effects of group
numbers, power and status

The main purpose of this study is to investigate
creativity in academic settings. Generally, creativity is an
important criteria in the evaluation of your essays, papers
and assignments. Creativity is used by professors and
teaching assistants, alike, to rate your performance in a
course and ultimately plays a role in determining your
success or failure at university.

Three questions are of specific interest in the
present study:

1) How creative are students? In the first part
of the study you will be asked to complete two
tasks to give us some index of your creativity.

2) Secondly, I am interested in how students
themselves -- not professors or T.A.s -- evaluate
the creativity of other students. Later in this
study you will be called upon to rate the
creativity of other students here today.

3) Thirdly, I would like to find out what impact
our evaluations of creativity have on the fate of
others. As I noted a moment ago, the evaluations

which professors and T.A.s make about your creativity influence your success or failure in a course. In the last part of this study, the decisions which you make about each other's creativity will determine whether or not you will receive an _extra_ credit for your participation today.

I'll be elaborating on these points as the experiment continues. Let me tell you a little about the current research on creativity.

As I am sure you are all aware, creativity is an extremely important part of intellectual functioning. A number of psychologists have shown that creativity is positively correlated with general intelligence. In other words, highly creative people also seem to be highly intelligent. Some researchers have gone further and argue that in order for a person to be highly intelligent he must also be highly creative. So they argue something like this: (E goes to board and writes "high IQ = high creativity" and "low IQ = low creativity").

Past research on creativity has also shown that highly creative and intelligent people often hold very prestigious, high status jobs and positions in society, such as architects, physicists, doctors, geologists, surgeons, nobel prize winners etc. Therefore, on the basis of this

research, we may conclude that high creativity and intelligence often lead to high status jobs and positions. Research suggests a relationship like this: (E goes to board and adds "high status" & "low status" to the statement on equivalence of IQ and creativity). It is important to note that most of these people who are highly intelligent and creative, and who do hold such "high status" jobs in society, are trained at universities like McMaster and are, of course, found amongst the university students.

Now that you know a little about the general research findings on creativity I'm going to give you specific instructions on how to complete the first task.

The first task is a creativity test, and we're going to use this to give us an index of your creativity. The creativity test is called "Riguet's Test". It is certainly the quickest, and most often used test of creativity. The test consists of trying to find the maximum number of different or unique figures from seven short sticks or lines.

I would like you to arrange SEVEN sticks in various ways to obtain the greatest possible number of different combinations.

Let me give you an example (point to slide, see examples at end of these instructions). Suppose that I have FIVE sticks. (See Fig. 1).

Fig. 1

I can make a number of different combinations with these sticks like the one's on this overhead slide.   In order to make these different combinations ONLY 3 conditions need to be satisfied:

1)   You are not allowed to have closed figures such as these (point to first set of combinations).  (fig. 2)
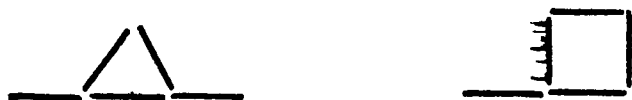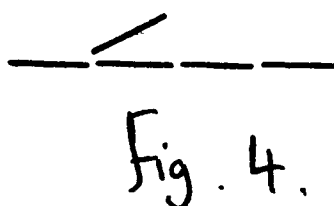


Fig. 2

2)   No one figure should result from another by simple rotation of sticks.   For example (point to slide) you can have (a) or (b) (below), but not both.  (fig. 3)



(a)                              (b)

Fig. 3.

3) And thirdly, the first stick in each of your
figures must be horizontal, and at least one other
stick in the figure must be co-linear with this
first stick (in other words along the same
imaginary line). (e.g. fig.4)

Fig. 4.

O.K., these were examples with FIVE sticks or lines.
Now, I would like you to generate the maximum number of
figures using SEVEN sticks, following the rules outlined
above.

You have beside you a sheet on which to draw these
figures which you generate - please do not turn it over yet.
On this sheet there is space for your name and student
number, so could you please fill it in. In addition, on this
same sheet you'll find a "PERSONAL IDENTIFICATION LETTER",
some letter from A to Z (Subjects were, in fact, assigned one
of only four letters: B, G, E, or N). Remember this letter,
as it is how you will be identified for the duration of the
experiment. It is, in effect, your code-name. I also ask
that you do not show your identification letter to anyone and
that you take pains to hide it. It will become obvious why

your anonymity is important. Please do not look around at anyone else's work as we are only interested in your own. YOU HAVE FIVE MINUTES TO COMPLETE THIS TASK.

(After 5 minutes.....)

Stop writing! Please turn over your sheets over and pass them along. My assistant will now score the Riguet's test of creativity which you have just completed. I shall give him a hand in a moment. These can be scored rather quickly, and to score this particular test we look for a number of key, criterial figures whose presence gives a reliable index of creativity. Of course, the more you have the greater is your score (assistant busily scores tests). While these are being scored, I would like to you to work on the next part of today's study. The second task is also used to assess your creativity.

When writing an essay or a paper of some sort, you create the body of the essay or report, and also you create some name or label for your work. So often, not only is the content of your work evaluated on the basis of your creativity, but the titles or labels you assign to it are evaluated as well. I think this is rather obvious when one considers the immense amount of care which people take in "getting the right" title for that report you've put so much work into.

Psychologists, such as Dr. Jackson and his

colleagues, have often used this endeavour of creating new and original titles or names to assess creativity. Thus in this second part of the study, I would like you to create suitable titles for a piece of art.

Here is an abstract print, done by a student at the Dundas Valley School of Art. I would like you to generate three titles for this print on the sheet next you. These titles, which you will create, have an important bearing on the number of credits you will receive for this experiment. So do it carefully. Remember it is your creativity which I am interested in.

When you turn over the sheets you will find space for your personal identification letter, so please fill it in. There is also a space labelled "Group". Leave this blank until we have scored the first test. You may start now. You have five minutes. (Meanwhile assistant busily scores with experimenter helping him.). (Five Minutes later...)


Instructions to manipulate status were next: Can I have your attention please. The results of the first test you completed -- Riguet's test -- are now available. Interestingly, the results show that we can divide you up into two 'creativity groups': those who scored within the lower creativity range and those who scored within the higher creativity range. These range from 46-60 and 70-82

respectively. Let us label those who scored lower as group X, and those who scored higher as group W (write these on board). We also have your individual scores as they fall into these two groups. After I have written these down, I would like you to fill in, appropriately, the space labelled "group" on the sheets on which you created your titles, with the group that you fell into -- X or W. The following people fell into the group that scored high (or low) on the creativity test (slowly write down individual code letters for different groups on board etc.).

*********************************************************************
*********************************************************************
As mentioned earlier, all subjects actually had only received one of four personal (randomly chosen) identification letters: B, E, G, N. Thus, subjects were categorized as high or low status, and as majority or minority group members by randomly including two of these letters in each group (X and W) during the false-feedback results of Riguet's test.
*********************************************************************
*********************************************************************

If we reconsider our earlier discussion on the relationship between creativity, intelligence, and status, the results of Riguet's test suggest that these people (point

to board) in group Gp. X (or W) have a greater chance of landing high status jobs and positions, while those in group W (or X) have a relatively worse chance of landing such jobs and positions and may end up in low status jobs. Thus your performance on creativity tests such as these may have a powerful impact on your eventual position in society as such tests are often used in personnel testing situations. On this basis, we could label Gp. X (or W) the "high status" group (write on board) and Gp. W (or X) the "low status" group.

Instructions to manipulate majority/minority were next: If we look at the numbers of people in the two groups according to the results of Riguet's test, sixteen people had high (or low) scores, while four people had low (or high) scores on the test. Thus Gp. X (or W) is in a clear majority (or minority) whereas Gp. W (or X) is in a clear minority (or majority). (Write "majority" and "minority" next to Gp. X and W, on board.) Thus, Gp. X (or W), may be referred to as the high (or low) status majority (or minority) group. Conversely, Gp. W (or X) may be referred to as the low (or high) status minority (or majority) group.

Please mark in your group membership on the sheet with the titles you have created, if you have not done so already. Please turn them over and pass them to us. We are

going to be assessing these at a later date. (Assistant collects sheets and leaves room).

We have now completed the first part of our study. In the first part we wanted to see how creative you were. We gave you results of Riguet's test and we will be scoring the creativity of your titles at a later date.

Now we can move on to the second major aim of this experiment. As I mentioned before, we also want to know how students like you rate the creativity of other students in the room. In a moment you will receive the titles generated by one person in Gp. X and one person in Gp. W. I would like you to evaluate the creativity of these titles. However, as we will not have enough titles to go around, my assistant has gone to make photocopies of the titles you generated. He will also staple a blank sheet on top of each set, so that other people are not tempted to see which titles you are rating. In the meantime, let me explain how you are going to rate these titles.

You will be given two copies of titles: one generated by a member of Gp. X. and one generated by a member of Gp. W. In addition to the titles, you have been given a booklet (hold up example booklet) that contains matrices like the ones WE use to rate the titles.

Each page in the booklet contains a series of matrices which look like this (point to example). The left

of each matrix tells you the author of the titles you will
rate.  We want you to rate each set of titles as a whole, not
singly.  Therefore we want you to give points to the set of
titles from one person versus the set of titles from the
other person.  You are to do this by only picking one box or
column per matrix.  You are not allowed to choose numbers
from two different boxes or columns on each matrix
(illustrate).  In addition, for obvious reasons, on no
occasion will you be rating your own titles.  (Give concrete
example about how matrices are to be used).

So this is how you are to use the matrices.  Each
matrix booklet contains different types of matrices.  Each
one measures creativity in a different way.  So I would like
you to fill each page independently of another.  In other
words, when you have finished one page, go to the next and
please do not turn back.

Can you now fill in your name on the front page of
the booklets.  Also fill in your personal code letter and the
group you are in -- from the results of Riguet's test (point
to board).  My assistant and I will then come round and give
you two sets of titles that you are to rate.  Please do not
start the rating task until I ask you to do so.  (Assistant &
experimenter pass out titles).

Before you start I would like to say a little more
about your task.  How you rate the creativity of the products

which other people produce often has a strong effect on those peoples' fate. For example, when your 1A6 tutors mark your essay which is worth 30% of your total course mark, your creativity may determine as much as the full 30% that it is worth. So today, I am not just going to ask you to rate the creativity of the titles generated by other students here, but, I am also going to ask you to make decisions which have a definite impact on everyone who participates here today. Let me explain how it is that your decisions about the creativity will affect the fate of others in this experiment.

Instructions to manipulate power were next: As you are all aware, each of you will be receiving at least one credit for this experiment here today. However, you may also receive 2 credits for your participation here today. This means that you will have both of the course credits that you require this semester.

As you know, you will be using matrices to assign points to the authors of the titles when you evaluate their creativity. In order to make decisions about creativity have some impact, as the decisions of professors do, each point in the matrices will be worth .16% of a credit. So at the end of this session we will add up the number of points that each of the authors of the titles receive. The total number of points that each of you assign to each other will be

transformed into a percentage which we will use to work out whether or not each of you receives the extra experimental credit or not. Obviously, the greater the number of points each of you receive through your evaluations on the matrices, the greater is your chance of receiving your extra experimental credit.

As you may imagine, our task of going through all your booklets to calculate each of your credit totals after the session could be quite cumbersome. In order to make matters easier and faster for all of us, we will use the ratings made by members of only one group to decide how many credits each one of you gets for participating in this experiment. Ratings made by the other group will not be used to calculate the final total of credits you get for participating in this experiment. In order to decide which group's ratings will count, we shall toss this coin. If it's "heads", then only Gp. X's (or W) decisions will count. If it's "tails", then only Gp. W's ratings will count.

(Experimenter tosses coin)

It's "heads" (or "tails"). Thus, only Gp. X's (or W) decisions will be used to work out your final total of credits for this experiment. Gp. W's (or X) will not be used for this purpose.

Since only Gp. X's (or W) decisions will count, we shall call Gp. X (or W) the "absolute power" group (write on

board appropriately). Conversely, since Gp. W's (or X)
decisions will not count, we shall Gp. W (or X) the "No
power" group (write this on board). Can you also please
write this down in your booklets in the appropriate space.
In addition, when you start working, please circle your own
group on each page of the booklet.

Now that you all have the titles let me just give you
a brief recap of what we have done today. Our first aim was
to see how creative you are. For this you completed Riguet's
test and we got the following results (point to board and
recap results -- also recap on whose decisions will count).
Now I would like you to begin rating the titles you have been
given. Make sure you fill in all the pages clearly and
carefully. If you have any questions, raise your hand. You
have four minutes to complete the task.

(Then postsession questionnaire).

(Thank, and debrief).

Appendix 3

MATRIX EXAMPLES

The following three pages provide actual examples of
matrices used in the present studies. They were used in
studies 1, 2, and 3 respectively. Study 4 used the same
matrices as study 1. On each matrix subjects are to choose
one box and enter their choice in the spaces below the
matrix. Though the next three pages show two matrices on the
same page, subjects actually only had one matrix per page.

Each page there are two matrices which are of the
same basic matrix type. They are the I/O and O/I versions of
each matrix type and would be used to calculate pull scores.
Matrices on page 324 are used to calculate the pull of MD on
MIP + MJP. Matrices on page 325 are used to calculate the
pull of FAV on MJP. Matrices on page 326 are used to
calculate P on FAV. Scoring procedures are given in appendix
1.

Points for a member of GpX:

| 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|

Points for a member . of GpW:

| 25 | 23 | 21 | 19 | 17 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|

Points awarded to member C of GpX:  _____

Points awarded to member A of GpW:  _____

Points for member of GpX:

| 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 |
|---|---|---|---|---|----|----|----|----|----|----|----|----|

Points for member of GpW:

| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|----|----|----|----|----|----|----|----|----|----|

Points awarded to member J of GpX:  _____

Points awarded to member F of GpW:  _____

Points for member Q of GpX:

| 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 |
|----|----|----|----|----|----|----|----|----|----|---|---|---|
| 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 |

Points for member R of GpW: (second row above)

Points awarded to member Q of GpX: _____

Points awarded to member R of GpW: _____

Points for member T of GpX:

| 25 | 23 | 21 | 19 | 17 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 |
|----|----|----|----|----|----|----|----|---|---|---|---|---|
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |

Points for member H of GpW: (second row above)

Points awarded to member T of GpX: _____

Points awarded to member H of GpW: _____

Points for member L of GpX:

| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|

Points for member D of GpW:

| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|

Points awarded to member L of GpX: _____ ·

Points awarded to member D of GpW: _____

Points for member P of GpX:

| 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|----|----|----|----|----|----|----|

Points for member I of GpW:

| 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|

Points awarded to member P of GpX: _____

Points awarded to member I of GpW: _____

Appendix 4

POSTSESSION QUESTIONNAIRE ITEMS FOR STUDIES 1-4

Postsession questionnaires that subjects completed had a large number items that were common to all studies. These are presented first, followed by other items that were common to particular combinations of studies. All items were answered on 7-point scales unless otherwise indicated.

Questions common to all studies:

1a. How much did you identify as a member of your group?

1b. How much do you think other members of your group identified with your own group?

1c. How much do you think members of the other group identified with their group?

Suppose you were to find out which persons were in your group and which persons were in the other group. How much do you think you would like members of:

2a. Your own group?

2b. The other group?

How much do you think members of your group would like:

3a. You?

3b. Other members of your group?

3c. Members of the other group?

How much do you think members of the other group would like:

4a. You?

4b. Other members of your group?

4c. Members of the other group?


5a. To what extent did you distribute the points (or credits for study 2) equally between the two groups?

5b. To what extent do you think that members of your group distributed the points (or credits) equally between the two groups?

5c. To what extent do you think that members of the other group distributed the points (or credits) equally between the two groups?


6a. How much did you favour your own group in distributing the points (or credits)?

6b. How much do you think members of your own group favoured your group in distributing the points (or credits)?

6c. How much do you think members of the other group favoured their own group in distributing the points (or credits)?

7a. How much did you favour the other group in distributing the points (or credits)?

7b. How much do you think members of your own group favoured the other group in distributing the points (or credits)?

7c. How much do you think members of the other group favoured your group in distributing the points (or credits)?

8a. How much did you try to get the maximum number of points (or credits) for both groups?

8b. How much do you think your group members tried to get the maximum number of points (or credits) for both groups?

8c. How much do you think other group members tried to get the maximum number of points (or credits) for both groups?

9. How comfortable did you feel as a member of your group?

10. How satisfied did you feel as a member of your group?

11. How happy did you feel as a member of your group?

12a. How much status do you feel there was in being a

member of your group?

12b. How much status do you feel there was in being a
member of the other group?

13a. How much power do you feel there was in being a
member of your group?

13b. How much power do you feel there was in being a
member of the other group?


Another question common to studies 1 and 2:

1. How much did you agree with the formation of the two
groups on the basis of a toss of a coin?.


Other questions common to studies 2 and 4:

1. How much did you agree with the use of a toss of a
coin to determine which group had more power in the
experiment?

2. How legitimate was the power distribution between
groups X and W for determining your credits in this
experiment?

3. How legitimate was the procedure we used to work out
your credits for this experiment?

<u>Other questions common to studies 3 and 4</u>:

1. How important is creativity to you personally?

2a. How much status do you think highly creative people have?

2b. How much status do you think 'not very' creative people have?

3. How much do you agree with the formation of the two groups on the basis of a creativity test?

4. How fair was the procedure we used to measure creativity?

5. Suggest alternative ways of measuring creativity (open-ended question).

<u>Questions exclusive to study 2</u>:

1a. How much did you feel that your group was in a majority/minority?

1b. How much did you feel that the other group was in a majority/minority?

Some items on subjects' demographic background were also included on the questionnaire.