

London School of Economics and Political
Science

MADE TO STICK?
A COGNITION AND CULTURE
ACCOUNT OF SOCIAL GROUP
STEREOTYPES

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Declaration

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Abstract

This thesis explores the potential of the 'Cognition and Culture' approach to serve as a conceptual framework to facilitate an integrated study of the contents of social group stereotypes and the cognitive processes and structures underpinning stereotyping. More specifically, it explores the extent to which evolved cognitive predispositions may shape the contents of stereotypes, and facilitate the naturalization of status differences between groups.

Experiments 1-3 utilized the Minimal Group Paradigm to investigate whether cognitive predispositions shape the contents of social group stereotypes. Experiment 1 provided evidence for a default stereotyping mode based on two dimensions found to capture social group stereotypes universally: competence and morality/warmth. Participants rated members of their own group as competent and moral/warm. Experiment 2 provided evidence for a default status stereotyping mode. Participants rated members of high status groups as competent and members of low status groups as incompetent. Experiment 3 replicated the findings of experiment 2 using an implicit measure of stereotyping. These are the first experiments to provide evidence for stereotyping in minimal groups.

The final three experiments explored whether humans hold essentialist beliefs about social status as this mode of category representation may facilitate the purported ability of stereotypes to naturalise status differences between groups. In experiment 4 it was found that status differences trigger essentialist beliefs about social groups. Experiment 5 explored essentialist beliefs about group-based social status using two thought experiment paradigms. No evidence was found for essentialist beliefs about group-based social status. However, there was an indication from participants' qualitative responses that these paradigms were not optimal. A final follow-up experiment found evidence for essentialist beliefs about group-based social status using the soul exchange paradigm.

Implications for the social psychology of stereotyping, the 'Cognition and Culture' approach and social policy are discussed.

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Introduction

Social Psychology of Stereotyping

Contemporary social psychologists typically define stereotypes as socially shared mental representations of a group and its members, which contain knowledge/information associated with that group (Hamilton and Sherman, 1994). Within Social Psychology stereotypes have, broadly speaking, been studied from two different approaches. Early research adopted a descriptive approach and focused on the specific contents of stereotypes, and how they are shaped by the social context. Since the 1970s the social cognition approach, which focuses on the cognitive processes underpinning stereotyping and the cognitive structure of social group concepts, has come to dominate the study of stereotypes. Although, in the past few years there has been a resurgence of interest in the contents of social group stereotypes and specifically the ideological functions of stereotypes i.e. how stereotypes can serve to justify and naturalise social status differences between groups (Jost and Banaji, 1994). However, both these approaches (descriptive and social cognition) only focus on one aspect of the phenomenon i.e. contents or cognitive process/structure, and as such only offer a partial explanation of stereotypes. Increasingly social psychologists have argued that a complete explanation must theoretically integrate a study of both stereotype contents and cognitive process/structure (Hogg and Abrams, 1988). What has been missing is an overarching conceptual framework which would allow for such an integration.

Cognition and Culture Approach

In this thesis, in an attempt to fill this theoretical and empirical gap, I postulate that the Cognition and Culture approach is best suited to facilitate an integration of the study of the contents of stereotypes and the cognitive processes and structures underpinning them. The Cognition and Culture approach (also known as the epidemiology of representations approach) is an emerging inter-disciplinary perspective which explores the

complex connections between cognition and culture by drawing on theories and research from cognitive science, anthropology, social psychology and evolutionary psychology. This approach was developed by Scott Atran, Rita Astuti, Pascal Boyer, Bradley Franks, Susan Gelman, Lawrence Hirschfeld, Dan Sperber and Harvey Whitehouse amongst others. Cognition and Culture scholars seek to explain the role of evolved domain-specific cognitive abilities in enabling and constraining the contents and structure of mental representations (e.g. beliefs) and public representations (e.g. artifacts). The main features of a Cognition and Culture approach are as follows: First, evolution resulted in the emergence of domain-specific cognitive capacities that predispose organisms to particular kinds of conceptual representations in key domains. Second, on one such view, cultures can be construed as the outcome of cognitive epidemiologies in which human minds are “infected” by representations, through an aggregation of individual processes of acquisition and communication. Third, the survival and spread of representations is influenced by both ecological and psychological factors. Finally, these domain-specific cognitive competences place a strong selective constraint on the contents and structure of representations (Boyer, 1999). In sum, the central claim is that due partly to human cognitive architecture, and partly to ecological environments some ideas, beliefs etc are more “sticky” or “easier to think” about, communicate and therefore more likely to spread and become stabilized within cultural populations (Nisbett and Norenzayan, 2002).

Theoretical Framework

This thesis explored the potentials of applying the Cognition and Culture approach to the study of social group stereotypes. The main argument was that stereotypes fall into the actual domain of a domain-specific cognitive competence which underpins group-based social cognition, namely a *Folk Sociology*. Furthermore, as a result of this cognitive predispositions arising from a *Folk Sociology* influence both the contents and functions of social group stereotypes. This thesis contains six studies that investigated the

overarching research question: 'To what extent, and in what ways, do evolved cognitive predispositions shape the contents of social group stereotypes, and facilitate the ability of status stereotypes to naturalise social status differences between groups?'

To this end this thesis explored the ways in which cognitive predispositions may impact upon:

(a) *The content of stereotypes of social groups.* It has been found that the dimensions of competence and morality/warmth are central to the contents of social group stereotypes. Whereas social psychologists claim that such stereotypes derive their content from the structure of inter-group relations, I explore the possibility that evolved cognitive predispositions arising from a *Folk Sociology*, in part, help to shape the content of such stereotypes.

(b) *The ideological functions of stereotypes.* One of the functions which stereotypes purportedly perform is to act as ideological representations which justify and naturalise social status differences between groups. However, while social psychologists focus solely on the ideological functions of the contents of stereotypes, I consider how the ability of stereotypes to function as ideological representations may be also be facilitated by the nature of the cognitive structure of social group concepts via the recruitment of an evolved cognitive predisposition, psychological essentialism, from a *Folk Sociology*. While in social scientific accounts essentialism is described as a by-product of philosophical and cultural traditions (Fuss, 1989), Cognition and Culture theorists have suggested that essentialism is in fact an evolved cognitive predisposition which underpins our representations of social groups.

Thesis Outline

Chapter I presents a review of the extant social psychology of stereotyping literature focusing on the two main approaches; descriptive approach and social cognition approach, with the aim of explicating the gap in this literature that motivates the current research. This is followed, in Chapter II, by an introduction to the Cognition and Culture approach, and a detailed articulation of how the application of this approach to social group stereotypes can help to fill this gap in the social psychology of stereotyping literature. In Chapters III - VII, an account is provided of the method and results of each of the experiments designed to lend empirical support to this theoretical framework. The three experiments reported in Chapters III, IV and V were designed to investigate the extent to which cognitive predispositions may shape the contents of social group stereotypes. The three experiments reported in Chapters VI and VII were designed to investigate whether psychological essentialism may facilitate the ideological functions of stereotypes.

Chapter III presents the findings of study 1 which explored whether humans may have evolved a default stereotyping mode based on two dimensions which have been found to capture the contents of group stereotypes: competence and morality/warmth. The findings of study 1 provided strong support for an in-group default stereotyping mode. However, as predicted, there was no evidence of stereotypes for out-groups. Chapter IV presents the findings of a follow-up study (2) which provides support for default group status stereotypes of both in-groups and out-groups. Chapter V reports the findings of a second follow-up study (3) which replicated the findings of study 2 using an implicit measure of stereotyping. Chapter VI reports the findings of study 4 which provides evidence that status differences trigger essentialist beliefs about social groups. Chapter VII reports the findings of two studies (5 and 6) using various thought experiment paradigms that explored whether humans essentialise group-based social status as this may facilitate the ability of stereotypes to

naturalise status differences between groups. No evidence was found for essentialist beliefs in study 5 which used the adoption and brain transplant paradigm. However an analysis of participants' justifications for their responses in the brain transplant paradigm suggested that many participants did not perceive the brain to be central to status identity. Therefore, in order to overcome the shortcomings of using the brain transplant paradigm, study 6 re-examined essentialist beliefs about group-based social status using two alternative thought experiment paradigms: soul exchange and personality exchange. Evidence was found for essentialist beliefs about group status using the soul exchange paradigm.

The final chapter of this thesis critically assesses the extent to which the present research has been successful in achieving its aims, and lending support to the proposed theoretical framework. This chapter begins with a consideration of the potential implications of the theoretical framework and empirical findings for the social psychology of stereotyping literature and the Cognition and Culture approach. This is followed by a discussion of the limitations of the research presented in this thesis, and areas for future research are highlighted. The chapter ends by reflecting upon potential social policy implications of the research in helping to combat stereotyping and improving inter-group relations.

Chapter I - The Social Psychology of Stereotyping - A Review

This chapter presents a review of the extant social psychology literature on stereotypes and stereotyping. This review will necessarily be selective given that there have been well over 5,000 empirical studies of stereotypes in the past 70 years (Schneider, 2004). It will be seen that, broadly speaking, the study of stereotypes has been approached from two different perspectives. Early research adopted a descriptive approach, focusing on the contents of stereotypes. However, since the late 1970s, the social cognition approach has come to dominate the study of stereotypes and the focus shifted to a study of the cognitive process of stereotyping and the cognitive structure of social group concepts. The chapter concludes by highlighting that a key gap in this literature is that these traditional approaches offer only a partial explanation of stereotypes because they focus largely on one aspect of the phenomenon, i.e. content or cognitive process/structure. A complete explanation must theoretically integrate a study of both stereotype contents and the cognitive processes/structures underpinning stereotyping (Hogg and Abrams, 1988).

I.1 Social Psychology of Stereotyping - An introduction

The beginning of wisdom is the definition of terms - Socrates

The word 'stereotype' comes from the amalgamation of two Greek words: *stereos*, meaning "solid" and *typos*, meaning "the mark of a blow." The term 'stereotype' was first introduced to the social sciences by Walter Lippmann (1922) who, as a journalist, borrowed the phrase from the printing world. In printing a stereotype is the metal cast that is used to make repeated and identical images of a character on paper. Lippmann used the analogy to refer to the ways in which people apply the same cast to their impressions of a group. For instance, when someone views all women as lacking mathematical skills, they are applying the same cast to their impression of all members of the group. In effect, he viewed

stereotypes as simplified 'pictures' of a social category (Augoustinos and Walker, 1995). While recognizing the debt owed to Lippmann, Allport (1954) accused Lippmann of confusing a stereotype with a category. Furthermore, Allport argued that stereotypes are more than just 'pictures in the head', they are inaccurate pictures. Allport advanced the following definition of a stereotype: "whether favourable or unfavourable a stereotype is an exaggerated belief associated with a category" (1954: 191). This definition held sway in social psychology for many years. In the years that followed tens if not hundreds of definitions of stereotypes have been put forward (see Table 1.0 for a select few). These definitions tend to disagree about whether or not stereotypes are inaccurate. Social psychologists such as Allport believed that inaccuracy is an integral characteristic of stereotypes. However, increasingly this feature is being excluded from definitions of stereotypes by social psychologists who argue that whether or not stereotypes are accurate is an empirical not a theoretical question; it is something to be investigated and cannot be decided a priori. There have been some attempts to investigate the accuracy of stereotypes but their conclusions have generally been inconsistent (Judd, Ryan, and Park, 1991; Lee, Jussim, and McCauley, 1995). According to Stangor (2009) even if there is an element of truth to stereotypes they cannot accurately describe every single member of a given group and as such they are "just plain wrong" (2009: 2).

For the purpose of the present research I shall adopt Mackie, Hamilton, Susskind and Rosselli's (1996: 42) definition of a stereotype as "a cognitive structure containing the perceiver's knowledge, beliefs, and expectancies about some human social group." This definition was chosen as it is the most widely used and accepted definition in modern social psychology (cf. Schneider, 2004).

TABLE 1.0: Some Classic Definitions of Stereotypes (Adapted from Schneider, 2004)

"A fixed impression which conforms very little to the facts it pretends to represent and results from our defining first and observing second" (Katz & Braly, 1935: 181).

"A stereotype is a stimulus which arouses standardized preconceptions which are influential in determining one's response to the stimulus" (Edwards, 1940: 357-358).

"Whether favourable or unfavourable, a stereotype is an exaggerated belief associated with a category. Its function is to justify (rationalize) our conduct in relation to that category" (Allport, 1954: 197).

"Stereotyping has three characteristics: the categorization of persons, a consensus on attributed traits, and a discrepancy between attributed traits and actual traits" (Secord & Backman, 1964: 66).

"An ethnic stereotype is a generalization made about an ethnic group concerning a trait attribution, which is considered to be unjustified by an observer" (Brigham, 1971: 29).

"A stereotype refers to those folk beliefs about the attributes characterizing a social category on which there is substantial agreement" (Mackie, 1973: 435).

"Stereotypes are sets of traits attributed to social groups" (Stephan, 1985, p. 600).

"Stereotypes are highly organized social categories that have properties of cognitive schemata" (Andersen, Klatzky & Murray, 1990, p. 192).

We also need a definition of the term 'social group'. Even a cursory glance at the literature on inter-group relations reveals the diversity of meanings that have been attached to the term 'group'. Early research on inter-group relations emphasized the importance of role relationships and face-to-face interaction as key characteristics of groups (see for example Bales, 1950). However, such definitions exclude large scale social categories such as ethnic groups (Brown, 2000). Furthermore, Tajfel (1982) highlighted that there may be a discrepancy between the external criteria for group membership as applied by those 'outside' a social system for example by social scientists, and the criteria for group membership applied by those inside the system. Such considerations led some theorists to focus on people's self-categorizations, and a group was defined as "a collection of individuals who perceive themselves to be members of the same social category" (Tajfel and Turner: 1986: 15). For our present purpose a social group is taken to mean "two or more people who are perceived as sharing some common characteristic that is socially meaningful to themselves [and/]or others" (Mackie, Hamilton, Susskind and Rosselli, 1996: 42). This definition was chosen as it takes into account both external and internal criteria. A distinction is made in the literature between in-groups and out-group; in-groups are social groups to which you belong, while out-groups are social groups to which you do not belong (Sumner, 1906).

Aside from representing our knowledge about a relevant social group, stereotypes also have a number of consequences. For instance, they lead us to assume that a specific group member is essentially identical to other members of the group, and the group as a whole is thus perceived and treated as being homogenous. This homogenization can vary in its extremity and rigidity, and it is often associated with evaluation. That is, there is a tendency to attach derogatory stereotypes to outgroups and favourable ones to ingroups. Hence, stereotypes are seen as a central component of prejudice and inter-group relations (Hogg and Abrams, 1988). Within social psychology, prejudice has traditionally been viewed as the application of social stereotypes. According to Allport's classic definition,

prejudice is “an antipathy based on a faulty and inflexible generalization” (Allport, 1954: 9). Many classic and contemporary social psychologists share Allport’s view that prejudice is an inevitable outcome of categorization and stereotyping processes (e.g. Tajfel, 1981; Hilton and von Hippel, 1996). Nonetheless, increasingly social psychologists are recognizing that there is a more complex relationship between stereotyping and prejudice. More specifically, it has been found that prejudice can precede the formation of stereotypes. In other words stereotypes can lead to prejudice but prejudice can also contribute to stereotyping (Mackie, Hamilton, Susskind and Rosselli, 1996). Furthermore, most empirical investigations of the relationship between stereotyping and prejudice report modest correlations (e.g., Biernat and Crandall, 1994; Kawakami, Dion, and Dovidio, 1998; Stephan and Stephan, 1996). The upshot of all this is that there is no simple relationship between stereotyping and prejudice and the traditional ‘inevitability of prejudice’ approach is overly simplistic.

Stereotyping and prejudice are also closely related to discriminatory behaviour. They can have substantial effects on job hiring and performance evaluations (Glick, Zion, and Nelson, 1988). Discrimination has been blamed for the large percentage of Blacks living in poverty, and their lack of access to healthcare and prestigious jobs in the U.S. (Williams and Rucker, 2000). It has also been found that just thinking about social categories to which we belong can activate stereotypes associated with that category resulting in stereotype consistent behaviour, thus creating self-fulfilling prophecies (Steele and Aronson, 1995). For instance, Shih, Pittinsky and Ambady (2000) found that activating the category gender in Asian American women led to worse performance on a maths test (presumably priming gender identity activated the stereotype that women are not good at math). However, when ethnic identity was activated the same participants performed much better on the maths test (presumably priming ethnic identity activated the stereotype that Asians excel at math). This phenomenon is known as stereotype or social identity threat. Social identity threat is defined as “a state of psychological discomfort that

people experience when confronted by an unflattering group or individual reputation in situations where that reputation can be confirmed by one's behaviour" (Aronson and McGlone, 2009: 154). Social identity threat is not an experience limited to women. For example, experiments have found performance decrements among African Americans (Steele and Aronson, 1995); Latinos (Aronson and Salinas, 1997; Gonzales, Blanton, and Williams, 2002); Native Americans (Osborne, 2001), and poor White college students in France (Croizet and Claire, 1998).

As noted above, within social psychology, stereotypes have, broadly speaking, been conceptualized and studied from two different approaches; a descriptive (content-based) approach and the social cognition (process-based) approach (Hogg and Abrams, 1988). These approaches and their concomitant advantages and drawbacks are reviewed below.

1.1.1 Stereotypes - a descriptive (content based) approach

Early research on stereotypes adopted a descriptive approach and focused on uncovering the contents of stereotypes of various social groups and the consensus surrounding such contents. Descriptive studies of stereotypes have generally been conducted within the framework of the cultural (or collective) approach. This approach draws heavily on anthropological and sociological concepts. Proponents of the cultural approach consider society itself to be the basis of stored knowledge. This knowledge includes the society's ideas, myths, customs, religions and sciences (Farr and Moscovici, 1984). Stereotypes are considered public information about social groups that is widely shared among individuals within a given culture. Advocates of this approach note that it is the contents of stereotypes and consensus surrounding stereotypes in a culture that make stereotypes problematic. From this perspective, it matters that the stereotypes of Blacks include "lazy" and "athletic" because they are involved in determining the social status of Blacks within society (Stangor and Schaller, 1996).

Katz and Braly (1933) provided the framework for early research. They devised a procedure for eliciting people's stereotypes of specific groups which allows researchers to assess both the contents of stereotypes, as well as the degree of consensus about such contents. Princeton University undergraduates were required to select adjectives they believed 'to be typical of' ethnic groups (in the U.S) such as African Americans, Jews, Irish, and Turks from a long list, and then indicate the five most characteristic of each group. Only the latter were subjected to analysis, and revealed extensive agreement between people about what constitutes the stereotype of a particular social group; for example, Katz and Braly report that 75% of their sample believed African-Americans to be lazy and 79% that Jews are shrewd. This study was replicated in 1951 by Gilbert and again in 1969 by Karlins, Coffman and Walters and the three studies are collectively known as the Princeton Trilogy studies (see Tables 1.1 and 1.2). In their second classic study, Katz and Braly (1935) found that the rank order of preferences for the 10 groups (serving as a crude prejudice measure) was identical to the rankings of the average desirability of the traits assigned to groups. And so began a long tradition of social psychologists seeing stereotypes as closely linked to prejudice.

It is not uncommon for all members of a culture to share the same stereotypes of groups, even the members of the group who are the target of the stereotypes. It has been found that both blacks and whites hold highly similar stereotypes of blacks (Bayton, 1941; Makykovich, 1972). Hispanic and White Americans generally agree on the traits ascribed to each group (Triandis, Lisanky, Setiadi, Chang, Marin and Betacourt, 1982). One of the most extensive studies of national stereotypes was conducted by Peabody (1985). People in several European countries rated Americans and people from other European countries. Generally, there was considerable agreement across national samples (including the country being judged) as to the characteristics possessed by people in each national group.

TABLE 1.1: Princeton Trilogy Studies: Stereotypic Traits of Select Social Groups

<i>Group</i>	<i>1933</i>	<i>1951</i>	<i>1969</i>
<i>Americans</i>	Industrious	Materialistic	Materialistic
	Intelligent	Intelligent	Ambitious
	Materialistic	Industrious	Pleasure-loving
	Ambitious	Pleasure-loving	Industrious
	Progressive	Individualistic	Conventional
<i>Jews</i>	Shrewd	Shrewd	Ambitious
	Mercenary	Intelligent	Materialistic
	Industrious	Industrious	Intelligent
	Grasping	Mercenary	Industrious
	Intelligent	Ambitious	Shrewd
<i>Afro-Americans</i>	Superstitious	Superstitious	Musical
	Lazy	Musical	Happy-go-lucky
	Ignorant	Ignorant	Pleasure-loving
	Musical	Pleasure-loving	Ostentatious

Note. Adapted from Gilbert, 1951; Karlins, Coffmin, and Walters, 1969; Katz and Braly, 1933.

TABLE 1.2: Princeton Trilogy Studies: Ten Most Frequently Selected Traits (and Percentages of Subjects Listing These Traits) for African-Americans

<i>Trait</i>	<i>1933</i>	<i>1951</i>	<i>1969</i>
Superstitious	84	41	13
Lazy	75	31	26
Happy-go-lucky	38	17	27
Ignorant	38	24	11
Musical	26	33	47
Ostentatious	26	11	25

Note. Adapted from Gilbert, 1951; Karlins, Coffmin, and Walters, 1969; Katz and Braly, 1933.

Several criticisms have been levelled at the Princeton trilogy and subsequent studies using their research paradigm. Devine (1989) noted that subjects may be aware of cultural stereotypes without necessarily endorsing them personally. Devine and Elliot (1995) argue that instead of asking people to provide traits they associated with various groups, a better measure might have been to ask which traits subjects thought were part of the general stereotype of a group. Using this latter method, Devine and Elliot (1995) found that many of the original Katz and Braly traits (such as being superstitious, naive and materialistic) had essentially disappeared from whites' stereotypes of blacks, while other traits (such as being athletic, low in intelligence, criminal and loud) were endorsed by at least a third of the subjects. Another criticism is that the three studies used the same traits for comparability reasons, despite the obvious possibility that current racial stereotypes may include features that were not given to the earlier subjects (Schneider, 1996).

While initial research focused on national, racial and ethnic groups, later research began to focus on the contents of gender stereotypes. Although there was some early research on gender stereotypes (Sheriffs and Jarrett, 1953), the major stimulus for research was a paper by Rosenkrantz, Vogel, Bee, Broverman, and Broverman (1968). These authors asked participants to rate the extent to which males and females exhibited 122 traits. The 41 items that at least 75% of men and 75% of women agreed "belonged" more to one gender than the other were designated as sex-stereotypic traits. There were 12 feminine traits (e.g, being talkative, religious, quiet, expressing tender feelings) and 29 masculine traits (e.g., being aggressive, objective, logical, self-confident, active). In the past quarter century more research has been directed to gender than any other category (cf., Schneider, 2004). For the next 20 years or so, most studies on stereotypes continued the same basic focus (see Brigham, 1971 for an extensive review). Tajfel (1978) summarized the general findings of these studies as follows: (1) people characterize vast human groups in terms of a few fairly crude common attributes; (2) such stereotypes are very slow to change,

and such change occurs in response to social, political or economic changes; (3) stereotypes are learned at a very young age, even before the child has any clear knowledge about the group to which the stereotype refers, and (4) stereotypes are most harmful and destructive in a social climate of hostility and conflict.

Overall, the descriptive approach was indispensable in establishing the contents of the stereotypes of social groups, how strongly they are held, their evaluative connotations, and the level of social consensus about stereotypes. Nevertheless, by the early 1970s, it appeared that the descriptive approach to the study of stereotypes had become somewhat stagnant. Brigham's (1971) classic review covered about 100 studies and his general tone was somewhat pessimistic as while social psychologists had learned a lot about the specific contents of specific social group stereotypes, there was little in the way of empirical generalizations. Furthermore, social psychologists began to recognise that such a content-based account failed to consider the social psychological processes responsible for stereotyping (Hogg and Abrams, 1988). This concern coincided with the cognitive revolution in psychology and generated the second wave of research on stereotypes. The 1970s were years of extraordinary development in cognitive psychology, and during the 1980s this perspective was applied rigorously to the study of how we perceive, remember and think about people and social events (see Baars, 1986; Gardner, 1986; Mandler, 2002; Miller, 2003). Cognitive psychology generally, and social cognition more particularly, emphasized the role of abstract cognitive structures in processing information about others. Stereotypes began to be seen as cognitive structures in their own right. Thus, emphasis shifted away from studying the contents of stereotypes to studying the general cognitive processes involved in stereotyping, and the nature of the cognitive structures of social group concepts (Hamilton, Stroessner and Driscoll, 1994).

1.1.2 Stereotypes - a social-cognition approach

The study of the cognitive processes and cognitive structures underpinning stereotyping has primarily been associated with the dominant social cognition tradition within North America (cf. Fiske and Taylor, 1991). A strong emphasis is placed on the minutiae of cognitive processes, and how cognitive structures shape the encoding and representation of information, and it is thus intentionally based in cognitive psychology. Stereotype formation begins when an aggregate of persons is perceived as comprising a group, an entity. Individuals are categorized into different groups that are somehow perceived in relation to each other (women vs. men; Americans vs. Russians). Stereotypes are viewed as products of normal everyday cognitive processes of social categorization, social inference, and social judgment and so may be studied in terms of general principles of human cognitive activity (Borgida, Locksley, and Brekke, 1981). Several decades ahead of the cognitive revolution in Social Psychology, Allport presciently argued that:

The human mind must think with the aid of categories. Once formed, categories are the basis for normal prejudgement. We cannot possibly avoid this process. Orderly living depends upon it. We like to solve problems easily. We can do so best if we can fit them rapidly into a satisfactory category and use this category as a means of prejudging the solution. If I can lump thirteen million of my fellow citizens under a simple formula 'Negroes are stupid, dirty, and inferior' I simplify my life enormously (Allport, 1954: 20-1).

Two lines of reasoning have been offered for why perceivers so readily categorize others into groups rather than maintaining their individuality. The first focuses on the cognitive underpinnings of categorization and emphasizes the value of cognitive efficiency. People are continuously engaged in trying to comprehend a complex world that can make more demands on information processing than the system can handle. Consequently, it is efficient to identify the similarities and differences

among various stimulus events and group those stimuli into categories on that basis. For many purposes, members of the same class can be treated as functionally equivalent, and different from stimuli in other categories. When these stimuli are people, this process leads us to group people into social categories (Fiske and Taylor, 1991). As Hilton and von Hippel (1996) point out, it is important to remember that although categorization involves “information loss” through the failure to recognize the individuality of each category member, categorization also provides “information gain” through ascribing group characteristics to individual members. That is, once an individual is categorized as a group member, the observer can assume that that person possesses many features characteristic of group members, even in the absence of empirical evidence about that individual. On this view, categorization is a cognitive mechanism that is a natural consequence of the perceiver’s simultaneous need to both reduce *and* elaborate available information. Social cognition theorists note that categorization does not always eventuate in the formation of a full-blown stereotype. However, they readily acknowledge that they currently know little about the conditions under which this transition takes place (Hilton and von Hippel, 1996).

The second perspective focuses on the self-evaluative benefits of differentiating one’s own group (in-group) from other groups (out-groups). According to *Social Identity Theory* (SIT) (Tajfel and Turner, 1979), these differentiations are driven by the perceiver’s desire for positive social identity. ‘Social identity’ is defined as, “that part of the individuals’ self-concept which derives from their knowledge of their membership of a social group (or groups) together with the value and emotional significance of that membership” (Tajfel, 1981: 255). The major assumption of SIT is that even when there is no explicit or institutionalized conflict or competition between the groups, there is a tendency toward ingroup-favouring behaviour. SIT posits that part of one’s self evaluation derives from one’s membership in social groups. To the extent that we have favourable evaluations of our in-group, or can at least derogate out-groups,

there will be some beneficial consequence for one's self-regard. On this view, then, intergroup categorization rests in part on this motive for self-enhancement. In terms of stereotype formation, social identity mechanisms provide motives for attributing positive qualities to the in-group and negative qualities to the out-group (Brewer, 1979). SIT theorists claim that even membership in a short-term, arbitrarily determined group can provide positive social identity. Indeed, Tajfel put forward SIT to account for the results of an experimental paradigm known as the *Minimal Group Paradigm* (MGP) (Tajfel, Billig, Bundy and Flament, 1971). The MGP describes an experimental context that creates an ad hoc basis for categorization and includes measures of evaluation of, and discrimination between, the groups involved. The unique characteristic of this minimal group paradigm was that the groups represented the most basic form of social categorization, based on simply being in one group or the other. The major dependent variable was the distribution by each subject of points worth money between two other anonymous subjects who were either one from the in-group and one from the out-group, both from the in-group, or both from the out-group. The results showed clear evidence of bias in favour of the in-group via the adoption of the in-group favouritism strategy (a combination of maximizing points for in-group and maximizing the difference in favour of the in-group in the number of points awarded) even in this minimal context.

This mere categorization effect has been replicated many times using many different ways of categorizing people and many different measures of evaluation. In the original experiment, inter-group categorization was based on differing aesthetic preferences. However, participants also show in-group bias when divided into groups on an explicitly random basis, such as flipping coins (Billig and Tajfel, 1973). They have shown in-group bias not only when allocating money (Tajfel *et al.*, 1971) but also when evaluating the behaviours of in-group and out-group members (Howard & Rothbart, 1980). In a recent study, Otten and Wentura (1999) illustrated that such a bias may also operate at an implicit level. Otten and Wentura contend that a minimal in-group's positive distinctiveness might, at least

partly, be based upon an automatically activated, implicit positive attitude towards the self-including social category. They conducted two experiments to investigate implicit inter-group bias in minimal groups. In both studies, participants were anonymously assigned to a social category and the category labels were then used in an affective priming task. It was found that in-group category labels - compared to out-group category labels - facilitated reactions towards positive targets, while out-group category labels facilitated reactions towards negative targets. The category label priming effect was also found to correlate meaningfully with explicit measures of in-group identification and in-group favouritism. These MGP research findings are important, claim advocates of SIT, because they suggest that there is a *psychological* component to prejudice, beyond any economic, political, or historical factor (Crisp, 2007). Tajfel's work provided a major stimulus for research on inter-group relations, and social psychologists have continued to explore new domains for over 20 years. This effort has generated an entire literature on in-group bias (for a review, see Brewer, 1979).

Nonetheless, there have been several criticisms levelled at Social Identity Theory. One of the most persistent is that SIT is not well-equipped to account for the fact that most real-life inter-group situations are characterized by social stratification based on status inequalities that exist between groups. If, as SIT contends, the need for positive social identity motivates discrimination, then we should expect people in low-status groups to be even more motivated to discriminate than people in high status groups. However, a substantial body of research shows that members of low-status groups often acknowledge the superiority of high-status groups and often discriminate in favour of high status groups. One of the most well-known examples of such 'out-group favouritism' is Clark and Clark's study (1947) doll study in which Black children showed a distinct preference for White dolls rather than Black dolls. Field studies conducted by, amongst others, Brown (1978), Hewstone and Ward (1985), and others have turned up strong evidence of out-group favouritism among members

of various low-status groups. In a meta-analytic review of tests of the in-group bias hypothesis, Mullen, Brown and Smith (1992) found that for the 42 hypothesis tests where the in-group was judged to be of lower status, there was a weak in-group bias effect. Using a variant of the MGP, Sachdev and Bourhis (1987) formed ad hoc high, low and equal status groups. Results showed that high and equal status group members were more discriminatory against the out-group, and more positive about their own group membership than were low status group members. Low status group members engaged in significant amounts of out-group favouritism by distributing more resources to high status out-group members. It is important to stress that the subject of out-group favouritism has been addressed in some detail by social identity theorists such as Tajfel (1982), Turner and Brown (1978) and others. However, such ideas are not coherently built into SIT itself. We shall return to the role of social status in inter-group relations in Chapter II.

While some research during the 1960s and 1970s had a cognitive focus, the real beginnings of the cognitive approach to stereotyping took place in the 1980s. Researchers within the social cognition tradition focused their attention on trying to unearth the nature of the cognitive structures of social group concepts. Three general approaches as to how information about social groups is represented within memory have been proposed. These are group schemas, group prototypes and exemplars. The most traditional approach to stereotyping within the social cognition approach is based on the cognitive schema (Fiske and Linville, 1980). Schemas are abstract knowledge structures that specify the defining features and relevant attributes of a given concept. Schemas give meaning to social information and promote parsimonious information processing. As representations of social groups, group schemas are collections of beliefs about the characteristics of a social group. Once developed schemas influence attention to and interpretation of social information, as well as judgments of and behaviour towards others (Fiske and Taylor, 1991). One particular limitation of the schema approach is that it does not make clear

predictions about how one should measure stereotypes independently of the schematic effects themselves. Although diverse measures, including biased memory (Fyock and Stangor, 1994) and reaction times (Bem, 1981) have been used as measures of schematic processing, there is no well established method of validating the existence of the schema independently of its outcomes.

Because one of the primary goals of the cognitive approach has been to “get specific”, researchers have turned away from the schema towards a conceptualization of stereotypes in terms of more clearly articulated models of mental representation (Hamilton and Sherman, 1994). One popular concept in this regard is the group prototype. Group prototypes are mental representations consisting of a collection of associations between group labels (e.g., Italians) and the features that are assumed to be true of the group (e.g., a feature of Italians might be “romantic”). Thus, prototypes are similar to group schemas, but at a lower and more specific level of representation. One advantage of this approach is that because stereotypes are defined as mental associations between category labels and trait terms, stereotypes can be measured by the extent to which these traits are activated upon exposure to category labels, that is, if the trait “romantic” is stereotypic of Italians, then when thinking about Italians, “romantic” should come to mind quickly through spreading activation (Collins and Loftus, 1975).

Finally, an exemplar-based alternative to the abstraction based models has been proposed (Andersen and Cole, 1990). According to the exemplar model, groups are represented through particular concrete exemplars. The stereotype of African Americans as athletic, for example, is thought to be stored in the form of specific individuals (e.g. Michael Jordan, Carl Lewis). Which exemplars are called to mind upon encountering an individual depends on how attention is directed. Because of this feature, exemplar models place considerable emphasis on the role that goals and context play in determining which stereotypes are activated and applied (Smith and

Zarate, 1992). While these accounts differ in many respects they all assume that category representation is based one way or another on similarity judgments. However, there is increasing evidence that at least some categories are not formed on the basis of perceptual similarity. There is evidence that even in making judgments about the similarity of two or more people we must use a “theory” of sorts to decide which features are important (Rips and Collins, 1993). In recent years, there has been considerable interest in so-called ‘theory-based’ approaches to category representation. This will be discussed in more detail in the next chapter.

A recent development in the social cognition field has been the surge of interest in the use of implicit methods. Indeed this is one of the fastest growing areas of research in social psychology therefore I shall not attempt to provide a comprehensive review of the field (for an extensive review see Bargh, 2007). A variety of implicit measurements techniques have been developed and used to study attitudes (e.g., Fazio, Jackman, Dunton and Williams, 1995; Greenwald and Banaji, 1995); self-esteem (e.g., Rudman, Ashmore and Gary, 2001) and stereotypes (e.g., Wittenbrink, Park and Judd, 1997; Nosek, Banaji and Greenwald, 2002). One of the simplest techniques used is reaction time or latency. Participants are given some task and the speed with which they complete the task is measured. Thus a straightforward way of studying stereotypes has been to ask participants whether a given group possesses a certain trait and to measure latency of answering. Several studies have shown that information consistent with the stereotype of a given group is processed more rapidly than information inconsistent with the stereotype (e.g., Brewer, Dull, and Lui, 1981; Lalonde and Gardner, 1989; MacRae, Bodenhausen, Milne, and Jetten, 1994). Other popular measures include priming paradigms (Perdue, Dovidio, Gurtman and Tyler, 1990), the implicit association test (IAT) (Nosek, Greenwald and Banaji, 1995) and lexical decision tasks (Wittenbrink *et al.*, 1997). What all implicit methods share is that they seek to measure the construct of interest without having to directly ask the participant for a verbal report. The major appeal of implicit methods is that these indirect estimates are

likely to be free of social desirability concerns. For many years social psychologists have been using direct measures of stereotypes. The two most extensively used methodologies used to study stereotypes and prejudice are free-response measures (directly asking participants which traits they associate with a given group) or attribute checking measures (giving participants a list of traits and asking them to select which traits they associate with a group) (Schneider, 2004). However, over the years social psychologists have found that participants in experiments are much less willing to admit that they are prejudiced or hold stereotypes. Hence, implicit methods have been of particular interest to social psychologists studying stereotypes and prejudice as they can reveal information that people might explicitly reject because their expression may have negative social consequences (Stangor, 2009). Furthermore, such implicit measures fit present definitions of stereotypes as being the beliefs about the traits that are associated with social groups very well.

At the time of the cognitive revolution in social psychology in the 1970s it was widely believed that cognition was deliberate and conscious. However, by the 1980s cognitive psychologists began to investigate unconscious or automatic cognitive processes. This resulted in the hypothesis of a dichotomy between automatic cognitive processes (characterized by lack of awareness, unintentionality, uncontrollable and efficient) and controlled cognitive processes (characterized by awareness, intentionality, controllability and limited capacity). Building on this model, Devine (1989) proposed that prejudice and stereotyping are governed by a mixture of controlled, consciously held beliefs and automatic, preconscious processes. Furthermore, Devine (1989) argued that these two processes operate and can be measured independently. Early work on automaticity in stereotyping was strongly influenced by this dual process conception of cognition. There is ample evidence that stereotypic trait information about a group can be automatically activated by exposure to a group-related stimulus; these include age (Perdue and Gurtman, 1990), gender (Pratto and Bargh, 1991), and 'race' (Devine, 1989; Macrae *et al.*, 1994). The literature has included

much discussion of the relationship between implicit and explicit measures. Within the domain of prejudice and stereotyping, the correlations tend to be quite low (e.g., Fazio, Jackson, Dunton & Williams, 1995, Greenwald, McGhee & Schwartz, 1998), although there are occasional reports of significant correlations (e.g., Lepore and Brown, 1997, Wittenbrink *et al.*, 1997).

Within the past few years, psychologists have recognised that the dichotomy between automatic and controlled mental processes is too simplistic. It appears that most psychological phenomena comprise both automatic and controlled components (Payne and Stewart, 2007). In addition, Fazio and Olson (2003) have expressed some misgivings about the very terms “implicit” and “explicit” having been imported from cognitive psychology, at least insofar as they are used to refer to implicit vs. explicit attitudes, stereotypes etc. In cognitive psychology, individuals are said to display implicit memory for a prior event when their performance on some task shows evidence of their having been influenced by that prior event, even though they display no explicit memory for the event, i.e., they report no awareness of the event having occurred (see Schacter, 1982). If this terminology is to have similar meaning for attitudes, stereotypes etc then it has to imply that implicit attitudes are ones for which individuals lack awareness. Fazio and Olson (2003) point out that nothing about our current implicit measurement procedures guarantees that participants are unaware of their attitudes. Furthermore, they argue that discordance between scores on an implicit and an explicit measure should not, in and of itself, be taken as evidence that the implicitly measured construct is an unconscious construct. Hence, they stipulate that it is more appropriate to view the measure as implicit or explicit, not the attitude, stereotype etc.

By and large, the social cognition approach has come to dominate social psychology generally, as well as the study of stereotypes more specifically (cf. Hamilton and Sherman, 1994; Stangor and Lange, 1994). One of the central advantages of this approach is that by drawing on cognitive

psychology it allows social psychologists to unite the study of stereotypes with social knowledge more generally, through the language of mental representation. For example, conceptualizing stereotypes as the cognitive component of prejudice provides a way of studying stereotypes within the broader literature on attitudes (Fazio, 1990). However despite these important contributions, the social cognition approach has several drawbacks. The social cognition perspective does not place much emphasis on the content of stereotypes (Schneider, 1996). Furthermore, it overlooks the socially important outcomes of stereotyping (Stangor and Schaller, 1996).

I.1.3 Stereotypes - The new look in content

In recent years, in lieu of the criticisms levelled at the social cognition approach, there has been a return to examining the contents of stereotypes. However, what distinguishes this new look in content from the old is the deliberate attempt to make empirical generalizations about the contents of stereotypes. In order to achieve this goal, social psychologists have focused their attention on how structural factors shape the contents of stereotypes. One of the first studies to demonstrate that people's intergroup attitudes were a product of their group's interests in a specifically structured, inter-group relationship were the Sherif and Sherif (1966) Robbers' Cave experiments. Sherif and Sherif (1996) demonstrated that groups interacting in a conflict of interest situation developed hostile intergroup attitudes and behaviour:

The sufficient condition for the rise of hostile and aggressive deeds...and for the standardization of social distance justified by derogatory images of the outgroup was the existence of two groups competing for goals that only one group could attain (Sherif, 1966, 85).

As noted earlier, following Allport (1954), social psychologists have typically viewed only unflattering stereotypes as indicative of prejudice, where prejudice is a uniform antipathy towards an out-group. However

recent research has indicated that many intergroup relations (race, class or gender) do not correspond to the expectations of Allport's prejudice model i.e. free-ranging, hostile feelings and unmitigated derogatory stereotypes. Jackman (2005) has argued that in order to understand inter-group attitudes it is critical to assess the structure of the relations between the groups. Similarly, Eagly and Diekmann (2005) outline a new theory of role-incongruity prejudice which suggests that in order to understand prejudice we need to take into account the social-structural position of targeted groups. The key eliciting condition for prejudice, they claim, is the potential or actual entry of group members into social roles to which they are stereotypically mismatched (Eagly and Diekmann, 2005). Hoffman and Hurst (1990) provided experimental evidence for the contribution of role-determined behaviours to the acquisition of stereotypes. In their study, subjects read descriptions of fictitious inhabitants of a distant planet - 'Orinthians' and 'Ackmians'. After hearing most Orinthians described as involved in child-care, subjects judged them to be typically nurturing, affectionate and gentle, whereas Ackmians, who were described as mainly employed outside of the home, were seen as competitive and ambitious. Each group was seen as having psychological characteristics appropriate for its role. Additional evidence indicated that true stereotypes of these groups had been acquired. Indeed, subjects later applied these stereotypes to individual group members whose occupations clashed with the stereotype: they saw an employed Ackmian as more competitive and ambitious than an employed Orinthian.

An important new theory which focuses directly on the relationship between the structure of inter-group relations and the content of stereotypes is Fiske, Cuddy and Glick's (2007) *Stereotype Content Model* (SCM). Fiske and colleagues have found that two core dimensions underlie the contents of social group stereotypes: competence and warmth (for an extensive review of these dimensions, see Cuddy, Fiske and Glick, 2008). Their competence scales have included traits such as 'capable', 'skillful', 'intelligent', and 'confident.' While their warmth scales have included

traits such as 'good-natured', 'trustworthy', 'tolerant', 'friendly', and 'sincere'. They do not deny that specific social group stereotypes have idiosyncratic content (e.g., the notion that African-Americans are athletic) but they argue that much of the variance in group stereotypes can be explained by warmth and competence dimensions. Evidence for the spontaneous use of these dimensions in stereotyping comes from a re-analysis of the Princeton stereotyping series begun by Katz and Braly (1933) (see above). Using the original list of 100 adjectives, five independent judges categorized each trait appearing in any of the stereotypes in all of the four studies. Using 60% agreement as a criterion, 17 traits were categorized as warmth traits, 33 traits were categorized as competence traits, and 34 traits were categorized as neither, so 60% of the spontaneously checked adjectives for ten ethnic groups over 75 years fit competence and warmth dimensions (Cuddy, Fiske and Glick, 2008).

Numerous studies have revealed that warmth and competence are central dimensions of stereotypes of a wide variety of social groups, including age-groups (Cuddy, Norton and Fiske, 2005); Asians and Asian Americans (Kitano and Sue, 1973; Lin, Kwan, Cheung and Fiske, 2005); immigrants (Lee and Fiske, 2006); subgroups of gay men (Clausell and Fiske, 2005); subgroups of Black Americans (Williams and Fiske, 2006); European nationalities (Cuddy, Fiske, Kwan, Glick *et al.*, 2009; Peeters, 1993); enemy outgroups (Alexander, Brewer and Livingston, 1999); linguistic groups (Ruscher, 2001; Yzerbyt, Provost and Corneille, 2005); and fascist depictions of racial groups (Volpato, Durante and Fiske, 2007). Wojciszke and colleagues' have also conducted extensive experimental work on the two dimensions of competence and morality (instead of warmth). Wojciszke, Bazinska and Jaworski (1998) use the terms morality and competence, but the moral traits include 'fair', 'generous', 'helpful', 'righteous', 'sincere', 'tolerant', and 'understanding', which overlap entirely with the warmth dimension used in the studies cited above. They have discovered that together these two dimensions account for approximately 82% of the variance in global impressions of well-known others (Wojciszke, Bazinska, and Jaworski,

1998). Finally, the warmth and competence dimensions also emerge in analyses of emotional prejudice towards specific social groups, for example high warmth and high competence stereotypes elicit admiration, while high warm and low competence elicit pity (For a discussion of these findings, please see Cuddy, Fiske and Glick, 2007).

The SCM model is supported by research conducted across eighteen nations tested so far, including North America, nine European nations, three East Asian nations, three Latin American nations, and two Israeli samples (Cuddy, Fiske, Kwan, Glick, *et al.*, 2009). Fiske *et al.* have found that although some outgroups are perceived negatively on both warmth and competence (such as the homeless or welfare recipients), most social groups are perceived ambivalently (high on one dimension and low on the other). Some groups are seen as incompetent but warm, including African Americans (Jackman, 1994); older people (Cuddy and Fiske, 2002) and traditional women (Glick and Fiske, 2001). Other groups are viewed as competent but cold, including non-traditional women (Glick and Fiske, 2001); Asian Americans (Lin, Kwan, Cheung and Fiske, 2005) and Jews (Allport, 1954; Glick, 2002).

The SCM proposes that the universality of the dimensions competence and warmth to stereotypes stem from the structure of inter-group relations. More specifically, they arise from appraisals of inter-group competition and inter-group social status differentials. In relation to inter-group competition, when a group explicitly competes with the in-group, its intent is seen as unfriendly and untrustworthy (i.e. not warm). By contrast when a group cooperates with or does not hinder the in-group, then their intent is seen as friendly and trustworthy (i.e. warm). As this theory predicts, the perceived warmth and interdependence (cooperation-competition) of groups are negatively correlated (on average - 0.52 across groups in US, Western European and Asian samples) (Cuddy *et al.*, 2009). The other dimension, competence, results from appraisals of inter-group status differences. Perceivers view high status and low status groups as meriting

their positions because they are respectively, more versus less competent. Of the 18 nations they have studied the status-competence correlations average 0.94 across groups (Cuddy *et al.*, 2009). Fiske and colleagues have also found that often these two traits are negatively correlated and cluster into two types based on group status; high status group members are perceived as competent but cold, while low status group members are perceived as incompetent but warm (Fiske, Xu, Cuddy and Glick, 1999). Aside from correlational studies, these structural predictors have also received support from experiments on intergroup perception (Caprariello, Cuddy, and Fiske, 2007; Oldmeadow and Fiske, 2007). Fiske *et al.*'s studies focus almost wholly on stereotypes of out-groups. In relation to the in-group it is claimed that due to in-group favouritism people may perceive their in-group to be high in both competence and warmth. In two studies they explicitly included in-group ratings and found that participants rated their in-groups (e.g., Americans, students, middle-class and Whites) as highly competent and highly warm (Cuddy *et al.*, 2007, Study 1; Fiske, Cuddy, Glick and Xu, 2002, Study 2). However, these groups are all high-status groups and the results may be due to the status of the groups rather than in-group favouritism *per se*. So far, to my knowledge, there has been no investigation of ratings of other in-groups (e.g., women, men, Hispanics, Asians and Blacks).

It has also been found that morality/warmth judgements may be primary. In a series of studies, Wojciszke, Bazinska, and Jaworski (1998) demonstrated the primary of warmth/morality traits in global evaluations of others. For instance, participants asked to list the most important personality traits listed significantly more morality/warmth traits than competence traits. In lexical decision tasks, social perceivers identify warmth-related trait words faster than competence-related trait words, even when controlling for word length (Ybarra, Chan, and Park, 2001). In another series of studies perceivers judged warmth faster than competence in (a) an anticipated interaction paradigm, (b) a photo evaluation task

without contextual cues, and (c) a photo evaluation task including social groups that varied in status (Hack, Goodwin, and Fiske, 2007).

I.1.4 The Social Outcomes of Stereotyping

Once you stereotype me, you negate me - Soren Kierkegaard

In addition to the inability to account for the specific contents of stereotypes, the second biggest criticism leveled at the modern social cognition account of stereotyping is its lack of focus on the social consequences of stereotypes. Tajfel argued that stereotypes serve functions for both individuals and society, and that it is very important to link theoretically these two classes of functions (Tajfel, 1981). Jost and Banaji (1994) have noted that while social psychological theories have emphasized the self- and group-justification functions of stereotypes, very little has been written about the ideological functions of stereotypes. They suggest that:

Stereotypes serve ideological functions, in particular...they justify the exploitation of certain groups over others, and...they explain the poverty of powerlessness of some groups and the success of others in ways that makes these differences seem legitimate and even natural (Jost and Banaji, 1994: 10).

In other words, they argue that stereotypes serve important ideological functions by rationalizing and justifying the status quo. The concept of ideology is highly contested within the social sciences, and has resulted in many competing definitions (see Eagleton, 1991, for an extensive review). The predominant conception of ideology by psychologists has been as a coherent set of political beliefs and values (e.g., Eysenck & Wilson, 1978; Sniderman & Tetlock, 1986). This is in stark contrast to the critical Marxist tradition in which ideology has variously been defined as: a system of beliefs and practices oriented to political change; as the interests of a

particular class; and as false beliefs which legitimize existing social practices and power relations (Eagleton, 1991). Augoustinos and Walker (1998) argue that these critical approaches to ideology are consistent with Jost and Banaji's analysis of the ideological functions of stereotypes. Indeed, Augoustinos and Walker (1998) extend this analysis further and argue that stereotypes are not only ideologically functional, they are, in and of themselves, ideological representations which "are used to justify and legitimize existing social and power relations within a society" (1998: 630).

Stereotypic beliefs about groups often function to provide a rationale for, and justification of, status disparities, especially differences favouring the in-group. One theory that focuses specifically on status stereotypes is the *Stereotype Content Model*. It has been argued that the ambivalent stereotypes of high status groups as competent and cold, and low status groups as incompetent and warm help to imbue hierarchical social systems with legitimacy (Glick and Fiske, 2001). Jost, Burgess, and Mosso (2001) argue that high status groups justify their advantage by viewing the status quo as fair, while low status groups often endorse this view because it explains their position. They report data from a survey of stereotypes about Northerners and Southerners in the United States. Respondents rated both groups on competence-related and warmth-related traits either before or after rating the magnitude, legitimacy and stability of status differences between them. In addition to the typical effect of stereotyping the high status group as more competent (and the low status group more warm), those who made stereotypical judgments first then went on to rate the magnitude, legitimacy and stability of the status difference between the groups as higher compared to those who made stereotypical judgments last. In another series of studies, participants exposed to a 'poor, happy and honest' or 'rich, unhappy and dishonest' target rated the social system as fairer and more legitimate than participants exposed to a 'poor and unhappy or dishonest' or 'rich and happy or honest' target (Kay and Jost, 2003). Thus, it seems, complimentary or ambivalent stereotypes have a

particular power to legitimize social inequalities. Nonetheless, even the simple status = competence correlation, regardless of the out-group's perceived warmth, endorses the existing system's meritocracy (Glick and Fiske, 2001).

Social psychologists are increasingly recognising that gender and race based inequities are maintained and reinforced through benevolence and paternalism rather than overt hostility as previously believed (Jackman, 1994; Pratto and Walker 2001). Furthermore, the idea that ambivalent stereotypes help to maintain and reinforce inequities between groups is an implicit aspect of theories of racial prejudice e.g. aversive and ambivalent racism theories (Gaertner and Dovidio, 1986; Katz and Hass, 1988) and contemporary theories of sexism (Eagly, 1987). As noted earlier, Eagly and Diekmann (2005) argue that prejudice becomes an acknowledged social problem when a substantial number of group members aspire to incongruent social roles. In short, group members who try to move up in a social hierarchy into new roles become targets of prejudice. In contrast, group members who continue to accept their group's traditional roles, such as women in the domestic role and African Americans in service roles, may be generally appreciated. Consistent with this argument, a meta-analysis of studies of leadership behaviour showed that women are more devalued, compared with equivalent men, when occupying male-dominated roles that are presumably incongruent for women (Eagly, Makhijani and Klonsky, 1992). Similarly, Glick and Fiske's (2001) research on "ambivalent sexism" has shown that attitudes towards women bifurcate into "benevolent" and "hostile" types of sexism, depending on whether the female target follows the traditional, deferential (communal) model, or the career-oriented feminist (agentic) model. Hostility is reserved only for those women who defy traditional, discriminatory injunction. It is important to note that benevolent attitudes toward women and minority groups can have negative consequences, even while, on the surface, appearing to be favourable (Rudman and Goodwin, 2004).

To date the majority of research on these stereotypes has emphasised their socio-structural correlates, while paying less attention to the processes that might affect their expression and endorsement. Although, in recent years there has been a body of social psychological research which attempts to account for the role of motivational processes. There are broadly three accounts of such motivational processes. The first is *Just World Theory* (Lerner, 1977), which proposes that people are generally motivated to view the world as a just and fair place, where good people and good deeds reap good outcomes. The Belief in a Just World (BJW) scale was designed to measure individual differences in motivation to believe the world is a fair and just place (Rubin and Peplau, 1975). To maintain this belief, people tend to interpret or respond to situations in ways that make the situation seem fair or deserved. Furthermore, it has been argued that such norms not only justify the disadvantaged positions of less successful groups, but also let advantaged groups off the hook morally: believing that inequalities are deserved negates the need to examine one's own privileged position. In an empirical test of this assumption, Oldmeadow and Fiske (2008) found that BJW moderates the relationship between perceived status and competence. The relationship was stronger among participants relatively high in BJW than among those relatively low in BJW.

In a similar vein, according to *System Justification Theory* (SJT) (Jost and Banaji, 1994), people are generally motivated to endorse ideologies and stereotypes that reinforce the status quo, but doing so involves a complex process of balancing needs for self, group and system justification. Legitimizing ideologies relieve people's discomfort about participating in a social system that inflicts pain on self or others by justifying the system as fair. Hence high status groups justify their advantage by viewing the status quo as fair, and even low status groups may endorse this view because it explains their own outcomes (Jost, Burgess, and Mosso, 2001). Finally Sidanius and Pratto (1999) have put forth *Social Dominance Theory* (SDT), according to which all human societies tend to be structured as systems of group-based social hierarchies. Among other things, the dominant group is

characterized by its possession of a disproportionately large share of positive social value that an individual possesses as a result of his or her membership in a particular group such as 'race'. Research on Social Dominance Theory (Pratto, Sidanius, Stallworth and Malle, 1994), for example, shows that endorsement of ideologies that either attenuate or enhance social inequality is related to people's attitudes towards social inequality in general. That is, people high in social dominance orientation (SDO) tend to endorse ideologies that provide moral and intellectual support for inequalities between groups, even when those inequalities disadvantage one's own group. SDO is defined as a "general attitudinal orientation towards intergroup relations, reflecting whether one generally prefers such relations to be equal, versus hierarchical" (Pratto *et al.*, 1994: 742). SDT conceptualises SDO as a relatively stable individual-difference variable, and it predicts support for ideologies that either enhance or attenuate group-based inequalities, such as anti-Black racism, social Darwinism, and meritocracy (Pratto *et al.*, 1994). In a second study, Oldmeadow and Fiske (2007) also found that the relationship between status and competence was stronger among participants high in SDO than those low in SDO.

1.2 Stereotype content and stereotyping process/structure - a rapprochement

It has been seen that the study of group stereotypes has been approached from two different perspectives. The descriptive approach to stereotyping has focused on the contents of stereotypes and the consensus surrounding these contents. However, this approach does not directly address the underlying cognitive processes and structures responsible for stereotyping. On the other hand, the social-cognition approach has focused on the cognitive processes underpinning stereotyping and the nature of mental representations of stereotypes. Yet, the social cognition treatment of stereotyping fails to account for the specific contents of stereotypes and how they come to be widely shared. Most social psychologists would agree

that these two approaches are complementary but very little attempt has been made to integrate them (for an exception, see Schaller, Conway, and Tanchuk, 2002, who found that traits that were high in communicability were more prevalent in stereotypes of minority groups in Canada). Such an integration is much needed, as Stangor and Schaller (1996) point out “an integrating perspective may yield insights that are unlikely to emerge from any single line of enquiry. A full understanding of stereotypes demands some simultaneous adoption of both perspectives” (1996: 20).

However, a key stumbling block to such an integration has been the lack of an overarching conceptual framework which would enable social psychologists to interrelate the study of stereotype contents and a study of the cognitive processes and cognitive structures underpinning stereotypes. In an attempt to fill this conceptual and empirical gap I posit that the Cognition and Culture approach provides just such a conceptual framework, and as such allows for a rapprochement of the *contents* of stereotypes and the *cognitive processes* and *structures* which facilitate stereotyping. It is important to point out, that the intention is not to integrate the descriptive and social cognition approaches. It will be seen that the Cognition and Culture approach leads to a reformulation of our understanding of the relationship between the contents of stereotypes and the cognitive processes/structures underpinning stereotyping. Those who adopt the descriptive approach argue that the contents of stereotypes are wholly derived from the structure of inter-group relations. In contrast, the Cognition and Culture account highlights the role of evolved cognitive predispositions in shaping the contents of mental and cultural representations. Modern social cognition research focuses on processing and pays little attention to the content of what is being processed. From this perspective, as Schneider (2004: 25) points out, “process is process, and content is, well superfluous.” The bottom line is that according to this approach our cognitive machinery does not care about the contents of our stereotypes. Social cognition theorists provide a domain-general account of cognitive processes and structures and do not consider how such processes

and structures may vary as a function of domain (e.g. physical objects vs. social objects). In contrast to the social cognition approach, the Cognition and Culture approach provides a domain-specific account of the cognitive processes underpinning social categorisation and the cognitive structure of social group concepts. Furthermore, this approach allows us to bring together a study of cognitive processes and structures and contents of stereotypes as this approach makes claims about the universality not only of cognitive processes and structures, but also of cognitive contents across cultures.

A key criticism of social cognition accounts of stereotypes has been their lack of focus on the ideological functions of stereotypes (Jost and Banaji, 1994). As seen above, in recent years there has been a body of social psychological research which attempts to account for how motivational processes may impact upon the expression and endorsement of stereotypes. However, these accounts can only elucidate the conditions under which people express or endorse such stereotypes once they are in cultural circulation and not why such stereotypes are able to achieve cultural success in the first instance. Furthermore, social psychologists focus on the ideological functions of stereotype contents and do not consider the potential role of cognitive structures. By drawing on the Cognition and Culture approach it shall be shown that the ability of stereotypes to function as ideological representations may also be facilitated by the cognitive structure of social group concepts. Overall, it will be shown in the next chapter that by adopting a Cognition and Culture approach, we can articulate more clearly the nature of the relationship between the cognitive processes and structures underpinning stereotyping and the contents of stereotypes.

Chapter II - Exploring the Potentials of a Cognition and Culture Account of Social Group Stereotypes

The theoretical framework presented in this chapter is an attempt to illustrate how the Cognition and Culture approach can be applied to social group stereotypes, and facilitate an integrative analysis of the contents of stereotypes and the cognitive processes/structures underpinning stereotyping. The theoretical framework combines theoretical and empirical insights from the Cognition and Culture approach and the Social Psychology of stereotyping. The chapter begins with an introduction to the Cognition and Culture approach, and then proceeds with an articulation of the theoretical framework focusing specifically on how evolved cognitive predispositions may, in part, help to shape the contents of social group stereotypes and account for their purported function of naturalising social status differences between groups.

II.1 The Cognition and Culture Approach - An Introduction

Every living creature is in fact a sort of lock, whose wards and springs presupposes special forms of keys - which keys however are not born attached to the locks, but are sure to be found in the world nearby as life goes on. And the locks are indifferent to any but their own keys (James, 1884: 191).

For many years social scientists have relied on a view of the mind, if not literally as a 'blank slate', at least as an unbiased learning machine made up of a set of relatively domain-general and content-free faculties, such as "memory" and "reasoning" which are applied in equal fashion to diverse problems. As a result the human mind is construed as a mere enabler of culture with no constraints which might shape or bias cultural contents (Sperber and Hirschfeld, 2004). However, it has been argued that this position is untenable for two reasons: because human cultures display universal and recurrent features that belie this account (Brown, 1991), and

because the very notion of a general, unprejudiced learning capacity makes little cognitive and evolutionary sense (Mithen, 1996; Tooby and Cosmides, 1992). Furthermore, this 'standard social science' conception of the mind has been challenged by Cognition and Culture scholars, who drawing on arguments and evidence from cognitive psychology, developmental psychology, evolutionary psychology, linguistics and cognitive anthropology have, often independently, concluded that some human cognitive abilities are specialized to handle specific tasks or domains i.e. they are domain-specific (Hirschfeld and Gelman, 1994). The Cognition and Culture approach seeks to investigate the nature of these domain specific competences, their evolutionary origin, their role in cognitive development and their effect on culture (Sperber, 1996).

Generally, each domain-specific competence represents a knowledge structure that identifies and interprets a class of phenomena assumed to be of a distinct and general type i.e. broad domains such as PERSON, ANIMAL, PLANT, or ARTIFACT. There is evidence that categorical distinctions along ontological lines are present from infancy (Mandler and Bauer, 1988). Furthermore, an important result of experimental studies of early conceptual development is the evidence for the existence of sets of domain-specific principles applied to these different domains. During conceptual development in the first years these specific principles (i) orient the child's attention to particular perceptual cues for each domain; (ii) constrain the child's inferences derived from those cues and (iii) develop in relatively autonomous developmental trajectories (Gelman, 1990). Identifying objects as belonging to such categories as PERSON, ANIMAL, PLANT, or ARTIFACT triggers the activation of specific forms of inference which focus on particular aspects of the objects considered, and only handle information pertinent to that aspect (Boyer, 1999). Finally, these domain-specific competences are described as evolved adaptations to

specific problems faced by our ancestral populations in the human Environment of Evolutionary Adaptedness (EEA)¹ (Boyer and Barrett, 2005).

On the basis of cross-cultural and developmental research there is strong evidence to suggest that the ability to interpret human action in terms of beliefs and desires is governed by a domain-specific ability, known as a *Theory of Mind* (Avis & Harris, 1991); that the capacity to partition and explain living things in terms of biological principles like growth and inheritance is similarly governed by a *Folk Biology* (Atran, 1990, 2002; Gelman and Hirschfeld, 1999); that the capacity to form consistent predictions about the integrity and movements of inert objects is governed by a *Naïve Physics* (Vosniadou, 1994). There is also evidence for a *Folk Mathematics* underpinning our capacity to distinguish collections of objects according to the (small) number of elements in the collection (Wynn, 2000) and a *Folk Sociology*, that governs the capacity to sort conspecifics into inductively rich categories, membership in which is based on (supposedly) shared intrinsic natures (Astuti, 2001; Hirschfeld, 1996).

At first sight, there might seem to be a tension between the recognition of these evolved domain-specific competencies, and the recognition of the roles of learning and cultural diversity. Gelman (2000), using the metaphor of a skeleton, illustrates how the fact that a given domain can benefit from the presence of innate structures does not foreclose the role of learning or cultural input. On the one hand, were there no skeletons to dictate the shape and contents of the bodies of mental structures, then the acquired representations would not cohere. On the other hand, skeletons lack flesh and relevant body structures. Therefore, they do not represent full-blown knowledge of their domain; instead they contribute to the acquisition of their respective flesh and structures as they interact with the kinds of environment that have the potential to nurture such development. For instance, it has been argued that humans have an evolved domain-specific

¹ The term EEA, coined by John Bowlby (1969), refers to the environment to which a species is adapted. The period most relevant to human evolution is the Pleistocene era (roughly spanning the last 2 million years).

competence for classifying living kinds, a *Folk Biology*. Cross-cultural research in this area has shown that there are three universally shared features in the structure and general *content* of *Folk Biology*. Firstly, many cultures classify animals and plants into species-specific groups for instance elephant or tiger. The second is the application of psychological essentialism whereby an entity is treated as if it has an underlying essence which confers its identity and is responsible for its observable features (Medin and Ortony, 1989). Finally, animals and plants are often categorised as members of a taxonomy in which the categories are construed as mutually exclusive and jointly exhaustive (Berlin, 1992). However, even in the case of living kinds where knowledge acquisition is guided by a domain specific competence there is a role for environmental input as local floras and faunas vary and therefore so do the precise contents of taxonomies. Hence this approach puts to rest the old innate versus learned debates and is best classified as a rationalist constructivist approach (Gelman, 2000).

Advocates of this perspective reject the “ontological autonomy of culture” thesis, as popularized in the social sciences, and adopt a naturalistic approach to culture (Sperber, 1994). Within this approach, also known as the epidemiological approach, cultural facts are not seen as mental facts but rather as distributions of causally linked mental and public facts in a population. More specifically, chains of interaction - of communication in particular - may distribute similar mental representations and public productions (such as behaviour and artifacts) throughout a population. Types of mental representations and public productions that are stabilized through such causal chains are in fact what is described as cultural. To help explain why some items stabilize and become cultural, it is suggested that domain-specific evolved dispositions act as receptors and tend to fix specific kinds of *contents*. In other words, many cultural representations stabilize because they resonate with domain-specific principles (Sperber, 1996). Hence, from this perspective there are innate constraints on both the mind and culture, therefore not only are innate domain-specific

abilities compatible with cultural diversity, but they actually contribute to explaining it.

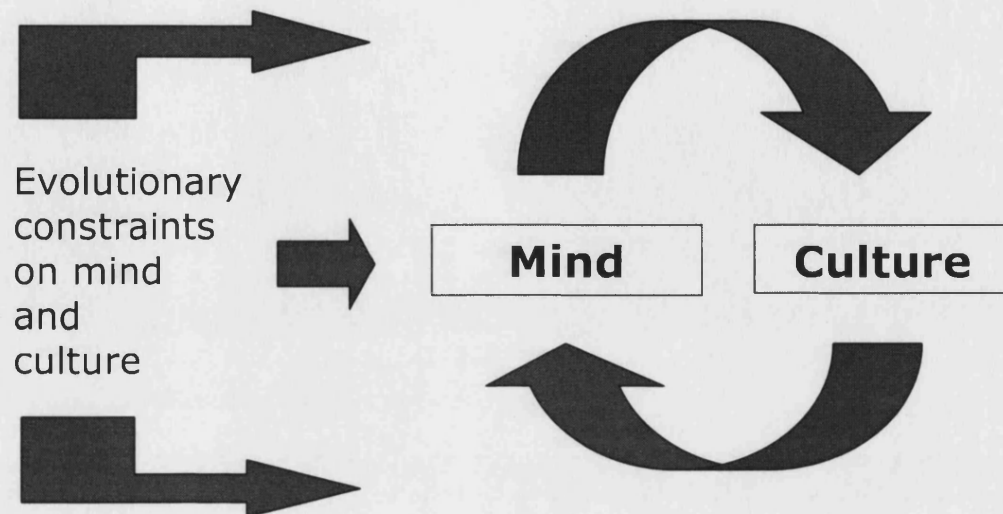


Figure 1.0: Cognition and Culture Approach - Breaking the Circularity between Mind and Culture

A domain-specific competence is an adaptation to a range of phenomena that presented problems or opportunities in the ancestral environment of the species, and processes information that meets specific input conditions. Sperber (1996) has distinguished between the *actual* and the *proper* domain of a domain-specific competence. The actual domain is all the information in the environment which satisfies the competence's input conditions. The proper domain is defined as the information that the competence evolved to process. Given that cognition is a probabilistic activity in many cases there is disjunction between the actual and the proper domain. Some items belonging to the proper domain of the module might fail to satisfy them - a snake can look like a piece of wood. Some items not belonging to the proper domain of a module might nevertheless satisfy its input conditions - a piece of wood can look like a snake. Mimicry and camouflage use this non-congruence; non-poisonous butterflies may evolve the same bright colours as poisonous ones to avoid predation by birds. The proper (evolved) domain of the birds' bright-coloured bug

avoidance system is the set of poisonous insects, the actual domain is that of all insects that look like them (Sperber, 1996).

In general, systematic mismatch between the proper and actual domains of a domain-specific competence is likely to occur when the competence is manipulated by other individuals of the same or different species. Sperber (1996) claims that a reliable way to attract attention is to produce information that falls within the actual domain of a domain-specific competence, whether or not it also falls within their proper domain. When some specific type of information is culturally produced to activate a domain-specific competence, it can be described as a *cultural* domain of the competence (ibid). For instance, *Folk Biology* evolved to provide us with ways of categorizing animals that we may encounter, i.e. its proper domain. However, due to cultural input we also construct concepts of animals we will never encounter, for instance dragons. Thus this competence can enrich its categories with information about both familiar and unfamiliar species, information the relevance of which is often cultural rather than practical. Indeed, *Folk Biology* strikingly illustrates how the fact that the human mind attends to and organizes information in a domain-specific way lends itself to massive cultural exploitation. As an example of such exploitation, Sperber (1996) points to how despite the fact that wolves are rarely if ever encountered by humans, young children acquire a culturally transmitted representation of wolves as dangerous predators (in some cultures). This representation is a strong attention catcher and plays an important role in folklore and children's literature. Culturally reinterpreted wolves have become what ethologists call 'superstimuli.' Super-stimuli are exaggerated versions of a stimulus to which there is an existing response tendency. A great variety of cultural products are super-stimuli aimed at specific domain-specific competences (Sperber, 1996). The effectiveness of these cultural products is in part explained by the fact that they rely on and indeed exploit such competences. Thus, while the natural inputs of a competence may not vary greatly across environments, different cultures may produce widely

different artificial inputs that, nevertheless, meet the input conditions of the same competence (Sperber and Hirschfeld, 2004).

In summary, in some domains, cultural input seems to provide information that enriches the skeletal categories and inferential principles of the domain-specific competences described above. In these domains, domain-specific competences strongly influence the contents and structure of cultural representations. One should predict, *ceteris paribus*, that input that does not result in representations enriching these principles will either be distorted or ignored. On the contrary, information that either is expected because of intuitive principles or enriches skeletal principles should enjoy a selective advantage in cultural transmission (Boyer, 1999). However, not all cultural representations enrich existing domain-specific competences nor do they fall into the cultural domain of any single existing domain-specific competence, for example supernatural beliefs. Nonetheless, from the perspective of Cognition and Culture religious concepts, as all others, will be constrained by our cognitive architecture, therefore we should expect to find some similarities in the structure and even content of different religious beliefs. Accordingly Boyer (1999), has found that religious concepts are based on a small number of templates.

From a Cognition and Culture perspective both ecological and psychological factors need to be explored in order to account for the cultural success of cultural representations and public productions (e.g. behaviours). Sperber (2006) maintains that the effectiveness of public productions is dependent upon their respecting or taking advantage of ecological constraints. These constraints can help to account for recurring aspects of public productions across cultures. For instance, all culturally stable architectural forms must obey the laws of physics. Much of the ecology that contributes to human culture is itself cultural, a process described by some biologists as “niche construction” (see Odling-Smee, Laland, and Feldman, 2003). In relation to the cultural transmission of ideas, previous research has highlighted the role of ecological factors such

as the degree of prior exposure to an idea in a population, and various social facilitators and barriers to communication that reinforce or repress an idea (Heath and Heath, 2009). Of all the psychological factors, the mnemonic feature of an idea is regarded as one of the most important. In fact, Sperber (1996) puts memorability as a “law” of the epidemiology of representations, as a necessary (but not sufficient) condition for cultural success. An idea that is not memorable cannot be transmitted and cannot achieve cultural success.

II.2 A Cognition and Culture Approach to Stereotyping

It has been seen that the Cognition and Culture approach takes as its starting point a view of the mind as a set of domain-specific mental competences, each of which evolved to solve adaptive problems in mankind’s evolutionary past. These domain-specific cognitive competences, it is argued, predispose humans to particular kinds of conceptual representations (with particular structures and contents) in key domains. Cultures are construed as the outcomes of cognitive epidemics whereby cultural representations in order to become stabilized rely on and exploit these domain-specific competences. In the following section I shall explore the potentials of applying the Cognition and Culture approach to the study of social group stereotypes. It will be argued that stereotypes fall under the domain of a domain-specific cognitive competence, a *Folk Sociology*, which underpins social-group based reasoning, and therefore cognitive predispositions arising from a *Folk Sociology* influence both the contents and functions of stereotypes. In the first part I shall consider the potential role of a *Folk Sociology* in shaping the contents of stereotypes, and in the second part I shall focus on how it may help to facilitate the purported ability of stereotypes to naturalise social status differences between groups.

Folk Sociology - an introduction

Social psychologists adopt a domain-general view of the human mind leading them to assume that the same cognitive competence is responsible for the categorization of all categories regardless of their origin and structure. For instance, it is assumed that the same cognitive competence underpins the categorization of physical and social objects (Neisser, 1987). Furthermore, as human categories are culturally and historically constituted, social scientists have argued that a cognitive ability, whose triggering inputs and outputs are largely fixed, would be unable to account for human social categorization (Gelman, 2003). Nonetheless, it has been shown above that a domain-specific view of cognitive organization is more than compatible with cultural variation. In an attempt to account for human systems of social categorization, Hirschfeld (2001) has posited the existence of an innate domain-specific competence, a *Folk Sociology*, governing our ability to represent, acquire and communicate notions about human social groupings which originally evolved to detect social groupings in the human EEA. Given that stereotypes are about social groups it will be argued that stereotypes spread and stabilize in different cultures because they are culturally contrived super-stimuli that fall into the cultural domain and therefore the actual domain of a *Folk Sociology*. More importantly, it will be argued that as a result of this the contents of stereotypes are shaped, in part, by cognitive predispositions arising from a *Folk Sociology*.

Primates (human and nonhuman) simultaneously belong to many social groupings (based on intragroup status, biological relatedness, and alliances), membership in any of which provides a basis for predicting and interpreting the behavior of others (Hirschfeld, 2001). Furthermore, it has been argued that unique human attributes (cognitive virtuosity, complex language etc) all derive from social cooperation with members of the same specifics (conspecifics) independently of genetic kinship. Bingham (1999) defines social groups or alliances as “collections of animals (humans) who engage in kinship independent cooperation” (1999: 249). There is evidence

that our ancestors relied on nonkin to hunt, gather and scavenge for subsistence, and therefore formed groups and alliances. Under such conditions to negotiate their social world successfully, our ancestors would have benefited by being equipped with a domain-specific competence to govern group-based reasoning (Hirschfeld, 2001). Hirschfeld (2001) has argued that there is evidence for such a competence from several lines of research. Firstly, despite considerable variation in their elaborations across cultures, a surprisingly small number of social taxonomies appear to predominate in all cultures and across all historical periods: sex/gender, age, kinship, language spoken, and race/ethnicity. Several lines of evidence reveal that human infants are capable of differentiating others on information diagnostic of precisely those social dimensions that ultimately play a predominant role in categorizing humans into groups in virtually all known societies. These include age (Brooks and Lewis, 1976), gender (Miller, 1983), language spoken (Mehler, Jusczyk, Lambertz, Halsted, Bertoni and Amiel-Tison, 1988), and even race (Kelly, Quinn, Slater, Leek, Gibson, Smith, Ge and Pascalis, 2005).

Secondly, these dimensions of social difference are generally linked to a singular mode of category representation; psychological essentialism. Whereas in standard social scientific accounts essentialism is described as a by-product of philosophical and cultural traditions (Fuss, 1989), Cognition and Culture theorists have suggested that essentialism is an evolved cognitive predisposition. Psychological essentialism leads people to believe that members of a category share a deep underlying causal essence which confers their identity, and is responsible for many of their observable features both perceptual and behavioural (Medin and Ortony, 1989). There is support from experimental studies for a varied set of essentialist-like beliefs about social categories such as caste (Mahalingham, 2001) gender (Taylor, 1996), kinship (Hirschfeld, 1986), 'race' (Hirschfeld, 1996) and ethnicity (Gil-White, 2001). This will be discussed in more detail later in the chapter.

Given that social taxonomies vary culturally, using the distinction Sperber (1996) proposed between the proper and actual domains of a domain-specific cognitive competence, Hirschfeld (2001) argues that in the case of a *Folk Sociology*, while it evolved to recognize group affiliation of conspecifics (its proper domain), its actual domain is characterized by whatever cues makes it possible to identify group membership (in an individual's bodily appearance, behaviour, or language). Hirschfeld (2001) proposes that the culturalisation of social groupings consisted in the elaboration of these cues of group membership. For instance, to natural sexual dimorphism was added a cultural gender dimorphism. In this way the existing *Folk Sociology* competence was presented with culturally contrived super-stimuli. Thus, cognitively groups are characterized by whatever cues make it possible to identify members, and the inferences such an identification supports. In the case of humans the recognition of social groups draws heavily on cultural input such as verbal labels and stereotypes. Indeed, Hirschfeld (1996) found that even in the case of a putatively 'concrete' category such as 'race' developmentally, attention to verbal information precedes attention to perceptual.

II.2.1 The Potential Role of Folk Sociology in Shaping Stereotype Content (1)

Hirschfeld's proposal of a *Folk Sociology* helps to account for the cultural success of stereotypes as resulting, in part, from the fact that they are culturally contrived super-stimuli that fall into the cultural domain of a *Folk Sociology*. Indeed, Hirschfeld (2001) uses evidence that stereotypes can be activated implicitly as empirical evidence in favour of a *Folk Sociology*. How does this fact account for the contents of social group stereotypes? I shall now consider how by integrating insights from Cognition and Culture, and social psychological theories and research on stereotyping we can help to elucidate how cognitive predispositions arising from a *Folk Sociology* may shape stereotype contents.

Research conducted under the rubric of the *Stereotype Content Model*, reviewed above, provides evidence that the dimensions competence and morality/warmth are central to the contents of stereotypes. However, SCM researchers propose that the universality of these dimensions stems from the structure of inter-group relations. They do not consider the potential role of cognitive predispositions arising from a *Folk Sociology* in shaping such content. Yet, Hirschfeld's proposal does not enable one to account for how the *Folk Sociology* might shape the specific contents of stereotypes. Although, in recent years many evolutionary social psychologists have been focusing on the nature of the cognitive adaptations governing human inter-group relations, under various guises which can be integrated with Hirschfeld's account. It will be shown below how such accounts allow us to additionally articulate how sensitivity to the dimensions of competence and morality/warmth may be motivated, in part, by cognitive predispositions arising from a *Folk Sociology*.

Evolutionary social psychology, a relatively new branch of evolutionary psychology, proposes that because other people constituted a prominent feature of human environments, the human mind evolved to be a highly social mind, comprising many functional psychological adaptations specifically designed to solve problems associated with group life (Tooby and Cosmides, 1992). This discipline clearly dovetails with the Cognition and Culture approach. Furthermore, evolutionary social psychologists have argued that if we are to understand social cognition fully, it is useful to employ the following strategy: First, identify the set of fitness-relevant "problems" recurrently posed by human social environments (opportunities and dangers other people traditionally posed). Second, deduce plausible cognitive adaptations that would have helped "solve" these problems and the specific implications of these adaptations for human cognition in contemporary social environments. And third, test those hypothesized implications rigorously with empirical data (Schaller, Park and Kenrick, 2008). Kurzban, Tooby and Cosmides (2001) suggest that human group-based reasoning is sensitive to two factors: (i) patterns of coordinated

action, cooperation and competition, (ii) cues that predict - either purposefully or incidentally - each individual's political allegiance. In support of this, Kurzban *et al.* (2001) have demonstrated that when cues of group affiliation no longer track or correspond to 'race', subjects markedly reduce the extent to which they categorize others by 'race'.

Hagen and Bryant (2003) have postulated that music and dance may have evolved as a group signalling system that could, among other things, credibly communicate group quality, thus permitting meaningful cooperative relationships between groups. They conducted a study in which manipulation of music synchrony was found to significantly alter subjects' perceptions of music quality, and subjects' perceptions of music quality were found to correlate with their perceptions of group quality. Therefore, in addition to the two factors put forward by Kurzban *et al* (2001) one would expect our group-based reasoning to be capable of identifying reliable and competent group members and advertising oneself as an attractive partner (Van Vugt, Roberts and Hardy, 2007). Hence, a key adaptive problem faced by our ancestors was to find competent group members and to assess the competence of other groups. Applying the evolutionary social psychology strategy outlined above, it is plausible that, in order to solve this problem, humans have evolved a sensitivity to cues of competence.

What, then, of the second dimension central to social group stereotypes of morality/warmth? Aside from finding competent group members, Van Vugt and Schaller (2008) point out that among ancestral humans, fitness may have depended upon the acquisition and sharing of valued resources such as food, but this created the problem of finding trustworthy partners to share to share food with. Because it was potentially lethal to share with people unlikely to reciprocate or free-riders, natural selection processes may have facilitated psychological mechanisms that facilitate the identification, avoidance and ostracism of non-reciprocators. There is growing evidence that humans indeed have specialized decision rules for cheater detection

and social exclusion (Kurzban and Leary, 2001). The plausibility of a special “cheater-detection” mode of reasoning has been the focus of an extensive line of research. Abundant evidence suggests that people show enhanced facility for a specific form of propositional reasoning under conditions in which the reasoning task is clearly relevant to social contract violations (e.g. Cosmides 1989; Sugiyama, Tooby and Cosmides, 2002). Several studies have shown that the faces of “cheaters” - individuals who violate social contracts - are especially memorable (see Yamagishi, Tanida, Mashima, Shimoma and Kanazawa, 2003). Humans dislike group members who are disloyal. In opinion groups, members who hold different opinions than the majority are disliked and ignored - the black sheep effect (Marques, Yzerbyt and Leyens, 1988). One recent study found that group members spend a substantial portion of their experimental earnings (25%) to altruistically punish disloyal group members (Van Vugt and Chang, 2008). Humans have a tendency to derogate or even actively harm outgroup members. For instance, people tend to think that outgroup members are less moral and trustworthy than members of the ingroup (Judd and Park, 1988). Van Vugt and Park (2009) suggest that when such free-rider threats are salient we should expect an intergroup psychology that is characterized by anger and stereotypic beliefs of outgroup members pertaining to dishonesty and untrustworthiness. Hence, aside from finding competent group members, human ancestors also faced the adaptive problem of finding warm/moral group members. As with the dimension of competence, it appears that humans are likely to be sensitive to cues of warmth/morality in group-based social judgements.

Evolutionary social psychologists have also proposed that humans evolved what they call an “adaptive toolbox” of domain-specific heuristics which evolved to solve such adaptive problems, including: forming social groups, finding mates etc. The function of a heuristic is “to guide someone who has little relevant information toward one or a few valid cues within a sea of possibilities” (Haselton and Funder, 2006: 22). There is evidence that animals rely on heuristic cues to infer the extent to which a conspecific is

genetically related; and like many other animal species, humans use cues pertaining to familiarity and phenotypic similarity (Rendall, 2004). More recently, it has been found that attitudinal similarity, even in a total stranger, appears to serve as a heuristic cue signalling kinship. Attitudinal similarity was found to automatically activate semantic cognitions connoting kinship and was associated with a variety of prosocial intentions (Park and Schaller, 2005). It is plausible that in order to solve the adaptive problem of finding competent and moral/warm group members, humans evolved a sensitivity to cues of competence and morality/warmth. Furthermore, we may have evolved a heuristic leading people to assume that members of a group of which we are already members are competent and moral/warm i.e. a default competence and morality/warmth assumption.

A large part of social psychology consists of demonstrations of how humans make flawed or incorrect judgments, for example, the fundamental attribution error, false consensus effect, confirmatory bias etc (for a review, see Gilovich, Griffin, and Kahneman, 2002). Within social psychology these biases or errors are accounted for in terms of trade-offs against constraining factors such as limited cognitive resources, the availability of information, or lack of time. Haselton and Funder (2006) point out that such explanations fail to account for the particular direction of the resulting bias in judgment. In an attempt to fill this explanatory gap, Haselton and Nettle (2006) have put forward *Error Management Theory* according to which whenever the costs of errors in a given domain were consistently asymmetric over evolutionary history, judgment or decision-making adaptations should evolve to bias inferences toward the less costly error. Systems designed according to this principle, they argue, will tend to make more errors overall, but the errors will tend to be relatively cheap. They suggest that people should be optimistic in some circumstances, but paranoid in others (i.e., they should be *paranoid optimists*, Haselton and Nettle, 2006). According to this theory if errors are produced by useful heuristics that sometimes break down, they are best thought of as by-

products of otherwise adaptive systems. Hence following Haselton and Funder (2006) I would like to posit that default competence and morality/warmth assumptions are the by-product of an evolved sensitivity to cues of competence and morality/warmth. This theory may also account for the primacy of cues of morality/warmth over cues of competence (see 'new look in content' above). It is possible that the costs of falsely assuming that a member of one's group is competent is lower than the cost of assuming that a member of one's group is moral/warm. The former would result in some loss in resources but the latter could result in injury or even loss of life.

In summary, it would appear that for good evolutionary reasons humans may be particularly sensitive to cues of competence and morality/warmth in group-based social judgements. This suggests that, aside from the structure of inter-group relations, the dimensions of competence and warmth/morality may also be strongly motivated by evolved cognitive predispositions which are a part of a *Folk Sociology*. From this perspective, the centrality of traits denoting competence and morality/warmth to social group stereotypes is not only not surprising but wholly predictable.

II.2.2 The Potential Role of Folk Sociology in Shaping Stereotype Content (2)

We come into the world equipped with a nervous system that worries about rank - Robert Frank, 1985

According to SCM the contents of stereotypes are determined by the structure of inter-group relations such as inter-group status differentials. I shall argue in the following section that the domain of *Folk Sociology* could be expanded to incorporate a status detector. Furthermore that this evolved sensitivity to social status differentials may work in concert with structural factors in shaping the contents of stereotypes about groups varying in social status. I shall begin by reviewing existing empirical

evidence for just such an evolved sensitivity to social status before considering how this may help to shed light upon stereotype content.

An Evolved Status Detector?

The word status is derived from the Latin word *statum* or standing, and is a term used by social scientists to describe the position of an individual or a group in a hierarchical social structure. There is wide consensus among evolutionary psychologists that if there ever were a reasonable candidate for a universal human motive, status striving would be at or near the top of the list (Barkow, 1989). Yet, oddly, thus far no complete theories of human status hierarchies have been proposed. Brown (1991) has suggested that in order to make a case for any adaptation the following conditions must be met: similar behaviour amongst primates and human ancestors, universality, unusual ease in acquiring a specific knowledge or skill, and a critical period for development. In order to support Frank's conjecture that humans have an evolved sensitivity to social status, I shall begin by reviewing the existing data from animal behaviourists, primatology, ethology and evolutionary psychology. I shall then propose a theoretical framework through which this data can be brought together with a view to shedding light on how an understanding of the nature of human mental representations of social status may help us to understand the contents of stereotypes of social groups varying in social status.

Dominance hierarchies have been documented in a wide variety of nonhuman animals, from crayfish to chimpanzees. In functional terms, a dominance hierarchy refers to the fact that some individuals within a group reliably gain more access than others to key resources that contribute to survival or reproduction. In the simplest form, dominance hierarchies are transitive, meaning that if A is dominant over B, and B is dominant over C, then A will be dominant over C (Cummins, 2005). Humans evolved from ape ancestors whose social structure was almost certainly a dominance hierarchy (de Waal, 1988). In our living primate relatives, such as

chimpanzees, social rank differentials lead to corresponding resource differentials with a dominance hierarchy of high ranking males securing a disproportionate share of food, as well as mating opportunities (Barkow, 1975). A survey of seven hundred studies of chimpanzees concluded that middle-to high ranking males typically have a reproductive advantage over the lowest ranking males (Ellis, 1995). Two other key features of primate dominance hierarchies have been noted: first, these hierarchies are not static. Individuals continually compete for elevated position and sometimes overthrow the dominant male; second, the physical size of a primate is not the primary determinant of rank. Rising in primate hierarchies instead depends heavily on social skills, notably the ability to recruit allies on whom one can rely for support in contests with other individuals (Cummins, 2005).

Historical records of man from several thousand years ago tell us that whether we speak of the ancient Babylonians, Persians, Hebrews, Egyptians, Indians or Greeks, that hierarchical arrangements were the natural order of things. In the better documented periods, starting 2,000 years ago social hierarchies appears to be a universal feature of modern human societies in which the economic systems demonstrate a markedly unequal distribution of resources (Buss, 1999). In modern industrialized societies social status is usually measured by income, education, and occupation (Fiske and Berdahl, 2007). Although, as Weber (1922), pointed out status differences are not always accompanied by differences in material resources and power. He described a key feature of status groups being the fact that they are formed on the basis of common amounts of socially ascribed prestige or honour. Yet social stratification, at least in its modern guise, is only a recently occurring phenomenon. It has been argued that human ancestral societies were based on a nomadic hunter-gatherer “immediate return” economy (Woodburn, 1982). Such societies operated by collecting food or material goods and there was no storage of accumulated resources. Hence, it has been suggested that ancestral societies were to a large degree egalitarian without significant or sustained differentials in

resources among men of the same age. There is a general consensus in the anthropological and evolutionary psychology literature that prior to the Neolithic few (if any) members of the species *Homo Sapiens* would have lived in societies large-scale and complex enough to support institutionalized social hierarchies, or social stratification (Boehm, 1993).

This apparent discontinuity between modern and ancestral human societies has proved intriguing for social scientists. Evolutionary psychologists have put forth a number of explanations to account for this discrepancy. One plausible hypothesis is that equal sharing is enforced upon high status individuals by spontaneously arising counter-dominant coalitions of lower status individuals (Boehm, 1993). It has been argued that given the existence of the “dominance” instincts which we inherited from our ape ancestors, “counter-dominant” instincts must have evolved to enable the egalitarian economic structure of Paleolithic foraging nomads (Erdal and Whiten, 1994). Hence, egalitarian human societies are the result of a dynamic equilibrium between both dominance and counter-dominance instincts, and this equilibrium can be altered by a change of circumstance. Under delayed-return economies the redistributive effect of egalitarian instincts is overwhelmed by an amplification of the outcome of older “dominance” instincts leading to an unequal resource distribution (Erdal and Whiten, 1994). Another explanation is that equality in ancestral societies has been over-emphasized. Despite resource equality, status differentials nevertheless existed in simple hunter-gather societies and status differentials are associated with differences in reproductive success. High status men are more attractive to women, have more sexual partners, younger and healthier partners and therefore leave more offspring (Buss, 1994).

Ethologists studying the formation of hierarchies in children have found evidence that social hierarchies develop from pre-school onwards (e.g., Pettit, Bakshi, Dodge and Coie, 1990; Strayer and Strayer, 1976; Weisfeld and Weisfeld, 1984). Edelmard and Omark (1973) found children asked

“Who’s toughest?” of a given dyad tend to agree on the relative standing of individuals. In addition, other studies using different measures of relative social rank (e.g., which child of a dyad averts his eyes first in a staring encounter and which child seizes control of resources) also indicate a social hierarchy beginning at about the age of three or four years (see Gage and Lieberman, 1978). Replication studies in Zurich and Ethiopia support the view that the formation of such social hierarchies in groups of children may well be a universal phenomenon (Barkow, 1975). Smith (1988) found evidence that children acquire concepts of rank and transitivity in dealing with other children, well before these skills can be detected using non-social tests (cf. Byrne and Whiten, 1997). Furthermore, as Dunham, Baron and Banaji (2008) point out, children show an early sensitivity to the status of social groups to which they belong relative to other social groups within a culture. In a study of implicit attitudes among Hispanic children and adults it was found that such participants show positive implicit self-esteem and a preference for and identification with their in-group when the comparison group was another disadvantaged minority group (African-American). However, young Hispanic children do not show implicit preference for or identification with their in-group when the comparison was the more advantaged White majority (Dunham, Baron and Banaji, 2007).

The accumulation of all this evidence supports the view that humans may have evolved a cognitive disposition sensitive to cues of social status. The question which arises is what is the proper domain of this status detector? However, a number of conceptual issues need to be resolved before this matter can be addressed. A key problem in answering this problem is the conflation of terms such as hierarchies, dominance and status across the different literatures that have been surveyed. Hence, before proceeding further it is necessary to distinguish between these terms. Following a review of all these disciplines, I put forward the following definitions of these concepts: a *hierarchy* is defined as “an explicit or implicit rank ordering of individuals or groups with respect to a valued social dimension,

including dominance, status, authority, power, respect” (Fiske & Berdahl, 2007; Magee and Galinsky, 2008; Sidanius and Pratto, 1999; Tumin, 1967). *Dominance* is defined as “the imposition of social rankings (or relative balance of power in a group) through force or force threat in competitive situations resulting in submission and deference by subordinates and priority of access to resources (food, mates etc) by dominants (Barkow, 1975; Cummins, 2000; Hinde, 1975; Strayer and Strayer, 1976; Wilson, 1975). Finally, *social status* is defined as “the formal or informal position of individuals or groups in a hierarchy on the basis of socially defined characteristics resulting in relative amounts of respect, prestige, honour, admiration, esteem, influence, deference, competence, moral evaluation and social power” (Boone, 2000; Fiske, Xu, Cuddy and Glick, 1999; Fiske and Berdhal, 2007; Parsons, 1995; Magee and Galinsky, 2008; Ridgeway, 1991; Weber, 1922).

Furthermore, while some evolutionary scholars see human status as homologous to non-human dominance (Barkow, 1975), others argue that status is an exaptation of dominance (Heinrich and Gil-White, 2001). A review of the literature across these different disciplines reveals that there are some differences in the indicators and outcomes of dominance and social status as bases for hierarchies. A key difference between dominance rank and social status rank (as reflected in the definitions provided above) is the absence of agonistic displays as a indicator of rank in social status hierarchies. There are also differences in what are deemed to be the outcomes of rank in dominance hierarchies as compared to rank in social status hierarchies. The outcomes of rank in dominance hierarchies include power resulting in priority of access to resources (e.g., food, shelter, mating opportunities) (Cummins, 2000), and behavioural displays such as overt submissive displays by subordinates (Mazur, 1975), and the attention structure (Chance, 1967). Aside from power over physical outcomes such as food and shelter and non-verbal displays such as visual dominance and attention structure, rank in status hierarchies additionally leads to access to and control over economic outcomes e.g. money and occupation, and

finally to social outcomes which include liking and respect (Fiske and Berdahl, 2008); deference (Barkow, 1975); expectations of competence (Fiske, Xu, Cuddy and Glick, 1999) and positive evaluation (Jost and Banaji, 1994). How are we to understand this apparent discontinuity between non-human primate dominance hierarchies and those found in young human children and modern-day human status hierarchies? Hawley (1999) proposes that “social dominance is grounded in differential ability to acquire resources in the social group regardless of the means by which this is done” (1999: 105). From this point of view, it can be argued that the proper domain of the proposed status detector would be hierarchical social relations, triggered by any reliable cues of differential ability to acquire resources whether that be via dominance or social status.

Another puzzle is that in our closest primate relatives, while there is plenty of evidence for intra-group hierarchies there is little evidence of inter-group or group-based social hierarchies (Cummins, 2005). However, as Sidanius and Pratto (1999) point out modern human societies also contain group-based social hierarchies. At the very minimum, this hierarchical social structure consists of one or a small number of dominant and hegemonic groups at the top and one or a number of small subordinate groups at the bottom. Among other things the dominant group is characterized by its possession of a disproportionately large share of positive social value such things as power, wealth and high social status. A group-based social hierarchy is something quite distinct from an individual-based social hierarchy. In an individual-based social hierarchy, individuals enjoy great power, prestige or wealth by virtue of their own highly valued characteristics such as athletic ability, high intelligence, or artistic, political or scientific talent or achievement. Group-based social hierarchy on the other hand refers to the social power, prestige and privilege that an individual possesses in virtue of his or her ascribed membership in a particularly socially constructed group such as race, religion, clan, tribe, lineage, ethnic group, or social class. This is not to imply that the power, prestige, and privilege of individuals in group-based social hierarchies are

completely independent of the individual's personal characteristics (Sidanius and Pratto, 1999).

It was noted above that Cognition and Culture scholars make a distinction between what a domain-specific competence evolved to process i.e. its proper domain and what currently meets its input conditions i.e. its actual domain. It was additionally noted above that social rank is usually within-group in non-human primates and the human Pleistocene. Therefore, I suggest that proper domain for the proposed status detector is intra-group hierarchical relations. The actual domain also includes inter-group hierarchical relations. The cultural domain includes inter-group hierarchical relations such as caste, or 'racial' hierarchies.

In sum, it is conventional in the social sciences to locate social status as being external to mental representations - in societal roles, practices and discourse. And whilst not denying that it does exist there, I am proposing that humans may have evolved a cognitive disposition sensitive to cues of social status. Furthermore, I propose that the domain of *Folk Sociology* can be expanded to incorporate a status detector. Dunham, Baron and Banaji (2008) have similarly proposed a broadening of *Folk Sociology's* domain to include the detection of hierarchical relations between social groups. An alternative possibility is that the representation of social categories such as 'race' as a hierarchy may be the by-product of two distinct domain-specific competences, one which evolved to detect social groupings i.e. *Folk Sociology*, and a second which evolved to detect social hierarchies, tentatively labelled a *Folk Politics*. I shall return to this latter possibility in the concluding chapter of the thesis.

More importantly, for our present purpose, this status detector may additionally allow us to shed light on the contents of stereotypes of groups varying in social status. Fiske and colleagues have shown that group status stereotype cluster into two types; high status group members are perceived as competent but cold, while low status group members are perceived as

incompetent but warm (Fiske *et al.*, 1999). It was seen above that humans are expected to be sensitive to cues of competence. The question this raises is what indicators of competence do we employ? It is plausible that humans solved the adaptive problem of identifying the quality or competence of potential group members by preferring to form groups with those of high status. Most of the literature on status focuses on the outcomes of status differentials rather than on the actual content of mental representations of status. Boone (2000) has noted that social status is not a characteristic or quality that a particular individual can have, but rather it is “a quality of an individual that resides in the perceptions of others in a social group and their resultant behaviour toward that individual” (2000: 87). The question this raises is what is this ‘quality’ that is being signalled. In human societies, social status is based more on expected contributions that member will make to a group than it is on the ability to dominate other group members (Ridgeway, 1982). There is an element of self-fulfilling prophecy to this process. On the one hand, expectations for competence determine status rank. On the other hand, high status members are evaluated as more competent because they have high status and competent performances by low-status individuals are devalued and subject to negative sanctions (*ibid*).

Numerous experiments document the effect of social rank on performance independently of actual ability. Jemmott and Gonzalez (1989) assigned 9-10 year old children to the role of “boss” as opposed to “helper” in a group activity. Subsequently when asked to perform word puzzles those assigned to the role of “bosses” out-performed the “helpers”. In a more rigorous set of experiments, Lovaglia, Lucas, Houser, Thye and Markovsky (1998) found similar results. In these experiments, members of groups were randomly assigned high or low status based on left or right handedness. In one set of trials, right-handedness was associated with higher ability in the task and other positive traits. This established a spurious status hierarchy among the members of the group. The subjects were then administered a standardized test of mental ability having no correlation with handedness. The status

hierarchy was found to have a significant effect on performance: high status group members out-performed low status group members. Steele and Aronson (1995) document similar effects in a study of racial groups. They found when social status was not associated with success on an exam, black and white students performed equally well. However, when they believed the exam measured mental ability, a status worthy characteristic, blacks performed poorly compared to whites. The experiments outlined above demonstrate the effect of an individual's social position on task completion, even when the characteristics determining social rank are irrelevant to the task. This begs the question why does social status have such a profound effect on individual performance? Berger, Rosenholtz and Zelditch (1980) argue that social rankings create "distortions" in agents' belief processes. Key to this distortion effect appears to be the mental association between status and competence which presumably mediates the impact of social rank on performance. However, very little research has attempted to uncover the nature of this mental association between status and competence. An exception is Fiske *et al*'s SCM research outlined above.

In relation to the morality/warmth dimension, Cummins (2000) proposed that humans have evolved strategies for reasoning about social norms involving dominance hierarchies. These include understanding aspects of permissions (e.g., who is allowed to mate with whom), obligations (e.g., who must support who in a social contest) and prohibitions (e.g., who is forbidden to mate with whom). A number of studies have found when humans reason about deontic rules, they spontaneously adopt a strategy of seeking rule violators. For example, it has been found that deontic reasoning (reasoning about what a person is permitted, obliged or forbidden to do) emerges reliably early in life, and it has been documented in children as young as three years (Cummins, 2000). In another study, participants were shown pictures of men along with biographical information that revealed each man's social status (high versus low) and character (history of cheating, irrelevant information, or history of

trustworthiness). A week later participants returned to the lab and were asked to report which of the photographs they remembered from the previous week. Several important results emerged. First, the “cheaters” were remembered far more frequently than the non-cheaters. Second, memory for cheaters was especially enhanced if the cheaters were low in status, whereas the memory bias for cheaters diminished if the cheaters were high in status (Mealey, Daood, and Krage, 1996). According to Cummins (2000) these results support the proposal that humans have evolved selective attention and memorial storage mechanisms that are especially sensitive to who has cheated, and the status of who has cheated. In a more direct test of the effects of status on social reasoning, Cummins (1999) asked participants to take the perspective of a high ranking individual versus a low ranking individual and found that 65% of participants looked for potential rule violations when given the task of supervising people lower in status than themselves, whereas only 20% looked for potential rule violations when supervising people of equal or higher status than themselves.

Hence, in summary, it would appear that when thinking about hierarchical social relations humans may be particularly sensitive to cues of competence and morality/warmth.

II.2.3 Accounting for the ideological functions of stereotypes: the potential role of psychological essentialism

It was seen in Chapter I that social psychologists have argued that stereotypes can serve ideological functions. More specifically, they can justify and naturalise social status differences between groups. Social psychologists have put forward three accounts for how stereotypes may serve ideological functions: belief in a just world; system justification theory and social dominance theory. However, these approaches are based on a study of individual differences and therefore can only explain why such stereotypes are more attractive to some people than others. Furthermore, these accounts can only elucidate the conditions under which

people express or endorse such stereotypes, and not why such stereotypes are able to achieve cultural success in the first instance. As seen in Chapter I, social psychologists have tended to focus on the ideological functions of the contents of stereotypes and have neglected to consider the potential role of the conceptual structure of representations of social groups. In this section, by drawing on the Cognition and Culture approach, I shall argue that we can gain a better understanding of the ideological functions of stereotypes by considering the conceptual structure of social group concepts. More specifically, I shall consider how the ability of stereotypes to function as ideological representations may be facilitated by the recruitment of an evolved cognitive predisposition, namely psychological essentialism from the domain of a *Folk Sociology*.

As discussed in Chapter I, social cognition researchers have focused on trying to uncover the nature of the mental representations of stereotypes. To this end, three approaches to how social group information is represented have been proposed: group schemas, group prototypes and exemplars. While these accounts differ in many respects they share the assumption that category representation is based on similarity judgements. On such a view, categories are constructed on the basis of judgements about the similarity of members to one another, in terms of schemas, prototypes or exemplars. In a widely cited critique, Murphy and Medin (1985) pointed out that these approaches cannot account for the selection of the particular features that make up a category, nor do they explain what rules govern the computation of similarity. Furthermore, there is now significant evidence suggesting that at least some categories are not formed on the basis of perceptual similarity. Rather, even in making judgements about the similarity of two or more people we use a theory of sorts to decide which features are important (Rips and Collins, 1993). As a result, cognitive psychologists have increasingly been adopting 'theory-based' approaches to category representation, as opposed to similarity-based approaches (McGarty, Yzerbyt and Spears, 2002). As seen earlier, Cognition and Culture theorists argue that concepts are guided by and

grounded in naive or folk theories (as opposed to simply being a collection of covarying attributes), and such theories are often specific to particular conceptual domains (Hirschfeld and Gelman, 1994). I shall now focus on one such theory-based approach to social categorization, namely psychological essentialism.

Psychological essentialism - an introduction

[Essence is] the very being of anything, whereby it is what it is. And thus the real internal, but generally...unknown constitution of things, whereon their discoverable qualities depend, may be called their essence - John Locke (1690)

Essence originally refers to the Latin word “essentia” which is a nominalization of the verb “esse” meaning to be. Essentialist accounts have been around, in one form or another, for thousands of years, extending back at least as far as Plato’s cave allegory in *The Republic* (Gelman, 2003). Aside from philosophy, the concept of essentialism has seen the most use within critical social theory. The term essentialism is most often used in relation to critiques of theories of gender, race and sexual orientation often carried out in the name of social constructionism (e.g., Fuss, 1989; Grosz, 1990). Theories are labelled essentialist if they claim social categories such as gender or ‘race’ have biological underpinnings, or that they are not susceptible to cultural shaping. Most social scientific accounts suggest that essentialism is culturally-specific; it has emerged as a by-product of Western philosophical and cultural traditions, and it is used to further the political and economic aims of certain groups (Fuss, 1989; Guillaumin, 1980). It has been argued, for instance, that we are essentialist because we have access to scientific knowledge about unobservable entities such as DNA (Fodor, 1998). However, this account cannot explain why even pre-school children are essentialist. In contrast, Cognition and Culture theorists have suggested that essentialism is not a historical accident, nor is it learned from culture, but rather essentialism is an

evolved cognitive predisposition which is beneficial for our interactions with the world (Atran, 1990; Gelman, 2003; Hirschfeld, 1996). People are essentialist, it is claimed, without the benefit of Western science and Plato's writings. This certainly provides a parsimonious explanation as to why essentialism recurs across historical periods, cultures, and developmental ages (cf. Gelman, 2003).

Psychological essentialism is a theory of category representation, first developed by Medin and Ortony (1989), which posits that humans approach the categorization of certain entities with an essentialist heuristic. This heuristic leads people to believe that members of a category share a deep underlying essence which confers their identity, and is responsible for many of their observable features, both perceptual and behavioural. Take, for example, the category 'tiger', all tigers are assumed to have a tiger essence which results in their stripes, their sharp teeth and hunting skills. It is important to note that a distinction is made between metaphysical essentialism, the view that *things* have essences, and psychological essentialism, the view that people's *representations* of these things might reflect such a belief (as erroneous as it may be) (Medin and Ortony, 1989).

It is also important to distinguish this notion of a 'causal essence' from two other conceptualizations that can be found in the literature. The first is a sortal essence which is a set of defining or essential characteristics that all and only all members of a category share, and help us to determine whether or not an entity belongs in a given category. This, as Gelman (2003) noted, is simply a restatement of the classical view of concepts outlined above. Whereas the sortal essence could apply to any entity (pens, coins, tigers), the causal essence is applied only to entities for which hidden inherent properties determine membership and observable properties. The second is an 'ideal essence' which, in contrast to both the causal and sortal essence, does not have a real world instantiation. Ideal essences have been virtually overlooked in studies of concept representation (but see Sperber, 1975).

Furthermore, while in some cases people might have specific ideas as to the location of the essence as residing in the soul or DNA (Gelman, 2003), in other cases people's concepts may contain what Medin and Ortony (1989) describe as an 'essence placeholder':

The knowledge representation people have for concepts may contain what might be called an essence placeholder. There are several possibilities for what is in such a placeholder. In some cases, but by no means in all, it might be filled with beliefs about what properties are necessary and sufficient for the thing to be what it is. In other cases it might be filled with a more complex, and possibly more inchoate "theory" of what makes the thing the thing that it is. It might, additionally, contain the belief that there are people, experts, who really know what makes the thing the thing that it is or scholars who are trying to figure out exactly what it is. Just as with theories, what the placeholder contains may change, but the placeholder remains (1989: 184-5).

Given that essentialism is an intuitive heuristic, and given that while people believe that a category has an underlying essence they may not know what it is, or which observable features of category members are linked to this essence, it is difficult to obtain direct evidence for essentialism. Nonetheless, there is support from experimental studies of concepts for a varied set of essentialist-like beliefs about natural kind (i.e. animal) categories emerging as early as two and a half years and across cultures. These include (1) the expectation that category members share non-obvious similarities even when these similarities concern internal or non-visible features, and even when category membership competes with perceptual similarity. For example, preschool children infer that a legless lizard shares more non-obvious properties with a typical lizard than a snake, even though the legless lizard and the snake look much more alike (Gelman and Markman, 1986); (2) category membership is believed to remain stable over time and over transformations such as growth, or metamorphosis. For example, Keil (1989) told children a story about a

skunk that was surgically altered to resemble a raccoon but still had the parents and internal structure of a skunk. By approximately age five children reported that the animal was still a skunk, despite its outward appearances. They did not do so for artifacts, such as a coffee pot altered to resemble a bird feeder; and (3) properties of category members are considered to have innate origins and unlikely to change as a function of changing environmental conditions. For instance, Gelman and Wellman (1991) told four-year old children about a baby kangaroo brought up on a goat farm and asked them whether when it grew up it would be good at hopping or climbing and whether it would have a pouch. They found children almost always answered on the basis of category membership or innate potential. Thus, the kangaroo raised among goats would hop and have a pouch.

While early formulations of psychological essentialism posited that it characterises the representation of natural kinds (i.e. animals, plants and minerals), in recent years evidence has emerged which suggests that humans also essentialise many social categories, such as caste (Mahalingham, 2001); gender (Taylor, 1996; Prentice and Miller, 2006); kinship (Hirschfeld, 1989); 'race' (Hirschfeld, 1996) and ethnicity (Gil-White, 2001; McIntosh, 2005). In order to explain why social categories such as gender are essentialised it has been suggested that children perceive phenomenal variation in humans, and in order to make sense of this they resort to the essentialist mode of construal from the domain of *Folk Biology* (Atran, 2000). However, unlike natural kind categories, young children's representations of social categories such as 'race' are not rich in perceptual information. Hirschfeld (1993) conducted a series of studies in which children were asked to pair racial labels with referents and found 3 year olds were correct in 17% of the trials and 4 year olds were correct in 40% of the trials. A possible explanation for this is that while children understand that there are physical correlates to 'race' they know very little about which physical correlates go with which racial categories. Furthermore, a crucial difference between animal and social categories is

the role of culture in categorization. Although children and adults from various cultures seem to hold similar beliefs about animal categories, cultures differ in terms of how they conceive of the same social categories and which categories they essentialize (Astuti, Solomon and Carey, 2004).

In order to account for the essentialization of social categories (focusing mainly on race), Hirschfeld (2001) has suggested that essentialism is recruited from a domain-specific competence for the social domain, a *Folk Sociology*. As seen above Hirschfeld (1996) has argued that *Folk Sociology* evolved to detect social groups and alliances. According to Hirschfeld, the *Folk Sociology* competence does not determine which groups are relevant within a society, but interacts with specific cultural environments in which some groups are salient. What a *Folk Sociology* does is to provide a mode of construal i.e. psychological essentialism which activates curiosity about the social world leading children (and adults) to seek out information about which social aggregates are salient in their cultural environment (Hirschfeld, 2001). As Hirschfeld states: “children spontaneously explore the social world around them in search of intrinsic human kinds or groups of individuals that are thought to bear some deep and enduring commonality. Different cultures inscribe the social environment with different human kinds” (1997: 86).

II.2.4 Naturalising Group-based Social Status Hierarchies: the relationship between stereotypes and psychological essentialism.

In this section, I shall explore how research on psychological essentialism can shed some light on the purported ability of stereotypes to help naturalise social status differences between groups. The rationale for exploring how research on category representation can shed light upon the study of stereotypes is quite straightforward. Despite the diversity of the literature on stereotyping, cutting across this diversity is one common feature: the participants were viewing each other in categorical terms. Stereotypes are based or rely upon categories, and in particular they rely on categories of people. The research on psychological essentialism

represents a theoretical departure from social psychological approaches to categorization. Research on essentialism calls into question several core assumptions that guide how social cognition theorists think about concepts. These include the assumption that categories are formed on the basis of similarity judgements, that a single domain-general model can be applied to all concepts, and the separation of categorization from higher-level cognitive processes (Haslam, Rothschild and Ernst, 2000). In contrast, as seen above, Cognition and Culture theorists understand categories to be embedded in domain-specific theories. Nonetheless, as Haslam *et al.* (2000) note “the study of essentialist beliefs has the potential to illuminate aspects of stereotyping and prejudice, and to connect rather distinct domains of psychological theory” (Haslam *et al.*, 2000: 126).

There is some existing theoretical and empirical work which has explored the relationship between stereotyping and essentialist beliefs. Unsurprisingly, Allport (1954) was one of the first psychologists to recognize that essentialist ways of thinking underlie out-group stereotyping. One of the first attempts to bring the research on psychological essentialism to bear on social psychology was made by Rothbart and Taylor (1992). In a theoretical paper, these authors argued that people treat social categories as if they were natural kinds, and that several findings in the social categorization literature can be parsimoniously explained by this ontological error. Similarly, Yzerbyt, Rocher and Schadrin (1997) argue that we must understand stereotypes as containing underlying theory-based explanations for the relations among their contents, as opposed to viewing stereotypes as simply perceptions of social groups. Perhaps the clearest articulation of the link between essentialism and stereotyping is provided by Susan Gelman:

Essentialism seems to motivate and underlie stereotyping. These are the “bad implications” of essentialism for human reasoning. To put it bluntly, stereotyping borrows the language and conceptual framework of essentializing. Different groups of people are treated in distinct, non-

obvious ways, and social group differences are assumed to be innately determined and fixed. To the extent that people buy into this way of thinking they will have a basis for treating social group differences as central to an individual's identity, for drawing inferences about an individual based on the group to which the individual belongs. The stereotyping individual treats social groups as natural kinds (2003: 13-14).

It was argued above that given that stereotypes are about social groups they spread and stabilize in different cultures because they are culturally contrived super-stimuli that fall into the cultural domain and therefore the actual domain of a *Folk Sociology*. It has also been seen that there is evidence that representations of social categories are underpinned by psychological essentialism which Hirschfeld (1996, 2001) claims is endemic to the domain of a *Folk Sociology*. Hence, it appears as though, as noted by Gelman (2003), essentialism as a theory of category representation underpins stereotypes. To see how this works, it is useful to consider what it means to essentialise a social category. Research on essentialist beliefs about social categories shows that when a social category is essentialized the social group it refers to is maximally differentiated from other groups, the group is seen as having well-defined boundaries, its members are seen as homogenous, the category is imbued with inductive potential in that its members appearance, beliefs, behaviours are explained and predicted by their shared underlying essence. Therefore, it is highly plausible that the ability of stereotypes to naturalise social status differences between groups is facilitated by the recruitment of psychological essentialism from the domain of a *Folk Sociology*. Hence, my argument is that rather than viewing stereotypes, in and of themselves, as naturalising social status differences, we should consider that such naturalization occurs as a result of the essentialist nature of social group category representations which underpin stereotypes. There is some theoretical support for this. Yzerbyt, Rocher and Schadrin (1997) contend that the rationalization of existing social relations occurs because people hold essentialist beliefs about social groups. Thus, for example, racial group differences in socio-economic

status are rationalized and explained by beliefs in the existence of inherent genetic differences in intelligence between the groups.

There are two straightforward ways in which psychological essentialism may facilitate the naturalization of status differences between groups. Given that psychological essentialism is triggered by the salience of social categories within a cultural context, and given the proposed evolved sensitivity to social status (see above), it is possible that social status differences trigger essentialist beliefs about associated social groups. In other words, we essentialize membership in social groups which vary in social standing (for example 'racial' groups). On this view, the social status of the group is external to the essentialist representation of the group. Another possibility is that the social status of a social group is essentialized by proxy - it is construed as an attribute of an essentialized social group. You may recall that an essentialist heuristic leads us to assume a causal link between membership in a social group, and the attributes of group members. Under this proposal, the social status of the group is conceived of as causally linked to the group essence, and therefore as internal to the essentialist representation of the group. Of course, these two proposals are not mutually exclusive as social status (as well as other attributes of social groups) may both trigger essentialist beliefs about group membership, *and* be perceived as an essentialized attribute of the group.

There is some existing evidence for essentialist beliefs about groups varying in social status. For instance, Mahaligham (2001) explored the essentialisation of caste group membership in India. He found that members of a low-status group (Dalits) are less likely to essentialise group membership than members of a high status group (Brahmins). Haslam *et al.* (2000) conducted a study where adults were asked to rate 20 social categories including sex and 'race', on a set of nine essentialist factors, as well as one evaluative item about the social status of the social categories. Two distinct dimensions emerged, which Haslam *et al.* refer to as "naturalness" (encompassing discreteness, naturalness, immutability,

stability and necessity) and “entitativity” (encompassing uniformity, informativeness, inherence and exclusivity). The entitativity dimension was significantly negatively correlated with status and the more devalued member of each category pair was generally judged to be more entitative. The two dimensions of essentialism interact, so that when social categories are essentialized in both ways, they are especially likely to be stigmatized. However, no previous research on essentialism has attempted to experimentally manipulate social status.

II.3 Summary and Implications

Stereotypes are generalizations about people based on membership in a social group. Within social psychology the study of group stereotypes has been approached from two different perspectives. The descriptive approach to stereotyping has emphasized the contents of stereotypes. However, this approach does not directly address the underlying cognitive processes/structures responsible for stereotyping. On the other hand, the social cognition approach has focused on the cognitive processes and structures underpinning stereotyping. However, such accounts fail to account for the specific contents of stereotypes. In the past few years there has been a resurgence of interest in the contents of social group stereotypes and specifically in the ideological functions of stereotypes i.e. how stereotypes can serve to justify and naturalise social status differences between groups (Jost and Banaji, 1994). However, both these approaches only focus on one aspect of the phenomenon i.e. contents or cognitive process/structure and as such only offer a partial explanation of stereotypes. Social psychologists have acknowledged that a complete account must focus on both.

In this thesis, in an attempt to fill this gap, I have argued that the Cognition and Culture approach is best suited to facilitate an integration of the study of the contents of stereotypes and the cognitive processes and structures underpinning them. By adopting this approach, I explored how

cognitive predispositions may impact on the contents and functions of stereotypes. It has been found that the dimensions of competence and morality/warmth are central to the contents of social group stereotypes. Whereas social psychologists claim that such stereotypes derive their content from the structure of inter-group relations, I explored the possibility that evolved cognitive predispositions arising from a *Folk Sociology* may, in part, help to shape the contents of such stereotypes. I also considered how the ability of stereotypes to function as ideological representations may be facilitated by the conceptual structure of social group concepts via the recruitment of an evolved heuristic, psychological essentialism, from a *Folk Sociology*. Hence, the primary research question which the present research addressed was 'To what extent, and in what ways, do innate cognitive predispositions shape the content of social group stereotypes and their functions? To this end, the empirical research reported in this thesis explored the way in which cognitive predispositions impact upon: (i) the content of stereotypes (see Chapters III, IV and V) and (ii) the ability of stereotypes to naturalise social status differences between groups of stereotypes (see Chapter VI and VII).

Chapter III - Exploring the Role of Cognitive Predispositions in Shaping Stereotype Content Part 1: An Investigation of Default Stereotyping using the Minimal Group Paradigm

III.1 Introduction

It was seen in Chapter I that the dimensions of competence and morality/warmth are central to the contents of stereotypes of social groups, and how these stereotypes may serve ideological functions. Social psychologists claim that stereotypes derive their contents from the social context of inter-group relations. In Chapter II, by drawing on the Cognition and Culture approach, I explored the possibility that evolved cognitive predispositions arising from a *Folk Sociology* may, in part, help to shape the contents of such stereotypes. It was argued that human social cognition may be particularly sensitive to traits denoting competence and morality/warmth. It was noted how the Cognition and Culture approach dovetails with evolutionary social psychology. Evolutionary social psychologists have argued that to understand social cognition we should employ the following strategy: First, identify the set of fitness-relevant “problems” recurrently posed by human social environments. Second, deduce plausible cognitive adaptations that would have helped “solve” these problems and the specific implications of these adaptations for human cognition in contemporary social environments. And third, test those hypothesized implications rigorously with empirical data.

In relation to the implications of cognitive adaptations for human cognition evolutionary social psychologists have proposed that humans evolved what they call an “adaptive toolbox” of domain-specific heuristics which evolved to solve problems faced by our ancestors. Applying the strategy outlined above, it was argued that it is plausible that in order to solve the adaptive problem of finding competent and moral/warm group members, humans evolved a sensitivity to cues of competence and morality/warmth. Furthermore, it was argued that humans may have evolved a heuristic

leading people to assume that members of a group to which we belong (i.e. our in-group) are competent and moral/warm i.e. a default competence and morality/warmth assumption. There is some indirect evidence for the default competence assumption from 'Minimal Group Paradigm' studies. In many of these studies, the measure of in-group bias was participants' assessments of products ostensibly created by in-group and out-group members (Sachdev and Bourhis, 1987). The fact that participants rate products of their in-group as superior to products of the out-group is consistent with a default competence assumption. Fiske *et al.* (1999) argue that people rate in-group members as high in competence and morality/warmth. Hence, it is highly plausible that we also hold a default morality/warmth assumption. However, previous research indicates that humans may be more sensitive to morality/warmth traits than competence traits. In Chapter II, applying Hasleton and Nettle's (2006) *Error Management Theory* I suggested that this may be a result of the costs of falsely assuming that an individual or group member is competent may be lower than the cost of falsely assuming they are moral/warm. The former would result in some loss in resources but the latter could result in injury or even loss of life. With this in mind, the first empirical study of this thesis aims to provide a test of this hypothesized default stereotyping mode.

III.2 Experiment Overview

This experiment was designed to investigate the hypothesized default competence and default morality/warmth assumption (see above) by combining methods from the Minimal Group Paradigm (MGP) (Tajfel, Billig, Bundy and Flament, 1971) and a paradigm used in Stereotype Content Model (SCM) research on stereotyping (Fiske *et al.*, 1999). Experiments on 'minimal' groups, first conducted by Rabbie and Horwitz (1969) and Tajfel, Billig, Bundy and Flament (1971), found evidence indicating that the mere categorization of individuals into arbitrary groups can be sufficient to elicit social discrimination in favour of the in-group. More recently, it has been found minimal social categorization is also sufficient to activate implicit or

automatic positive attitudes towards the in-group, and neutral attitudes towards the out-group (Otten and Wentura, 1999). The unique characteristic of the minimal group paradigm is that the groups represent the most basic form of social categorization, based on simply being in one group or the other. Unlike real social groups defined by nationality, religion, or race, there is no economic imbalance, past interaction, or even any meaning ascribed to these groups. Therefore, this paradigm is a particularly useful means of testing for a default stereotyping mode. Following assignment to minimal groups (or minimal categories) on the basis of a perceptual styles test, participants completed a dependent measure of stereotyping in the form of a survey in which they were required to rate both the in-group (or in-category) and out-group (or out-category) on words denoting high and low competence and high and low morality/warmth.

Experiment Design:

A 2 (*Experimental condition*: minimal group, minimal category) X 2 (*Stereotype object*: in-group/category, out-group/category) X 4 (*Stereotype dimension*: High Competence, Low Competence, High Morality/Warmth, Low Morality/Warmth) experimental design was employed. *Experimental condition* was a between-subjects factor and *stereotype object* and *stereotype dimension* were within-subjects factors.

III.3 Method

III.3.1 Participants

The required sample size was calculated using G*Power 3 for Mac (see Faul, Erdfelder, Lang and Buchner, 2007). Parameters used in the estimate were the effect size (set to .30), type I error level (set to .05), and type II error level (set to .80). The sample size calculated by the software was 120. A total of 155 participants of various nationalities completed the study. The data from 26 participants had to be excluded from analyses due to the following reasons: (a) six participants used the wrong in-group label while answering manipulation check questions; (b) twenty participants were excluded due to their awareness of the true purpose of the experiment and/or the minimal group paradigm. This left 126 participants, 71 females and 55 males. Fifty-two percent of the sample identified themselves as British, 24.6% American, 4.8% Australian, 8% European 4% Canadian, 4% Chinese, 2.4% Mexican. The remainder identified themselves as Indian, Puerto Rican, Brazilian, Belarusian, El-Salvadorian (<1%).

III.3.2 Materials and Procedure

The study appeared online as a web-based 'Perceptual Styles Study'. Invitations to participate were posted on three online psychological research directories ('Social Psychology Network', 'Online Psychology Research UK' and 'Psychological Research On The Net'). The majority of previous research using the Minimal Group Paradigm has been administered in classrooms or psychology laboratories where an experimenter was physically present. However, in recent years psychologists have come to recognize that online research is a viable means of collecting data (Kraut, Olson, Banaji, Bruckman, Cohen and Couper, 2004; Reips, 2002a). With the ever increasing use of the Internet in industrialized countries, earlier assumptions about Internet users having specific personality characteristics (e.g., social maladjustment) or particular demographics are less of a

concern (Gosling, Vazire, Srivastava and John, 2004). Gosling *et al.* (2004) conducted an empirical examination of the potential drawbacks of Internet-based research by comparing a Web sample (N = 361, 703) to traditional samples. They concluded that the negative preconceptions of Internet research are unfounded. Similarly, Krantz and Dalal (2000) found no difference between lab and Web versions of surveys, scales and experimental variables.

An internet data collection process was used for several reasons. Firstly, using the Internet allows access to a much wider pool of participants (Buchanan and Smith, 1999). Online experiments can collect data from thousands of participants, at low cost and minimal intervention on the part of experimenters (Nosek, Banaji and Greenwald, 2002). The large and diverse samples online are preferable to undergraduate students on whom much psychological theory rests (Kraut *et al.*, 2004). In addition to enabling the recruitment of a large sample, Internet-based experiments have various technological advantages over paper and pen methods. For instance, JavaScript allows researchers to randomly assign participants to experimental conditions. Furthermore, it helps to ensure the tasks are completed in the intended order. This is especially important for designs in which experimental measures or items are counter-balanced (Reips, 2002b). With conventional paper-based research, transcription of responses is error-prone, but online research data is directly written to a database. Online research can also result in greater protection of human subjects given that it makes it easier for participants to quit from the study. This freedom to withdraw is important given strong pressures to continue in face-to-face studies (Reips, 2002b). Finally, it was pragmatic given that the measures used in this experiment, in particular the perceptual styles test, needed to be administered online in any case.

Nonetheless, it is recognised that there are certain disadvantages in online data collection such as the potential lack of experimental control, self-selection, high drop-out rates, and multiple submissions. Every attempt was

made to minimize the impact of these disadvantages on the present study. Experimental control is of greatest significance for research using perceptual measures where visual or auditory stimuli are used. This is not of concern in the present study as the perceptual styles test is bogus; participants are randomly assigned to a Figure or Ground perceptual style. In addition, experimental control is less of a concern for research with a between-subjects design as the random assignment of participants to experimental conditions means potential errors are randomized as opposed to systematic (Reips, 2000). Furthermore, the lack of experimental control may have the advantage of reducing possible experimenter effects (ibid).

Specific measures were adopted to minimize the effects of multiple submissions by asking participants to complete the experiment only once and by deleting multiple submissions from the same IP address. The issue of self-selection, may be a greater problem for sociologists or political scientists than for psychological research given that it is pan-human cognitive processes as opposed to individual differences that are of primary interest. Technical procedures to reduce drop-out rates were adopted and consisted of some of the 'high-hurdle' techniques suggested by Reips (2000). Finally, the experiment was tested to ensure it worked on different operating systems (Microsoft Windows and Apple Mac) and different web browsers (Internet explorer, Safari and Firefox).

The study's first page provided information about the general nature of the study, stating "You are invited to participate in an on-line study about perceptual style and its correlates. This study forms part of a doctoral project in Social Psychology". Participants were informed that the study will take no longer than 15 minutes to complete and that they would be given further instructions if they chose to participate. The remainder of the text related to ethical issues: potential benefits and risks and informed consent (see Appendix D for a copy of the consent form).

Part 1:

Minimal Group Assignment (Experimental Condition 1):

Following Otten and Wentura (1999), participants were randomly assigned to a 'Figure Group' and the other half to a 'Ground Group'. Participants were told they are required to perform a task ostensibly assessing "perceptual style in perceiving and structuring pictorial information". They were told that the task identifies differences in perception and information processing. Typically, two categories can be distinguished: 'Figure Group' which comprises of people who focus on salient features of a stimulus first, and later examine the more global characteristics of the picture. The other group, labelled 'Ground Group', comprises of people who focus on global impressions, adding in details to the general frame later. This task was selected for three reasons: (1) the perceptual style test was successfully used to assign individuals to minimal groups in a previous experiment. The advantage of using an existing measure is that it is not necessary to design and validate the measures again (Ember and Ember, 2001); (2) the two categories have no prior meaning to them; (3) participants would have no expectations or content attached to it prior to the group assignment. It is vital that participants hold no a priori expectations regarding the competence and/or morality/warmth of people with a Figure or Ground perceptual style. Therefore a pre-test was conducted in the form of a survey and a chi-squared test confirmed that the number of people who inferred that there was no difference between the competence of people with the two perceptual styles ($n = 21$) was greater than the number of people who believed that there is such a difference ($n = 7$) and those who were uncertain ($n = 3$). This difference was statistically significant, $\chi^2(2, N = 31) = 17.290, p < .001$. It was also found that the number of people who inferred that there was no difference between the morality/warmth of people with the two perceptual styles ($n = 20$) was greater than the number of people who believed that there is such a difference ($n = 4$) and those that were uncertain ($n = 7$). This difference was also statistically

significant, $\chi^2 (2, N = 31) = 14.00. p < .001$ (See Appendix A for the pre-test materials).

Perceptual style was measured by a test depicting eight ambiguous pictures (To view stimuli see Appendix C). Each picture was shown and followed by the presentation of two alternative interpretations. Participants were required to indicate which of the two alternatives images they saw first by clicking on the relevant button. After the eight judgments were given, the computer seemingly processed the data. A blank screen appeared, followed by the message: 'Please wait. Your data are being processed'. After 1000ms, false feedback about the participant's group membership appeared on the screen, together with another written description of the perceptual styles. Participants were in fact randomly assigned to either the 'Figure Group' or 'Ground Group'. Following the presentation of their feedback, participants were told to read their test results thoroughly as this information will be required in the second part of the study. Upon pressing 'continue', participants were presented with the dependent measures.

Minimal Category Assignment (Experimental Condition 2):

Within social psychology there is often a conflation of the terms 'group' and 'category,' in particular in the literature on the MGP. However, categories and groups may not be the same thing. This condition was included in order to explore whether there are any differences between assignment to a 'minimal category' as opposed to a 'minimal group.' The procedure in this condition is identical to that used in experimental condition 1, with one crucial difference; participants were designated as having a 'Figure' or 'Ground' perceptual style with no mention of this placing them in two distinct 'groups'. Given that no differences were predicted between participants assigned to a Figure or Ground perceptual style based on the pre-test and the fact that the perceptual styles test was bogus participants were only assigned to a 'Figure Style'. Although, of

course, they believed that other participants taking part in the study were assigned to a 'Ground Style'.

Part 2: Dependent Measure

Following assignment to minimal groups (or categories), participants completed a dependent measure of inter-group stereotypes in the form of a survey. Participants rated the in-group or in-category (section 1) and the out-group or out-category (section 2) on adjectives denoting high and low competence and high and low morality/warmth. These words were selected in a second pre-test designed to identify adjectives which people associate with high and low competence and high and low morality/warmth (See Appendix B for the pre-test materials). A one-way independent analysis of variance (ANOVA) test was used to examine the ratings for each domain (competence, morality and warmth) for all 144 words. All comparisons among means following significant ANOVAS were conducted using the Gabriel test as the sample sizes across the groups varied slightly. For the domain competence, 12 words were selected (see Tables 3.0 and 3.1 below) which received the highest mean ratings and 12 which received the lowest mean ratings. Crucially the differences between the mean competence ratings and mean morality and warmth ratings are statistically significant for each of the 24 words (12 denoting high competence, 12 denoting low competence). For the domains morality and warmth 12 words were selected which received high morality *and* high warmth mean ratings and 12 words which received low morality *and* low warmth mean ratings (see Tables 3.2 and 3.3 below). In this case it was ensured that the differences between the mean morality and mean warmth ratings were not statistically significant. For most of these words the differences between the mean competence and the mean morality and warmth ratings were statistically significant. However, for some words the ratings for the three domains overlapped. More specifically, four words which received the highest ratings for the domain high warmth and morality, also received high ratings for the domain high competence. Furthermore, one of the words that received the highest ratings for the domain low morality/warmth also

received high ratings for the domain low competence. It was impossible to avoid this as alternative words which did differ significantly from the competence ratings had too low or neutral ratings for morality and warmth.

In order to prevent participant fatigue the 48 words (12 high competence, 12 low competence, 12 high morality/warmth and 12 low morality/warmth) were used to construct two randomized word lists each consisting of 24 words and they were presented in a between-subjects counter-balanced order. Consequently, participants were randomly assigned to one of six versions of the study:

- 1 a) Exp con 2 (Figure Style) - > Part 1: List 1, Part 2: List 2
- 1 b) Exp con 2 (Figure Style) - > Part 1: List 2, Part 2: List 1
- 2 a) Exp con 1 (Figure Group) - > Part 1: List 1, Part 2: List 2
- 2 b) Exp con 1 (Figure Group) - > Part 1: List 2, Part 2: List 1
- 3 a) Exp con 1 (Ground Group) - > Part 1: List 1, Part 2: List 2
- 3 b) Exp con 1 (Ground Group) - > Part 1: List 2, Part 2: List 1

Responses to the 24 items in both parts of the survey were made by clicking one of five response options (1 = 'strongly agree' to 5 = 'strongly disagree').

In the final section participants were asked to provide some demographic information, specifically participants' nationality, first language, fluency in English (native speaker, fluent, basic and poor) and sex. Finally participants were asked to complete two manipulation check questions; (1) 'Which perceptual style group are you a member of?', with response categories 'Ground Group' and 'Figure Group'; (2) 'What do you think the purpose of this study is?', with a box provided for participants to type their response into. Clicking a 'submit study' button recorded the data and directed participants to a debriefing page.

(Note: All the materials and procedures for experimental condition 2 were identical to experimental condition 1 except for one crucial difference: there was no mention of the word 'group' and the term 'perceptual style' was used instead of 'perceptual style group' and the terms 'Figure Style' or 'Ground Style' were used instead of 'Figure Group' and 'Ground Group').

TABLE 3.0: Mean Ratings for Words Denoting High Competence by Domain

High Competence Words	Mean Ratings by Domain		
	Competence	Morality	Warmth
Competent	1.27 _a (.609)	2.85 _b (1.239)	2.97 _b (1.311)
Motivated	1.59 _a (.792)	2.52 _b (1.235)	2.99 _b (1.386)
Capable	1.66 _a (.833)	2.71 _b (1.236)	3.00 _b (1.254)
Efficient	1.73 _a (1.119)	2.37 _b (1.292)	2.55 _b (1.376)
Knowledgeable	1.79 _a (1.154)	2.41 _b (1.135)	2.90 _b (1.155)
Determined	1.83 _a (1.309)	2.73 _b (1.287)	2.87 _b (1.240)
Diligent	1.83 _a (.919)	2.51 _b (1.226)	2.50 _b (1.247)
Intelligent	1.85 _a (.922)	2.88 _b (1.295)	3.27 _b (1.444)
Skillful	2.02 _a (1.000)	3.01 _b (1.153)	3.29 _b (1.164)
Persistent	2.06 _a (1.090)	3.17 _b (1.342)	3.31 _b (1.321)
Proficient	2.15 _a (1.244)	2.77 _b (1.235)	3.25 _b (1.287)
Confident	2.28 _a (1.010)	2.98 _b (1.196)	3.19 _b (1.445)
<i>n</i>	95	93	91

Note. Ratings were made on 7 point scales (1 = competent/moral/warm, 7 = incompetent/immoral/cold, respectively). Standard deviations appear in parentheses below means. Means in the same row that do not share sub scripts significantly differ at $p < .05$ in the Gabriel test of pairwise differences.

TABLE 3.1: Mean Ratings for Words Denoting Low Competence by Domain

Low Competence Words	Mean Ratings by Domain		
	Competence	Morality	Warmth
Incapable	5.92 _a (1.318)	4.40 _b (1.213)	4.54 _b (1.350)
Stupid	5.88 _a (1.090)	4.13 _b (1.350)	4.69 _b (1.541)
Hopeless	5.80 _a (1.419)	4.71 _b (1.456)	5.03 _b (1.609)
Incompetent	5.76 _a (1.853)	4.42 _b (1.346)	4.36 _b (1.207)
Idiotic	5.69 _a (1.353)	4.74 _b (1.275)	4.78 _b (1.364)
Inefficient	5.67 _a (1.567)	4.51 _b (1.366)	4.61 _b (1.321)
Inadequate	5.60 _a (1.355)	4.56 _b (1.387)	4.68 _b (1.534)
Unskilled	5.59 _a (1.250)	4.27 _b (1.085)	4.38 _b (1.268)
Lazy	5.57 _a (1.449)	4.75 _b (1.282)	4.26 _b (1.511)
Illiterate	5.54 _a (1.590)	4.22 _b (1.277)	4.29 _b (1.574)
Inept	5.46 _a (1.413)	4.35 _b (1.332)	4.73 _b (1.405)
Sluggish	5.45 _a (1.577)	4.31 _b (1.496)	4.64 _b (1.354)
<i>n</i>	95	93	91

Note. Ratings were made on 7 point scales (1 = competent/moral/warm, 7 =incompetent/immoral/cold, respectively). Standard deviations appear in parentheses below means. Means in the same row that do not share sub-scripts significantly differ at $p < .05$ in the Gabriel test of pairwise differences.

TABLE 3.2: Mean Ratings for Words Denoting High Morality/Warmth by Domain

High Morality- Warmth Words	Mean Ratings by Domain		
	Morality	Warmth	Competence
Trusting	1.47 _a (.813)	1.61 _a (.932)	2.41 _b (1.292)
Kind	1.71 _a (1.023)	1.73 _a (.944)	2.60 _b (1.322)
Generous	1.80 _a (1.036)	1.78 _a (.909)	2.91 _b (1.177)
Good-natured	1.87 _a (1.036)	1.71 _a (.939)	2.72 _b (1.136)
Sympathetic	1.93 _a (1.185)	1.94 _a (1.203)	2.98 _b (1.158)
Sincere	1.98 _a (1.233)	1.98 _a (1.075)	2.26 _a (1.226)
Harmonious	2.09 _a (1.184)	1.82 _a (.967)	2.59 _b (.962)
Happy	2.22 _a (1.334)	1.82 _a (1.101)	2.37 _b (1.488)
Dependable	2.23 _a (1.278)	2.11 _a (1.048)	2.03 _a (1.395)
Reliable	1.83 _a (1.208)	2.11 _a (1.276)	1.65 _a (.796)
Forgiving	1.92 _a (1.299)	2.03 _a (1.336)	3.11 _b (1.198)
Polite	2.26 _a (1.406)	2.21 _a (1.207)	2.48 _a (1.381)
<i>n</i>	91	93	95

Note. Ratings were made on 7 point scales (1 = moral/warm/competent 7 = immoral/cold/incompetent, respectively). Standard deviations appear in parentheses below means. Means in the same row that do not share sub-scripts significantly differ at $p < .05$ in the Gabriel test of pairwise differences.

TABLE 3.3: Mean Ratings for Words Denoting Low Morality/Warmth by Domain

Low Morality- Warmth Words	Mean Ratings by Domain		
	Morality	Warmth	Competence
Heartless	6.11 _a (1.352)	6.11 _a (1.517)	4.87 _b (1.566)
Cruel	5.94 _a (1.607)	6.18 _a (1.488)	4.60 _b (1.798)
Deceitful	5.82 _a (1.635)	5.69 _a (1.756)	4.47 _b (1.897)
Greedy	5.76 _a (1.440)	5.53 _a (1.629)	4.10 _b (1.973)
Corrupt	5.75 _a (1.579)	5.41 _a (1.686)	4.64 _b (1.871)
Ruthless	5.72 _a (1.485)	5.59 _a (1.798)	4.40 _b (1.722)
Dishonest	5.55 _a (1.478)	5.46 _a (1.587)	4.94 _b (1.632)
Wicked	5.55 _a (1.723)	5.63 _a (1.510)	4.55 _b (1.904)
Rude	5.46 _a (1.523)	5.72 _a (1.430)	4.79 _b (1.391)
Tyrannical	5.38 _a (1.823)	5.57 _a (1.550)	4.37 _b (1.833)
Ungenerous	5.12 _a (1.552)	5.48 _a (1.409)	4.34 _b (1.751)
Vain	5.06 _a (1.731)	5.12 _a (1.583)	4.15 _a (1.741)
<i>n</i>	95	93	91

Note. Ratings were made on 7 point scales (1 = moral/warm/competent 7 = immoral/cold/incompetent, respectively). Standard deviations appear in parentheses below means. Means in the same row that do not share sub-scripts significantly differ at $p < .05$ in the Gabriel test of pairwise differences.

III.4 Hypotheses

In order to analyse the data for experiment 1 separate scales were constructed for the four stereotype dimensions: high competence, low competence, high morality/warmth and low morality/warmth by aggregating data across the 12 traits for each of these dimensions. The data for the two dimensions high competence and high morality/warmth were reversed coded such that 1 = strongly disagree and 5 = strongly agree in order to make these two scales commensurable with the low competence and low morality/warmth scales for which 1 = strongly agree and 5 = strongly disagree. In other words, following recoding, higher scores on all four scales indicated more positive ratings.

Key: IG = In-group/category

OG = Out-group/category

IGC = In-group competence

OGC = Out-group competence

IGM/W = In-group morality/warmth

OGM/W = Out-group morality/warmth

\bar{x} = mean

Stereotype object:

Based on the premise that people hold default competence and morality/warmth assumptions about their in-group:

H₁: A significant main effect of *stereotype object* (in-group/category, out-group/category) was predicted: mean ratings for the in-group/category were predicted to be higher (i.e. more positive) than the mean ratings for the out-group/category across all four stereotype dimensions.

$$\bar{x}_{IG} > \bar{x}_{OG}$$

Stereotype dimension:

Previous research has found that humans are more sensitive to the dimension morality/warmth in their social judgments. It was argued above that the costs of falsely assuming someone is competent may be lower the cost of falsely assuming someone is moral/warm. Hence:

H₂: A two-way interaction between *stereotype object* and *stereotype dimension* was predicted: a greater difference in the mean ratings for the in-group/category compared to mean ratings for the out-group/category on the competence dimensions compared to the morality/warmth dimensions was predicted.

$$(\bar{X}_{IGC} - \bar{X}_{OGC}) > (\bar{X}_{IGMW} - \bar{X}_{OGMW})$$

Experimental Condition:

As no previous research has investigated differences in assigning people to minimal groups vs. minimal categories, and no differences are predicted from a Cognition and Culture perspective, no hypotheses were formulated concerning a main effect or interactions involving *experimental condition*.

III.5 Results

Preliminary Analysis

Preliminary analyses revealed no significant main effects of word list or perceptual style group assignment (i.e. Figure Group or Ground Group) thus data were pooled across these variables. Similarly no significant main effects or interactions involving sex or nationality of participant were found. As stated earlier, separate scales were constructed for high competence, low competence, high morality/warmth and low morality/warmth by aggregating data across the 12 traits for each of these dimensions. The data for the two dimensions high competence and high morality/warmth were reversed coded such that 1 = strongly disagree and 5 = strongly agree in order to make these two scales commensurable with the low competence and low morality/warmth scales for which 1 = strongly agree and 5 = strongly disagree. In other words higher scores on all four dimensions indicated more positive ratings. These four scales showed a high level of internal reliability: high competence ($\alpha = .85$), low competence ($\alpha = .84$), high morality/warmth ($\alpha = .86$) and low morality/warmth ($\alpha = .88$).

Main Analysis

A 2 (*Experimental Condition*: Group, Category) X 2 (*Stereotype Object*: In-group/category, Out-group/category) X 4 (*Stereotype Dimension*: High Competence, Low Competence, High Morality/Warmth, Low Morality/Warmth) mixed design factorial ANOVA was conducted. A mixed design factorial ANOVA is used when several independent variables have been measured and some variables have been measured with different participants (between-subjects) and others used the same participants (within-subjects) (Field, 2009). In experiment 1, *experimental condition* was a between-subjects factor and *stereotype object* and *stereotype dimension* were within-subjects factors. The dependent measures were mean ratings on the four stereotype dimension scales (high competence,

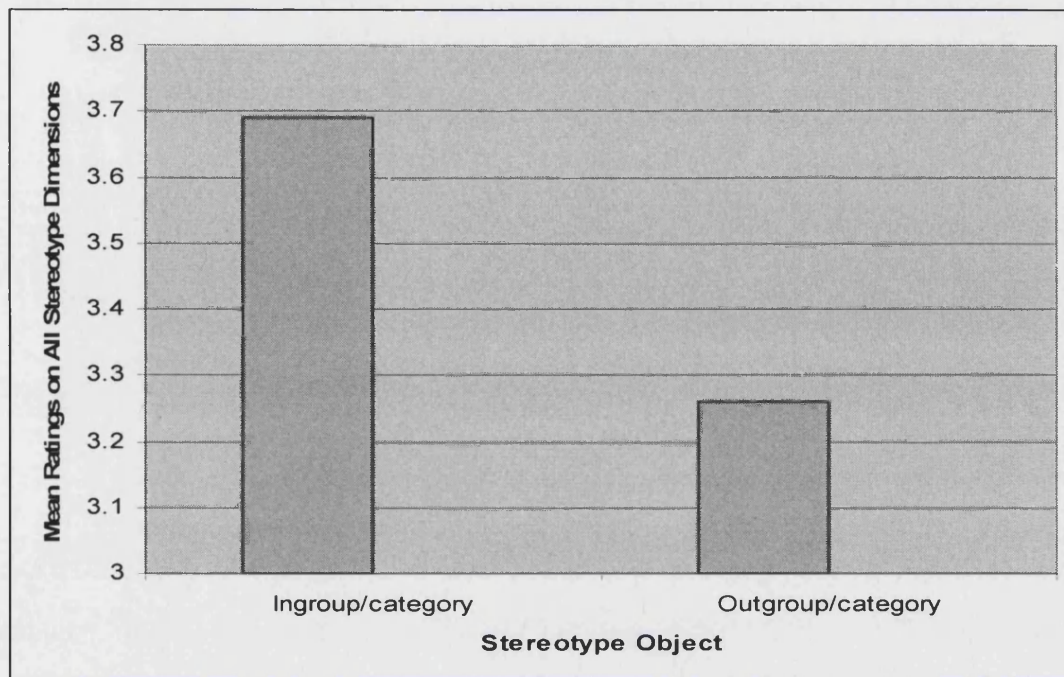
low competence, high morality/warmth and low morality/warmth). Planned pairwise comparisons following significant effects were performed using the Bonferroni correction. The Bonferroni correction controls the family-wise error rate by correcting the level of significance for each test such that the overall Type 1 error rate across all comparisons remains at .05. The alpha value was set at .05 and partial eta squared (η^2) was calculated as the effect size.

Stereotype Object:

As predicted ($H_{1.0}$) there was a significant main effect of *stereotype object* (in-group/category, out-group/category), $F(1, 57) = 48.006, p < .001, \eta^2 = .457$. As you can see from Figure 3.0 pairwise comparisons revealed that the mean ratings were significantly higher for the in-group/category ($M = 3.69, SD = 0.54$) compared to the out-group/category ($M = 3.26, SD = 0.43$) on all four stereotype dimension scales, $p < .001$. Since high competence and high morality/warmth were coded such that higher scores equal greater agreement and low competence and low morality/warmth were coded such that higher scores equal greater disagreement these results show that the in-group/category was rated more positively than the out-group/category across all four stereotype dimensions.

The prediction of a two-way *stereotype object* and *stereotype dimension* (H_2) was not supported, $F(3, 171) = .356, p = .785$. This suggests there were no differences between mean ratings on the two competence scales compared to the two morality/warmth scales when comparing the in-group/category to the out-group/category.

Figure 3.0: Mean Ratings Across all Stereotype Dimensions by Stereotype Object (In-group/category vs. out-group/category)



Note. Judgments were made on a 5 point-scale: High Competence and High Morality/Warmth Scale: 1 = strongly disagree, 5 = strongly agree. Low Competence and Low Morality/Warmth Scale: 1 = strongly agree, 5 = strongly disagree.

No predictions were formed regarding a main effect or interactions involving *experimental condition*. However, there was a significant main effect of *experimental condition*, $F(1, 57) = 6.542$, $p < .05$, $\eta^2 = .103$. Pairwise comparisons revealed that the mean ratings were slightly higher in the group condition ($M = 3.57$, $SD = 0.51$) than in the category condition ($M = 3.39$, $SD = 0.43$), $p < .05$. There was no significant main effect of *stereotype dimension*, $F(3, 171) = 1.006$, $p = .365$. There was no significant two-way interaction between *stereotype object* and *experimental condition*, $F(1, 57) = 1.304$, $p = .258$. Finally, there was no significant three-way interaction between *stereotype object*, *stereotype dimension* and *experimental condition*, $F(3, 171) = .603$, $p = .614$.

III.6 Summary and Discussion

Default Stereotyping?

By combining the *Minimal Group Paradigm* and a stereotype content research paradigm, this study explored whether humans possess a default stereotyping mode. That is, whether people rely on a heuristic leading them to assume that members of a group to which they belong are competent and moral/warm i.e. a default competence and default morality/warmth assumption. My analysis generated good results in support of the study's main hypothesis. I shall now turn to a more detailed summary and discussion of the results of experiment 1.

In-group Stereotypes

The prediction that participants will rate members of their in-group/category more positively on the dimensions high and low competence and high and low morality/warmth than the out-group/category was supported (see Figure 3.0 above). This finding is consistent with the hypothesized default competence and default morality/warmth assumption outlined in the *Introduction*. It is also consistent with existing social psychological research which shows strong evidence for in-group favouritism in both minimal groups and for most 'real-world' groups (except when there are status differences as this often elicits out-group favouritism). However, according to the *Stereotype Content Model* (SCM) the contents of social group stereotypes are derived from the structure of inter-group relations. Hence, Fiske *et al.* have not entertained or investigated the possibility that rudimentary stereotypes may be formed about 'minimal' groups. This finding was both predicted by, and can be accounted for by, the Cognition and Culture perspective.

Out-group Stereotypes

In relation to the out-group, it was found that participants' ratings for the out-group were close to neutral (i.e. 3 on the 5 point scale) across both competence and morality/warmth dimensions (see Figure 3.0). This is consistent with recent research on inter-group attitudes in minimal groups which has shown that minimal group categorization is sufficient to elicit positive attitudes towards the in-group and neutral, as opposed to negative, attitudes towards the out-group (Otten and Wentura, 1999). These findings are also consonant with current social psychological theorizing and research on prejudice and inter-group relations which suggests that in-group favouritism must be distinguished both conceptually and empirically from out-group derogation (see for example, Brewer, 1979, 1993).

Competence vs. Morality/Warmth

The prediction that the default competence assumption would be stronger than the default morality/warmth assumption was not supported. Participants rated their in-group/category more positively than the out-group/category on the two competence dimensions *and* the two morality/warmth dimensions. Although, SCM research points to the fact that the morality/warmth dimension is primary, it does not predict a difference in the strength of competence and morality/warmth stereotypes.

Minimal Group vs. Minimal Category

No differences were found between the two experimental conditions. This suggests that the distinction between 'groups' and 'categories' may be analytical. However, manipulation checks resulted in more participants assigned to the minimal group as opposed to minimal category condition being excluded from the analysis as they had accurately predicted the

study was exploring inter-group attitudes or prejudice. Within the social psychology literature the terms 'group' and 'category' are often used interchangeably. However, as Hamilton, Sherman and Lickel (1998) point out although there is an association between them categories and groups are not the same thing. Some social categories, for instance, do not lead to a sense of 'groupness.' An oft cited example of this is sex, which while recognised as being a relevant social category is not thought of by males and females as groups. This is not to say, of course, that sex may not be thought of as a group (ibid). There is perhaps a case to be made for future research to try and investigate whether this distinction is purely analytical, and if not what consequences it has for human social judgments.

Overall, the results of this study supported the hypothesized default stereotyping mode. This experiment indirectly lends support to the idea that humans have evolved a sensitivity to cues of competence and morality/warmth in their social judgments. This study also strengthens the case for applying the Cognition and Culture perspective to the understanding and investigation of social group stereotypes. More specifically, it provides some empirical evidence to support the proposition that evolved cognitive predispositions may, in part, shape the contents of social group stereotypes. As noted above, the theoretical framework outlined in Chapter I has led to predictions and research findings which cannot easily be accommodated by existing social psychological theories about stereotypes such as SCM.

In conclusion, although the findings of this research are consistent with a default stereotyping mode, one is hesitant to draw strong conclusions from a single study. The present study does not enable us to understand what leads to the formation of stereotypic judgments concerning the competence and morality/warmth of the out-group, given that the ratings were neutral. Existing social psychological research suggests that such an understanding comes from a consideration of the structure of inter-group relations such as the existence of status differences between the groups.

For instance, Fiske *et al.* (1999) found that attitudes towards groups varying in social status cluster into two types: members of high status groups are perceived to be highly competent but not very moral/warm, while members of low status groups are perceived to be highly moral/warm but not very competent. However, social status is not experimentally manipulated in these studies and they only demonstrate a correlation between status and perceived competence and morality/warmth. Additionally, it was argued in Chapter II that we might have evolved a cognitive predisposition sensitive to cues of social status in the form of a status detector which leads, in turn, to a sensitivity to cues of competence and morality/warmth. It is plausible that humans may have also evolved a heuristic leading people to assume members of high status groups are competent but immoral/cold and that members of low status groups are incompetent but moral/warm i.e. a default group status stereotyping mode. This hypothesis is tested in experiment 2 in the next chapter.

Chapter IV - Exploring the Role of Cognitive Predispositions in Shaping Stereotype Content Part 2a: An Investigation of Default Group Status Stereotyping using the Minimal Group Paradigm

IV.1 Introduction

Experiment 1, by combining the *Minimal Group Paradigm* (MGP) and an experimental paradigm from the *Stereotype Content Model* (SCM), provided evidence for a default stereotyping mode (see Chapter III). It was found that people form rudimentary stereotypes along the two dimensions of competence and morality/warmth even in minimal groups, and assume that members of a group to which they belong are competent and moral/warm. However, experiment 1 does not allow us to shed light upon what leads to the formation of stereotypic judgments concerning the competence and morality/warmth of the out-group. The SCM suggests that such an understanding comes from a consideration of the structure of inter-group relations. More specifically, the SCM proposes that appraisals of inter-group competition predicts morality/warmth stereotypes, and inter-group status predicts competence stereotypes. It was argued in Chapter II that the domain of a *Folk Sociology* can be expanded to include a status detector which produces a sensitivity to inter-group status differentials. It was posited that given the association between status and perceptions of competence found in numerous studies (*cf.* Berger *et al.*, 1985; Jemmott and Gonzalez, 1989; Ridgeway, 1982), humans may have also evolved a heuristic leading people to assume members of high status groups are competent but members of low status groups are incompetent i.e. a default group status stereotyping mode. In other words, we use group status as a heuristic to infer the competence of all members of a high status or low status group.

According to the SCM inter-group competition predicts stereotypes based on the morality/warmth dimension such that groups who cooperate with us are seen as moral/warm, while groups who compete with us are seen as immoral/cold. Nonetheless, Fiske *et al.* (1999) have found that the dimensions of competence and morality/warmth are often negatively correlated and cluster into two types based on group status; high status group members are perceived as competent but immoral/cold, while low status group members are perceived as incompetent but moral/warm. Furthermore, as discussed in Chapter II, Cummins (1998) proposed that humans have evolved a sensitivity to social norms, specifically cheating and deception, involving status hierarchies. Therefore, it is plausible that the default group status stereotyping mode includes stereotypes of morality/warmth such that high status groups are perceived to be immoral/cold and low status groups are perceived to be moral/warm. The second empirical study of this thesis has been designed to provide a test of this hypothesized default group status stereotyping mode.

The original MGP studies and experiment 1 provided evidence for in-group favouritism in minimal groups taking the form of discrimination in favour of, positive evaluations of, and positive stereotypes of one's in-group. However, as seen in Chapter I, there is considerable evidence suggesting that this form of in-group favouritism is modulated by the status of one's group within society. This often results in weaker in-group favouritism among members of low status groups, and stronger in-group favouritism among members of high status groups (see Jost, Pelham, and Carvallo, 2002; Sidanius and Pratto, 1999). Status differentials between groups can also result in out-group favouritism by members of low status groups. Using a variant of the MGP, Sachdev and Bourhis (1987) formed ad hoc high, low and equal status groups. Results showed that members of high and equal status group were more discriminatory against the out-group, and more positive about their own group membership than were members of the low status group. Members of the low status group engaged in significant amounts of out-group favouritism by distributing more resources to

members of the high status out-group. Status differentials also manifest in more positive attitudes towards members of high status groups by members of low status groups (see Dunham, Baron and Banaji, 2007, 2008). It is important to note that in experiment 2 in-group favouritism, and the associated default stereotyping (in-group is perceived as competent and moral/warm) competes with default group status stereotyping (high status group is perceived as competent but immoral/cold and low status group is seen as incompetent but moral/warm). The implications of this will be discussed later in the hypotheses section.

IV.2 Experiment Overview

This experiment was designed to investigate the hypothesized default group status stereotyping mode (see above) by adapting the experimental paradigm used in experiment 1 (see Chapter III). Experiment 2 used a very similar procedure to that used in experiment 1 except that a status manipulation was introduced. Adapting the status manipulation used by Sachdev and Bourhis (1987), it was impressed upon the participants that membership in the *Figure Group* has been found to correlate significantly and positively with social status as opposed to membership in the *Ground Group*. The dependent measures were the same as Experiment 1; following assignment to minimal groups varying in social status, participants completed a dependent measure of stereotyping in the form of a survey in which they were required to rate both the in-group and out-group on words denoting high and low competence and high and low morality/warmth.

Experiment Design:

A 2 (*Group status*: high status group, low status group) X 2 (*Stereotype object*: in-group, out-group) X 4 (*Stereotype dimension*: High Competence, Low Competence, High Morality/Warmth, Low Morality/Warmth) experimental design was employed. *Group status* was a between-subjects

factor and *stereotype object* and *stereotype dimension* were within-subjects factors.

IV.3 Method

IV.3.1 Participants

The required sample size estimated using G*Power 3 for Mac was 120. A total of 144 participants completed the study. The data from 20 participants had to be excluded from analyses due to the following reasons: (a) four participants used the wrong in-group label while answering manipulation check questions and (b) sixteen participants were excluded due to their awareness of the true purpose of the experiment and/or the minimal group paradigm. This left 124 participants, 73 females and 51 males. Fifty-one percent of the sample identified themselves as British, 25% American, 12% Australian, 10 % European 1% Canadian, 1 % Chinese. The remainder identified themselves as Indian, Puerto Rican, Brazilian, Belarusian, El-Salvadorian (<1%).

IV.3.2 Materials and Procedure

The materials and procedure were virtually identical to those used in experiment 1 (see Chapter III). The study appeared online as a web-based 'Perceptual Styles Study'. Invitations to participate were posted on three online psychological research directories (Social Psychology Network, Online Psychology Research UK and Psychological Research On The Net). After reading and signing the consent form participants were directed to the first page of the study.

Part 1

Minimal Status Group Assignment:

As in experiment 1 participants completed a bogus perceptual styles test. All materials in the perceptual styles test were identical to those used in experiment 1, except that the feedback page not only assigned participants to a 'Figure Group' or 'Ground Group' but also informed participants that the two perceptual style groups varied in social status. Thus, participants assigned to the 'Figure Group' were informed that "psychologists have found that members of the *Figure Group* have higher social and occupational status compared to members of the *Ground Group*." Similarly participants assigned to the 'Ground Group' were informed that "psychologists have found that members of the *Ground Group* have lower social and occupational status compared to members of the *Figure Group*." To reinforce this status manipulation participants were presented with a bogus article in which they were informed that this perceptual styles test is an important new predictor of an individual's social and occupational status (see Appendix E to read the article). Upon pressing 'continue' participants were presented with the dependent measures (see below).

Part 2: Dependent Measure

As in experiment 1, following assignment to minimal groups participants completed a dependent measure of inter-group stereotypes in the form of a survey. Participants rated the in-group (section 1) and the out-group (section 2) on adjectives denoting high and low competence and high and low morality/warmth (these are the same adjectives used in experiment 1, see Chapter III). In order to impress the status manipulation upon the participants, the groups were always referred to as the 'High Status Figure Group' and the 'Low Status Ground Group.' To prevent participant fatigue the 48 words (12 high competence, 12 low competence, 12 high morality/warmth and 12 low morality/warmth) were divided into two

randomised word lists each containing 24 words and they were presented in a between-subjects counter-balanced order. Consequently, participants were randomly assigned to one of four versions of the study:

- | | |
|-------------------------------|------------------------------------|
| 1 a) Exp con 1 (Figure Group) | - > Part 1: List 1, Part 2: List 2 |
| 1 b) Exp con 1 (Figure Group) | - > Part 1: List 2, Part 2: List 1 |
| 2 a) Exp con 1 (Ground Group) | - > Part 1: List 1, Part 2: List 2 |
| 2 b) Exp con 1 (Ground Group) | - > Part 1: List 2, Part 2: List 1 |

Responses to the 24 items in both sections were made by clicking one of five response options (1 = 'strongly agree' to 5 = 'strongly disagree').

At the end of the study participants were asked to provide some demographic characteristics: nationality, first language, fluency in English (native speaker, fluent, basic and poor) and sex. Finally, participants were asked to complete four manipulation check questions; (1) 'Which perceptual style group are you a member of...?', with response categories 'Ground Group' and 'Figure Group'; (3) 'Is the Figure Group a...' with response categories 'High Status Group', 'Low Status Group' or 'don't know'; (4) 'Is the Ground Group a...' with response categories 'High Status Group', 'Low Status Group' or 'don't know'; (5) 'What do you think the purpose of this study is?', with a box provided for participants to type their response into. Clicking a 'submit study' button recorded the data and directed participants to a debriefing page.

IV.4 Hypotheses

In order to analyse the data for experiment 2 separate scales were constructed for the four stereotype dimensions: high competence, low competence, high morality/warmth and low morality/warmth by aggregating data across the 12 traits for each of these dimensions. The data for the two dimensions high competence and high morality/warmth were reversed coded such that 1 = strongly disagree and 5 = strongly agree in order to make these two scales commensurable with the low competence and low morality/warmth scales for which 1 = strongly agree and 5 = strongly disagree. In other words higher scores on all four scales indicated more positive ratings.

Key: IG = In-group

OG = Out-group

HSIG = High status in-group

LSIG = Low status in-group

HSOG = High status out-group

LSOG = Low status out-group

-HC = High Competence

-LC = Low Competence

-HM/W = High Morality/Warmth

-LM/W = Low Morality/Warmth

\bar{x} = mean

Stereotype Object:

Based on the premise that people hold default competence and morality/warmth assumptions about their in-group and the findings of experiment 1:

H_{1.0}: A significant main effect of *stereotype object* was predicted: mean ratings for the in-group were predicted to be higher (i.e. more positive)

than the mean ratings for the out-group across all four stereotype dimensions.

$$\bar{X}_{IG} > \bar{X}_{OG}$$

Group Status and Stereotype Object:

Previous research has indicated that group status modulates in-group favouritism. There is evidence that members of high status groups display higher levels of in-group favouritism than members of low status groups who often display out-group favouritism towards high status groups. However, it is important to note that members of low status groups do not fail to show in-group favouritism therefore:

H_{2.0}: An interaction effect between *group status* and *stereotype object* was predicted.

H_{2.1}: High status group: mean ratings were predicted to be higher for the high status in-group compared to the low status out-group on all four stereotype dimensions.

$$\bar{X}_{HSIG} > \bar{X}_{LSOG}$$

H_{2.2}: Low status group: no significant difference in the mean ratings for the low status in-group compared to the mean ratings for the high status out-group on all four stereotype dimensions was predicted.

$$\bar{X}_{LSIG} = \bar{X}_{HSOG}$$

Group Status, Stereotype Object and Stereotype Dimension:

Previous research has indicated that high status groups are perceived as highly competent and low status groups are perceived as lacking competence. Fiske and colleagues have argued that stereotypes of morality/warmth stem from appraisals of inter-group competition which was not manipulated in the present study. However, Fiske *et al.* (1999) did find some evidence that high status groups are perceived as lacking morality/warmth while low status groups are perceived as highly moral/warm. Hence:

H_{3.0}: A three-way interaction effect between *group status*, *stereotype object* and *stereotype dimension* was predicted. This interaction was hypothesized to take the following form:

High Status Group: High and Low Competence:

H_{3.1}: Mean ratings were predicted to be higher for the high status in-group compared to mean ratings for the low status out-group on the high competence dimension.

$$\bar{X}_{\text{HSIG-HC}} > \bar{X}_{\text{LSOG-HC}}$$

H_{3.2}: Mean ratings were predicted to be higher for the high status in-group compared to mean ratings for the low status out-group on the low competence dimension.

$$\bar{X}_{\text{HSIG-LC}} > \bar{X}_{\text{LSOG-LC}}$$

Low Status Group: High and Low Competence:

H_{3.3}: Mean ratings were predicted to be higher for the high status out-group compared to the low status in-group on the high competence dimension.

$$\bar{X}_{\text{HSOG-HC}} > \bar{X}_{\text{LSIG-HC}}$$

H_{3.4}: Mean ratings were predicted to be higher for the high status out-group compared to the low status in-group on the low competence dimension.

$$\bar{X}_{\text{HSOG-LC}} > \bar{X}_{\text{LSIG-LC}}$$

High Status Group: High and Low Morality/Warmth:

H_{3.5}: Mean ratings were predicted to be higher for the low status out-group compared to the high status in-group on the high morality/warmth dimension.

$$\bar{X}_{\text{LSOG-HM/W}} > \bar{X}_{\text{HSIG-HM/W}}$$

H_{3.6}: Mean ratings were predicted to be higher for the low status out-group compared to the high status in-group on the low morality/warmth dimension.

$$\bar{X}_{\text{LSOG-LM/W}} > \bar{X}_{\text{HSIG-LM/W}}$$

Low Status Group: High and Low Morality/Warmth:

H_{3.7}: Mean ratings were predicted to be higher for the low status in-group compared to the high status out-group on the high morality/warmth dimension.

$$\bar{X}_{\text{LSIG-HM/W}} > \bar{X}_{\text{HSOG-HM/W}}$$

H_{3.8}: Mean ratings were predicted to be higher for the low status in-group compared to the high status out-group on the low morality/warmth dimension.

$$\bar{X}_{\text{LSIG-LM/W}} > \bar{X}_{\text{HSOG-LM/W}}$$

IV.5 Results

Preliminary Analysis

There was no significant main effect of word list thus data were pooled across this variable. Similarly no significant main effects or interactions involving sex or nationality of participant were found. Separate scales were constructed for high competence, low competence, high morality/warmth and low morality/warmth by aggregating data across the 12 traits for each of these dimensions. The data for the two dimensions low competence and low morality/warmth were reversed coded such that 1 = strongly disagree and 5 = strongly agree in order to make these two scales commensurable with the high competence and high morality/warmth scales for which 1 = strongly agree and 5 = strongly disagree. These four scales showed a high level of internal reliability: high competence ($\alpha = .81$), low competence ($\alpha = .82$), high morality/warmth ($\alpha = .86$) and low morality/warmth ($\alpha = .88$).

Main Analysis

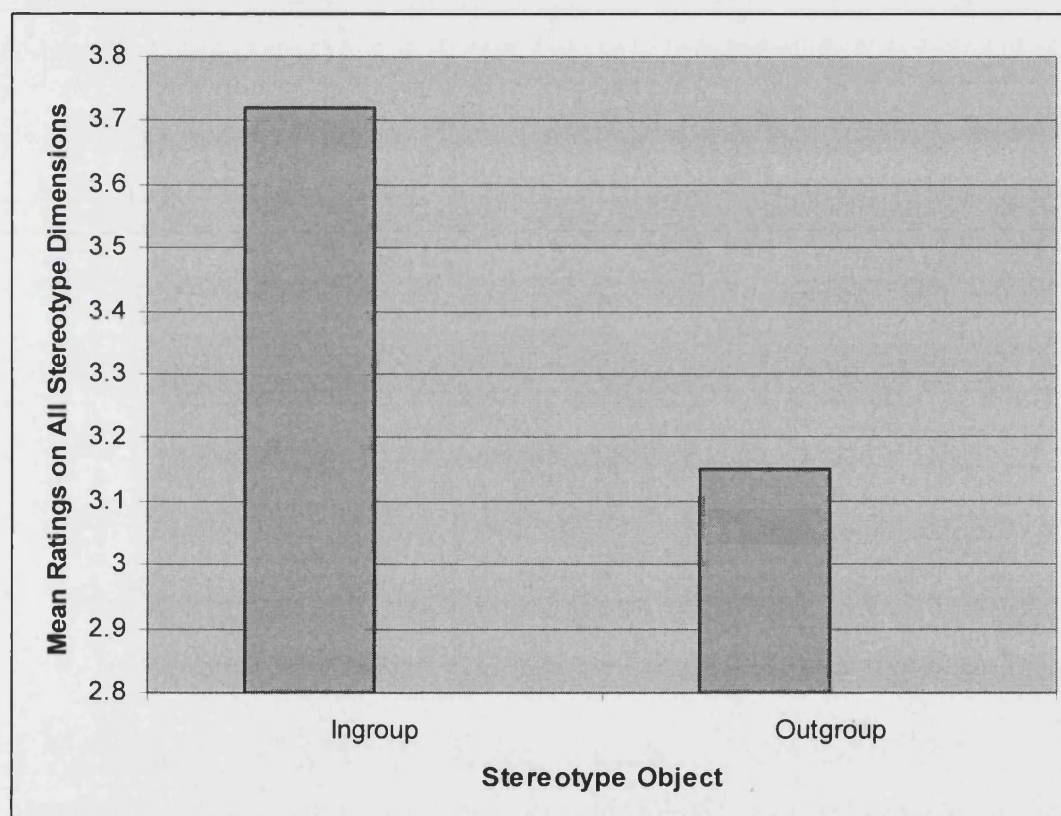
A 2 (*Group Status*: High Status, Low Status) X 2 (*Stereotype Object*: In-group, Out-group) X 4 (*Stereotype Dimension*: High Competence, Low Competence, High Morality/Warmth, Low Morality/Warmth) mixed design factorial ANOVA was conducted. *Group status* was a between-subjects factor and *stereotype object* and *stereotype dimension* were within-subjects factors. The dependent measures were mean ratings on the four stereotype dimensions (high competence, low competence, high morality/warmth and low morality/warmth). Pairwise comparisons following significant effects were performed using the Bonferroni correction. The alpha value was set at .05 and partial eta squared (η^2) was calculated as the effect size.

Stereotype Object:

As predicted ($H_{1.0}$) there was a significant main effect of *stereotype object* (in-group, out-group), $F(1, 55) = 244.476$, $p < .001$, $\eta^2 = .816$. As

predicted, and as you can see from Figure 4.0, pairwise comparisons revealed that mean ratings were higher for the in-group ($M = 3.72$, $SD = 0.59$) compared to the out-group ($M = 3.15$, $SD = 0.71$), $p < .001$. Since high competence and high morality/warmth were coded such that higher scores equal greater agreement and low competence and low morality/warmth were coded such that higher scores equal greater disagreement these results show that participants rated the in-group more positively than the out-group.

Figure 4.0: Mean Ratings across all Stereotype Dimensions by Stereotype Object (In-group vs. out-group)



Note. Judgments were made on a 5 point-scale: High Competence and High Morality/Warmth Scale: 1 = strongly disagree, 5 = strongly agree. Low Competence and Low Morality/Warmth Scale: 1 = strongly agree, 5 = strongly disagree.

Group Status and Stereotype Object:

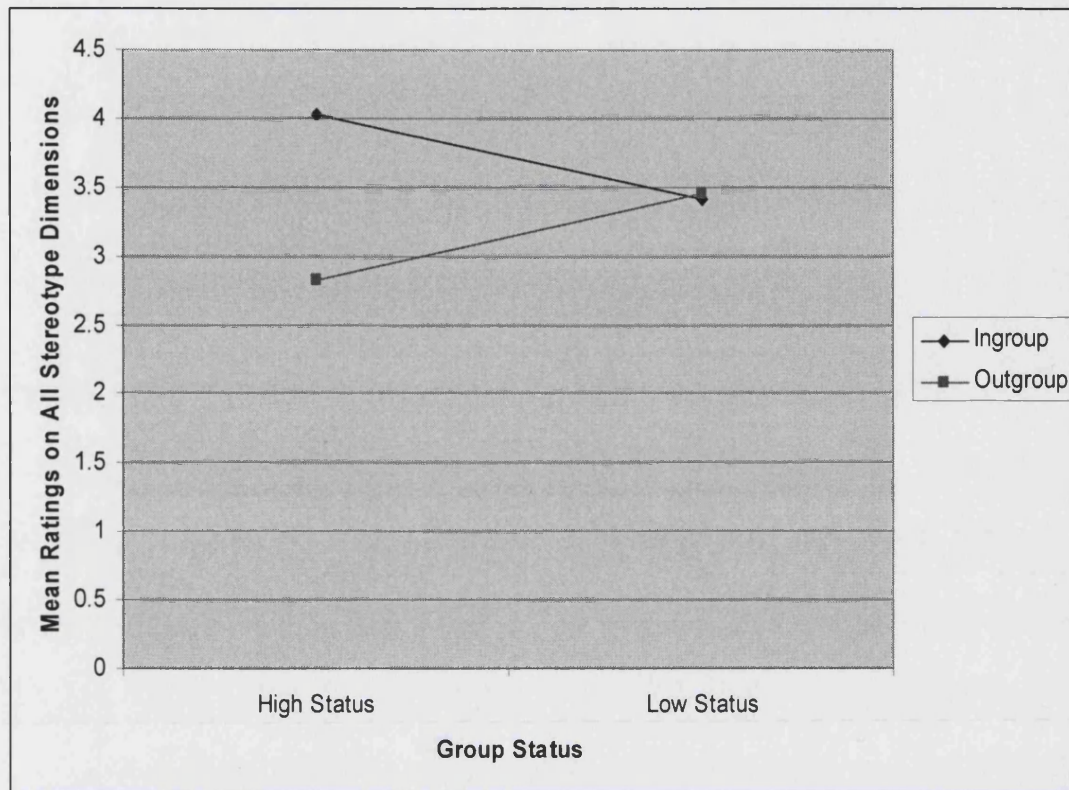
As predicted (H_{2.0}) there was a significant two-way interaction between *group status* and *stereotype object*, $F(1, 55) = 291.840$, $p < .001$, $\eta^2 = .841$. As hypothesized (H_{2.1}), planned comparisons revealed that the mean ratings of the participants assigned to the high status group for the high status in-group were significantly higher than the mean ratings for the low status out-group. In other words, as Table 4.0 and Figure 4.1 illustrate, participants assigned to the high status group rated their in-group more positively than the low status out-group. Furthermore, as predicted (H_{2.2}) for the low status group there was no significant difference in the mean ratings for the low status in-group compared to the high status out-group.

Table 4.0: Mean Ratings by Stereotype Object and Group Status

<i>Group Status</i>	<i>Stereotype Object</i>	
	In-Group	Out-group
High Status	4.03***	2.83***
(<i>n</i> = 30)	(0.33)	(0.31)
Low Status	3.41	3.46
(<i>n</i> = 32)	(0.39)	(0.41)

Note. Judgments were made on a 5 point-scale: High Competence and High Morality/Warmth Scale: 1 = strongly disagree, 5 = strongly agree. Low Competence and Low Morality/Warmth Scale: 1 = strongly agree, 5 = strongly disagree. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Standard deviations appear in parentheses below means.

Figure 4.1: Mean Ratings across all Stereotype Dimensions by Stereotype Object and Group Status



Note. Judgments were made on a 5 point-scale: High Competence and High Morality/Warmth Scale: 1 = strongly disagree, 5 = strongly agree. Low Competence and Low Morality/Warmth Scale: 1 = strongly agree, 5 = strongly disagree.

Group Status, Stereotype Object and Stereotype Dimension:

As predicted ($H_{3.0}$) there was a significant three-way interaction between *group status*, *stereotype object*, and *stereotype dimension*, $F(3, 165) = 298.698$, $p < .001$, $\eta^2 = .845$. To break down this interaction, follow-up one-way repeated measures ANOVAs were run to analyse the main effect of *stereotype object* separately for each level of *group status* (high status and low status) and for each level of *stereotype dimension* (high competence, low competence, high morality/warmth, low morality/warmth). (Traditional simple contrasts were also conducted to explore this interaction and are reported in Appendix F as they don't allow for a direct test of the hypotheses).

High Status Group: High and Low Competence:

There was a significant main effect of *stereotype object* (high status in-group, low status out-group) on the high competence scale for the high status group, $F(1, 29) = 977.522$, $p < .001$, $\eta^2 = .974$. Pairwise comparisons using the Bonferroni method revealed that, as hypothesized ($H_{3.1}$), high status group mean ratings were higher for the high status in-group than the low status out-group on the high competence scale (see Table 4.1). In other words participants assigned to the high status group rated the high status in-group more positively on the high competence dimension than the low status out-group.

Table 4.1: High Status Group: High and Low Competence Mean Ratings by Stereotype Object

<i>Stereotype Dimension</i>	<i>Stereotype Object</i>	
	High Status In-group	Low Status Out-group
High Competence	4.44*** (.05)	2.19*** (.07)
Low Competence	4.53*** (.06)	2.34*** (.07)
<i>n</i>	30	30

Note. Judgments were made on a 5 point-scale: High Competence Scale: 1 = strongly disagree, 5 = strongly agree. Low Competence Scale: 1 = strongly agree, 5 = strongly disagree. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. * = $p < .05$, *** = $p < .001$. Standard errors appear in parentheses below means.

There was also a significant main effect of *stereotype object* on the low competence scale for the high status group, $F(1, 29) = 1243.786$, $p < .001$, $\eta^2 = .980$. Pairwise comparisons revealed that, as hypothesized ($H_{3.2}$), high status group mean ratings were higher for the high status in-group than the low status out-group on the low competence scale (see Table 4.1). In other words participants assigned to the high status group rated the high status

in-group more positively on the low competence dimension than the low status out-group.

Low Status Group: High and Low Competence:

There was a significant main effect of *stereotype object* (low status in-group, high status out-group) on the high competence scale for the low status group, $F(1, 31) = 122.497$, $p < .001$, $\eta^2 = .809$. Pairwise comparisons revealed that, as hypothesized ($H_{3.3}$), low status group mean ratings were higher for the high status out-group compared to the low status in-group on the high competence scale (See Table 4.2). In other words participants assigned to the low status group rated the high status out-group more positively on the high competence dimension than the low status in-group.

Table 4.2: Low Status Group: High and Low Competence Mean Ratings by Stereotype Object

<i>Stereotype Dimension</i>	<i>Stereotype Object</i>	
	Low Status	High Status
	In-group	Out-group
High Competence	3.16*** (0.25)	3.99*** (0.40)
Low Competence	3.10*** (0.38)	4.05*** (0.45)
<i>n</i>	32	32

Note. Judgments were made on a 5 point-scale: High Competence Scale: 1 = strongly disagree, 5 = strongly agree. Low Competence Scale: 1 = strongly agree, 5 = strongly disagree. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Standard deviations appear in parentheses below means.

There was also a significant main effect of *stereotype object* on the low competence scale for the low status group, $F(1, 31) = 103.405$, $p < .001$, $\eta^2 = .781$. Pairwise comparisons revealed that, as hypothesized ($H_{3.4}$), low status group mean ratings were higher for the high status out-group

compared to the low status in-group on the low competence scale (See Table 4.2). In other words participants assigned to the low status group rated the high status out-group more positively on the low competence dimension than the low status in-group.

High Status Group: High and Low Morality/Warmth:

There was a significant main effect of *stereotype object* (high status in-group, low status out-group) on the high morality/warmth scale for the high status group, $F(1, 29) = 4.573$, $p < .05$, $\eta^2 = .150$. Pairwise comparisons revealed that, contrary to expectations ($H_{3.5}$), high status group mean ratings were higher for the high status in-group compared to the low status out-group on the high morality/warmth scale (See Table 4.3). This suggests, that the high status group rated their in-group more positively than the low status out-group on the high morality/warmth scale.

Table 4.3: High Status Group: High and Low Morality/Warmth Mean Ratings by Stereotype Object

<i>Stereotype Dimension</i>	<i>Stereotype Object</i>	
	High Status In-group	Low Status Out-group
High Morality/Warmth	3.58* (0.42)	3.36* (0.38)
Low Morality/Warmth	3.57 (0.42)	3.47 (0.36)
<i>n</i>	30	30

Note .Judgements were made on a 5 point-scale: High Morality/Warmth Scale: 1 = strongly disagree, 5 = strongly agree. Low Morality/Warmth Scale: 1 = strongly agree, 5 = strongly disagree. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Standard deviations appear in parentheses below means.

The main effect of *stereotype object* failed to reach statistical significance for low morality/warmth scale for the high status group. Hence, contrary to

expectations (H_{3.6}), there was no significant difference in the mean ratings for the high status in-group compared to the low status out-group on the low morality/warmth scale (see Table 4.3).

Low Status Group: High and Low Morality/Warmth:

There was a significant main effect of *stereotype object* (low status in-group, high status out-group) on the high morality/warmth scale for the low status group, $F(1, 31) = 59.762, p < .001, \eta^2 = .673$. Pairwise comparisons revealed that, as predicted (H_{3.7}), low status group mean ratings were higher for the low status in-group compared to the high status out-group on the high morality/warmth scale (see Table 4.4). This suggests, as predicted that participants assigned to the low status group rated the low status in-group more positively on the high morality/warmth dimension than the high status out-group.

Table 4.4: Low Status Group: High and Low Morality/Warmth Mean Ratings by Stereotype Object

<i>Stereotype Dimension</i>	<i>Stereotype Object</i>	
	Low Status In-group	High Status Out-group
High Morality/Warmth	3.73*** (0.45)	2.93*** (0.36)
Low Morality/Warmth	3.66*** (0.49)	2.89*** (0.43)
<i>n</i>	32	32

Note. Judgements were made on a 5 point-scale: High Morality/Warmth Scale: 1 = strongly disagree, 5 = strongly agree. Low Morality/Warmth Scale: 1 = strongly agree, 5 = strongly disagree. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Standard deviations appear in parentheses below means.

There was also a significant main effect of *stereotype object* (low status in-group, high status out-group) on the low morality/warmth scale for the low

status group, $F(1, 31) = 51.755, p < .001, \eta^2 = .641$. Pairwise comparisons revealed that, as predicted ($H_{3.8}$), low status group mean ratings were higher for the low status in-group compared to the high status out-group on the low morality/warmth scale (see Table 4.4). This suggests, as predicted that participants assigned to the low status group rated the low status in-group more positively on the low morality/warmth dimension than the high status out-group.

An analysis of results involving main effects or interactions that were not of primary interest and for which no predictions were formulated can be seen in Appendix F.

IV.6 Summary and Discussion

Default Group Status Stereotyping?

Experiment 2 explored whether humans possess a default group status stereotyping mode by combining the Minimal Group Paradigm and a stereotype content research paradigm. That is, whether people rely on a heuristic leading them to assume that members of a high status group are competent and immoral/cold, while members of a low status group are incompetent and moral/warm. My analysis generated good results in support of the study's main hypotheses. I shall now turn to a summary and discussion of the main findings of experiment 2.

In-group vs. Out-group Stereotypes:

The finding that participants rated their in-group more positively than the out-group irrespective of group status supports the findings of experiment 1 and is consistent with the hypothesized default stereotyping mode (see Chapter III). This finding contributes to existing social psychological research which shows strong evidence for in-group favouritism in both minimal groups and most 'real-world' groups. However, the introduction of an inter-group status difference modulated default stereotyping as predicted. Members of the high status group rated their in-group more positively than the low status out-group on both the competence and morality/warmth dimensions. For members of the low status group there was no significant difference in the ratings of the low-status in-group and the high status out-group. This finding is consonant with Sidanius and Pratto's (1999) 'asymmetrical in-group bias hypothesis' which states that in-group favouritism is easier and more valuable to high status groups therefore in-group bias will be stronger among members of high status groups.

Competence Stereotypes:

The prediction that members of the high status group would rate the high status in-group more positively than the low status out-group on the two competence dimensions was supported. Furthermore, it was found that members of the low status group rated the high status out-group more positively than the low status in-group on the two competence dimensions. These findings are consistent with the hypothesized default group status stereotyping mode outlined in the Introduction. These findings also add to the ever-increasing body of literature which shows a strong association between social status and perceptions of competence (cf. Berger *et al.*, 1985; Jemmott and Gonzalez, 1989; Ridgeway, 1982). Unlike in experiment 1 where out-group ratings were neutral, the status differential between the groups resulted in negative stereotypes of the low status out-group along the two competence dimensions by members of the high status group. This finding provides strong support to the hypothesized default group status stereotyping mode. This finding is consistent with previous social psychological research showing members of high status groups are often highly discriminatory and hold negative attitudes about low status out-groups.

Furthermore, participants assigned to the low status group conferred highly positive stereotypes of competence on the high status out-group. This finding also provides support to the default group status stereotyping mode. It additionally contributes to previous research which has shown that members of low status groups often engage in out-group favouritism; judging the high status out-group more positively and discriminating in their favour. Sidanius and Pratto (1999) describe such out-group favouritism as an extreme form of the asymmetrical in-group bias whereby not only do members of low status groups display less in-group favouritism than members of high status groups but they may also show a preference for the out-group over the in-group. However, it is important to note that the low status in-group ratings for high competence and low competence were

neutral (i.e. 3 on the 5 point scale). This finding is consistent with existing social psychological research noted above showing that members of low status groups display less in-group favouritism than members of high status groups but they do not necessarily hold negative attitudes towards their in-group (Jost, Pelham, and Carvallo, 2002).

Morality/Warmth Stereotypes

Contrary to predictions, the high status group rated the high status in-group more positively on the high morality/warmth dimension than the low status out-group. Furthermore, no differences were found for low morality/warmth ratings between the high status in-group and low status out-group for the high status group. However, as predicted, members of the low status group rated the low status in-group more positively than the high status out-group on both the high and low morality/warmth dimensions. The fact that members of the low status group rated members of the high status group positively on the competence dimensions but negatively on the morality/warmth dimensions suggests that out-group favouritism or asymmetrical in-group bias is quite nuanced, and does not result in a generalized positive evaluation of the high status group. Fiske *et al.*'s (1999) research suggested that members of high status groups are stereotyped as lacking morality/warmth and members of low status groups are stereotyped as highly moral/warm. However in the present study members of the high status group judged their in-group favourably on the two morality/warmth dimensions. Hence, the findings of experiment 2 highlight an important point, namely that members of high and low status groups do not necessarily share the same stereotypes of their respective groups.

Overall, the results of this study are consistent with the hypothesis that humans may have evolved a heuristic leading them to assume that members of high status groups are competent while members of low status groups are incompetent. This heuristic was described as a default group

status stereotyping mode. The results of this experiment also lends support to the explanatory potential of the theoretical framework outlined in Chapter II. More specifically, the fact that minimal status groups elicit competence and morality/warmth based stereotypes provides some empirical support to the proposition that humans have evolved a cognitive predisposition sensitive to status differentials between groups. This in turn lends additional support for the proposal of expanding the domain of a *Folk Sociology* to include the proposed status detector.

This is the first study to find evidence for the formation of stereotypes based on the dimensions of competence and morality/warmth in minimal groups varying in status. Social status is not experimentally manipulated in the SCM studies and they only demonstrate a correlation between group status and perceived competence. The present study provides evidence for a causal relationship between inter-group status differences and stereotypes of competence. According to SCM the contents of stereotypes are derived from the structure of inter-group relations. While not denying that, I have argued that we may have evolved a cognitive predisposition sensitive to inter-group status differences. This proposition is supported by the fact that competence based stereotypes can be elicited in minimal status groups. Hence cognitive and structural factors appear to act in concert to shape stereotype contents.

In conclusion, the findings of this research are consistent with a default group status stereotyping mode. In order to provide stronger support for the existence of a default group status stereotyping a follow-up study was conducted. This study, reported in the next chapter, is similar to the present study, however, instead of using an explicit dependent measure for stereotyping, an implicit measure was used.

Chapter V - Exploring the Role of Cognitive Predispositions in Shaping Stereotype Content Part 2b: An Investigation of Default Group Status Stereotyping using an Implicit Measure of Default Stereotyping

V.1 Introduction

Experiment 2 found evidence for default group status stereotyping (see Chapter IV). However, this study made use of an explicit measure of stereotyping. In recent years the use of implicit measures has become popular within social psychology. One of the reasons for using implicit measures is that explicit methods (e.g. self-report measures) are based on the assumption that individuals can introspect on their attitudes. More recently, social psychologists have suggested that many constructs including self-esteem, stereotypes and attitudes are more implicit and not necessarily available to introspective access (Devine, 1989; Greenwald and Banaji, 1995). Studies of implicit cognition can reveal information that people might explicitly reject because their expression may have negative social consequences. There are also methodological reasons for utilising a measure of implicit cognition as it addresses objections that evidence of stereotyping and prejudice from studies using explicit measures are not genuine, but rather a function of public conformity or demand characteristics (see Mullen *et al.* 1992). Furthermore, following Haselton and Funder (2006) it was argued in Chapter II that default stereotyping is an implicit cognitive heuristic, therefore it is important to find evidence for default stereotyping using an implicit measure. Hence, in order to provide stronger evidence for a default group status stereotyping mode, the third empirical study of this thesis investigated whether evidence for the hypothesized default group status stereotyping mode can be found using an implicit measure.

V.2 Experiment Overview

The experimental paradigm was similar to that used in experiment 2. However, instead of using an explicit measure of stereotyping an implicit one was used. More specifically, following assignment to the minimal groups varying in status, participants completed a word recognition speed test (Sassenberg and Wieber, 2005) supposedly related to the general issue of 'perception and information processing'. This was in fact a semantic priming task used to measure participants' implicit inter-group stereotypes. Participants were asked to make word/non-word judgements to trait attributes reflecting high and low competence and high and low morality/warmth preceded by a subliminally presented high status group prime (FIGURE), a low status group prime (GROUND) and a subliminally presented neutral prime (XXXXXX). Of primary interest was the facilitation or speed with which word/non-word judgments can be made for trait adjectives denoting high and low competence and high and low morality/warmth following the group primes and the neutral prime. The dependent variables in all analyses were mean response times for a trait following the group primes and the neutral prime.

Experiment Design:

A 2 (*Group status*: high status group, low status group) X 3 (*Prime*: High Status Group Prime: FIGURE, Low Status Group Prime: GROUND, and Neutral Prime: XXXXXX) X 4 (*Stereotype dimension*: High Competence, Low Competence, High Morality/Warmth, Low Morality/Warmth) experimental design was employed. *Group status* was a between-subjects factor and *prime* and *stereotype dimension* were within-subjects factors.

V.3 Method

V.3.1 Participants

The required sample size was calculated using G*Power 3 for Mac (see Faul, Erdfelder, Lang and Buchner, 2007). Parameters used in the estimate were the effect size (set to .30), type I error level (set to .05), type II error level (set to .80) and the number of groups (2). The sample size calculated by the software was 100.

A total of 150 participants of various nationalities completed the study. The sample was restricted to participants whose first language is English as the success of the semantic priming task relies upon the recognition and categorization of English words denoting high and low competence and high and low morality/warmth. The data from 14 participants had to be excluded from analyses as these participants used the wrong in-group label while answering manipulation check questions. This left 136 participants, 70 females and 66 males. Sixty-two percent of the sample identified themselves as British, 25% American, 14% European and 4% Canadian.

V.3.2 Materials and Procedure

The study appeared online as a web-based 'Perception Study.' Invitations to participate were posted on three online psychological research directories ('Social Psychology Network', 'Online Psychology Research UK' and 'Psychological Research On The Net'). Participants were also recruited via Maximiles UK. Maximiles run a online loyalty reward scheme whereby they provide participants for research and the participants earn points which can be exchanged for gifts ranging from CDs, books to flights.

After reading and signing the consent form participants were directed to the first page of the study.

Part 1: Minimal Group Assignment

The materials and procedure in the first part of the study were virtually identical to those in experiment 2 (see Chapter IV). After reading and signing the consent form, participants completed the bogus perceptual styles test and were assigned to the 'Figure Group' or the 'Ground Group'. Furthermore, participants assigned to the 'Figure Group' were informed that "psychologists have found that members of the *Figure Group* have higher social and occupational status compared to members of the *Ground Group*." Similarly participants assigned to the 'Ground Group' were informed that "psychologists have found that members of the *Ground Group* have lower social and occupational status compared to members of the *Figure Group*." Participants were then asked to read the same bogus article as in experiment 2.

Part 2: Dependent Measure

Following assignment to the minimal groups, participants were asked to complete a word recognition speed test (Sassenberg and Wieber, 2005) which they were informed tested 'perception and information processing'. This was in fact a semantic priming task used to measure participants' implicit default stereotypes. An adaptation of Wittenbrink, Judd and Park's (1997) semantic priming task was used. In Wittenbrink *et al.*'s experiment African American and White group primes were paired with trait attributes known to be part of the cultural stereotype of each group. In this design, facilitation observed for the various combinations of primes and types of targets offered estimates for the degree to which a group prime activated the group stereotype. This task is a variation on Meyer and Schvanevedt's (1971) classic procedure demonstrating semantic priming effects. In the Meyer and Schvanevedt procedure, participants first saw a single word, the prime (e.g. BREAD) and were then presented with a letter string, the target (e.g. BUTTER), to which participants had to respond with a word/non-word judgment. Response latencies are facilitated by semantic associations

between the prime and the target stimulus. In the current experiment, a semantic priming task was administered in which participants were asked to make word/non-word judgements to trait attributes reflecting high and low competence and high and low morality/warmth which were preceded by either a subliminally presented group prime (High Status Group Prime: FIGURE or Low Status Group Prime: GROUND) or a subliminally presented neutral prime (XXXXXX).

Instructions for the test were given on screen. Participants completed a reaction time procedure in which they were asked whether various target sequences of letters on a computer screen constituted a word or a non-word. Each trial on this lexical-decision task (LDT) was preceded by a prime that referred to one of the two minimal groups (FIGURE or GROUND), a foil prime (e.g. TABLE), or a neutral non-word prime (e.g. XXXXX). These primes were presented for 15ms and were immediately followed by a mask for 2-s interval before the lexical decision trial. Target stimuli during the LDT were adjectives denoting high and low competence and high and low morality/warmth, target adjectives that cannot be used to refer to persons (e.g. Polluted, Sunny) and non-words. All target stimuli appeared with both of the two group primes and with the neutral prime. To conceal the actual purpose of the LDT, the priming stimuli were presented outside of participants' conscious awareness. Differences in response times were examined as a function of whether the target attributes followed the high status group prime (FIGURE), low status group prime (GROUND) or a neutral prime (XXXXXX). Differences in response times were taken as evidence of the associative strength between group labels and target attributes, which in turn reflects the likelihood with which a given attribute is activated spontaneously by a group reference.

For this task, participants were told to sit at a distance of approximately 50cm from the computer screen and were asked, on each trial, to focus on a fixation point (+), which was presented in the centre of the computer screen in 18-point Times New Roman font in uppercase letters (as were all

other stimuli). This fixation point appeared for 1000ms and was immediately followed by the prime. After 15ms, the prime was followed by a masking stimulus (XXXXX), which remained on the screen for 2,000ms. The masking stimulus was then replaced by one of the target letter sequences, and participants were required to indicate whether the target stimulus formed a word or non-word in the English language. The target sequence was erased from the screen after 250ms, with the computer pausing until the participant had responded by pressing one of two keys, 'A' for yes (i.e. if they thought the letter sequence was a word) and '5' for no (i.e. if they thought the letter sequence was not a word). The '5' they were asked to use was from the right hand-side number-pad on their keyboard.

Each trial on this lexical decision task (LDT) was preceded by a prime that referred to one minimal group or the other (FIGURE or GROUND), a foil prime (e.g. TABLE) or a neutral non-word prime (e.g. XXXXXX). The target set was comprised of 48 adjectives, 12 denoting high competence, 12 denoting low competence, 12 adjectives denoting high morality/warmth and 12 denoting low morality/warmth. These are the same adjectives used in experiments 1 and 2 (see Chapter III) except that three words were changed as their word frequencies were exceptionally higher than the other target words and therefore would have biased the interpretation of the results. It was very important to ensure that the word frequencies for all the words used in the priming task were similar. A large body of research in psycholinguistics has demonstrated that the magnitude of semantic priming in lexical decision is larger for low-frequency words compared to high frequency words (e.g., Becker, 1979). Word frequencies represent how often a word is used in spoken and/or written language. For this experiment word frequencies for these words were obtained using a software, WordGen, which calculates frequencies for English words using the CELEX and Lexique lexical databases. For high competence 'knowledgeable' was replaced with 'imaginative' and for high

morality/warmth 'kind' was replaced with 'honest' and 'happy' was replaced with 'loving.'

In addition to these the target stimuli included 24 filler targets comprised of 11 adjectives which cannot be used to describe humans ('dilapidated', 'rickety', 'deserted', 'secluded', 'winding', 'narrow', 'thorny', 'juicy', 'sour', 'humid' and 'sturdy') and 13 neutral nouns ('butter', 'crown', 'custom', 'frog', 'glacier', 'rattle', 'accommodation', 'fireplace', 'notebook', 'apple', 'contents', 'errand' and 'prairie'). The adjectives were the same as those used by Wittenbrink *et al.* (1997), the first six neutral nouns were selected from Bellezza, Greenwald and Banaji's (1986) word norms and the final seven were derived from neutral nouns used by Lepore and Brown (2002). Although the filler items were not part of the final analysis, it was important to use words which are unrelated to the central domains of competence and morality/warmth to prevent participants being suspect about the true purpose of the word recognition task. It was also ensured that the mean word frequencies of the target words ($M = 13.98$, $SD = 12.88$) and filler words ($M = 13.58$, $SD = 13.47$) were similar. Finally, 18 non-words were used ('aunny', 'blosed', 'unstructive', 'tolid', 'maluable', 'grafy', 'fappy', 'shirsty', 'joaked', 'nerfect', 'ettentive', 'grestigious', 'misible', 'hiberal', 'tovely', 'lecent', 'gamous' and 'ictive'). These non-words were also derived from Wittenbrink *et al.*'s (1997) study.

Each prime (i.e. FIGURE, GROUND, neutral or filler prime) occurred on 58 different trials. Of these, on 10 trials, the target sequence of letters following the prime constituted a non-word. The remaining 48 trials for each prime type were followed by the targets that were, in fact, words. For the first three types of primes (High Status Group Prime: FIGURE, Low Status Group Prime: GROUND and Neutral Prime: XXXXXX), the target words were 48 adjectives denoting high and low competence and high and low morality/warmth. For the 58 trials that involved filler primes, 10 were followed by non-words and the remaining 48 trials involved neutral filler words. The full set of four prime types by trials (232 trials) were presented

in an order which was individually randomized for each participant. Additionally, 10 practice trials were presented initially, involving both filler and neutral primes. Presentation of experimental stimuli and data collection was controlled by Inquisit based on the Millisecond software package (Inquisit 3 Web, 2009). See Figure 5.0.

Figure 5.0: The Lexical Decision Task Design

Prime	Target Words	Response
<div>FIGURE</div> <div>GROUND</div> <div>NEUTRAL</div>	<div>A Target Adjectives (48 words/48 trials)</div> <div>B Non-Words (18 words/10 trials)</div>	<div>Word</div> <div>Non-Word</div>
<div>FILLER</div>	<div>C Filler Items (24 words/48 trials)</div>	

Pre-test

To conceal the true purpose of the LDT the priming stimuli was presented outside of participants' conscious awareness. To obtain a "subliminal" stimulus exposure, the priming stimuli were presented for a very brief period (15ms) and followed immediately by a visual mask (XXXXXX). Results from previous semantic priming studies indicate that subliminal stimuli are more effective when the stimuli remains detectable but unidentifiable (*cf.*

Holender, 1986). Although the prime presentation period (15ms) had been used successfully by Wittenbrink *et al.* (1997), a pre-test was conducted to ensure that the primes at this presentation duration could not be identified by participants.

Twelve participants were recruited for this pre-test. They first completed the perceptual styles test, just as participants would in the actual experiment. Each participant then completed 126 trials from the LDT, using the same primes and target letter sequences that would be used in the actual experiment. The prime was presented for 15ms. Unlike the instructions given to participants in the experiment, these pre-test participants were informed that words would be briefly flashed on the screen before the sequence of Xs appeared and that they should try to identify these words. On one sixth of the trials, the prime was FIGURE; on one sixth of the trials the prime was GROUND; filler primes were used on the remaining two-thirds of the trials. Each LDT trial in this pre-test was followed by a prime-identification query. In total, across the 12 participants, there were 1512 trials with prime-identification queries given on each trial. Of these 504 identification queries followed each of the two group primes. In response, these participants identified the prime as the word FIGURE 3 times. They identified the word GROUND two times. Thus out of 504 trials, correct prime identification for each of the two group primes occurred 5 times out of 504, or on 0.1% of the trials. This suggests that even when explicitly told that words would be briefly flashed before the masking sequence and asked to identify those words, participants were unable to do so at this prime-presentation duration of 15ms. In the experiment, participants are neither informed about the primes, nor asked to identify the primes, which means it is highly unlikely that they could identify the primes spontaneously.

V.4 Hypotheses

In Experiment 2 the dependent variables were mean ratings on the high and low competence and high and low morality/warmth scales. In experiment 3 a semantic priming task was used therefore the dependent variables were mean response times in recognizing the traits denoting high and low competence and high and low morality/warmth. In semantic priming tasks mean response times offer estimates for the degree to which a group prime activates the group stereotype. If a trait is associated with a particular group participants should be quicker at recognising it when primed by the name of that group. In the case of the present study, if participants stereotype a group as highly competent they should be quicker at recognising high competence traits when primed by the name of that group but slower at recognising low competence traits when primed by the name of that group.

Key: HSIG = High status in-group
LSIG = Low status in-group
HSOG = High status out-group
LSOG = Low status out-group
NP = Neutral prime
HC = High Competence
LC = Low Competence
HM/W = High Morality/Warmth
LM/W = Low Morality/Warmth
 \bar{x} = Mean

Group Status, Prime and Stereotype Dimension:

Based on the hypothesized default group status stereotyping mode and the findings of experiment 2:

H_{1.0}: A significant three-way interaction between *group status*, *prime* and *stereotype dimension* was predicted. The interaction was predicted to take the following form:

High Status Group: High Competence:

H_{1.1}: Mean response times were predicted to be lower (or faster) when high competence traits are preceded by the high status in-group prime (FIGURE) compared to the low status out-group prime (GROUND).

$$\bar{X}_{\text{HSIG-HC}} < \bar{X}_{\text{LSOG-HC}}$$

H_{1.2}: Mean response times were predicted to be lower (or faster) when high competence traits are preceded by the high status in-group prime (FIGURE) compared to the neutral prime (XXXXXX).

$$\bar{X}_{\text{HSIG-HC}} < \bar{X}_{\text{NP-HC}}$$

High Status Group: Low Competence:

H_{1.3}: Mean response times were predicted to be higher (or slower) when low competence traits are preceded by the high status in-group prime (FIGURE) compared to the low status out-group prime (GROUND).

$$\bar{X}_{\text{HSIG-LC}} > \bar{X}_{\text{LSOG-LC}}$$

H_{1.4}: Mean response times were predicted to be higher (or slower) when low competence traits are preceded by the high status in-group prime (FIGURE) compared to the neutral prime (XXXXXX).

$$\bar{X}_{\text{HSIG-LC}} > \bar{X}_{\text{NP-LC}}$$

Low Status Group: High Competence:

H_{1.5}: Mean response times were predicted to be lower when high competence traits are preceded by the high status out-group prime (FIGURE) compared to the low status in-group prime (GROUND).

$$\bar{X}_{\text{HSOG-HC}} < \bar{X}_{\text{LSIG-HC}}$$

H_{1.6}: Mean response times were predicted to be lower when high competence traits are preceded by the high status out-group prime (FIGURE) compared to the neutral prime (XXXXXX).

$$\bar{X}_{\text{HSOG-HC}} < \bar{X}_{\text{NP-HC}}$$

H_{1.7}: No significant difference between mean response times when high competence traits are preceded by the low status in-group prime (GROUND) compared to the neutral prime (XXXXXX) was predicted.

$$\bar{X}_{\text{LSIG-HC}} = \bar{X}_{\text{NP-HC}}$$

Low Status Group: Low Competence:

H_{1.8}: Mean response times were predicted to be higher when low competence traits are preceded by the high status out-group prime (FIGURE) compared to the low status in-group prime (GROUND).

$$\bar{X}_{\text{HSOG-LC}} > \bar{X}_{\text{LSIG-LC}}$$

H_{1.9}: Mean response times were predicted to be higher when low competence traits are preceded by the high status out-group prime (FIGURE) compared to the neutral prime (XXXXXX).

$$\bar{X}_{\text{HSOG-LC}} > \bar{X}_{\text{NP-LC}}$$

H_{2.0}: No significant difference between mean response times when low competence traits are preceded by the low status in-group prime (GROUND) compared to the neutral prime (XXXXXX) was predicted.

$$\bar{X}_{\text{LSIG-LC}} = \bar{X}_{\text{NP-LC}}$$

High Status Group: High Morality/Warmth:

H_{2.1}: Mean response times were predicted to be lower when high morality/warmth traits are preceded by the high status in-group prime (FIGURE) compared to the low status out-group prime (GROUND).

$$\bar{X}_{\text{HSIG-HM/W}} < \bar{X}_{\text{LSOG-HM/W}}$$

H_{2.2}: Mean response times were predicted to be lower when high morality/warmth traits are preceded by the high status in-group prime (FIGURE) compared to the neutral prime (XXXXXX).

$$\bar{X}_{\text{HSIG-HM/W}} < \bar{X}_{\text{NP-HM/W}}$$

High Status Group: Low Morality/Warmth:

H_{2.3}: No significant difference in the mean response times when low morality/warmth traits are preceded by the high status in-group prime (FIGURE) compared to the low status out-group prime (GROUND) was predicted.

$$\bar{X}_{\text{HSIG-LM/W}} = \bar{X}_{\text{LSOG-LM/W}}$$

H_{2.4}: No significant difference in the mean response times when low morality/warmth traits are preceded by the high status in-group prime (FIGURE) compared to the neutral prime (XXXXXX) was predicted.

$$\bar{X}_{\text{HSIG-LM/W}} = \bar{X}_{\text{NP-LM/W}}$$

Low Status Group: High Morality/Warmth:

H_{2.5}: Mean response times were predicted to be lower when high morality/warmth traits are preceded by the low status in-group prime (GROUND) compared to the high status out-group prime (FIGURE).

$$\bar{X}_{\text{LSIG-HM/W}} < \bar{X}_{\text{HSOG-HM/W}}$$

H_{2.6}: Mean response times were predicted to be lower when high morality/warmth traits are preceded by the low status in-group prime (GROUND) compared to the neutral prime (XXXXXX).

$$\bar{X}_{\text{LSIG-HM/W}} < \bar{X}_{\text{NP-HM/W}}$$

Low Status Group: Low Morality/Warmth

H_{2.7}: Mean response times were predicted to be higher when low morality/warmth traits are preceded by the low status in-group prime (GROUND) compared to the high status out-group prime (FIGURE).

$$\bar{X}_{\text{LSIG-LM/W}} > \bar{X}_{\text{HSOG-LM/W}}$$

H_{2.8}: Mean response times were predicted to be higher when low morality/warmth traits are preceded by the low status in-group prime (GROUND) compared to the neutral prime (XXXXXX).

$$\bar{X}_{\text{LSIG-LM/W}} > \bar{X}_{\text{NP-LM/W}}$$

V.5 Results

Preliminary Analysis

The response latencies in milliseconds for each trial formed the semantic priming data. Response latencies are naturally characterized by the prevalence of outliers (Ratcliff, 1993). These outliers result from momentary inattention or responses made prior to perception of stimuli, and lead to distortions in mean response times and inflate variances. Therefore, following Greenwald, McGhee and Schwartz (1998) response times slower than 300ms and faster than 3,000ms were recoded as missing values. The mean response times were aggregated across the 12 traits for each stereotype dimension: high competence, low competence, high morality/warmth and low morality/warmth. Preliminary analyses revealed no significant main effects or interactions involving sex or nationality of participant.

Main Analysis

A 2 (*Group Status*: High Status, Low Status) X 3 (*Prime*: High Status Group Prime: FIGURE, Low Status Group Prime: GROUND, Neutral Prime) X 4 (*Stereotype Dimension*: High Competence, Low Competence, High Morality/Warmth, Low Morality/Warmth) mixed design factorial ANOVA was conducted. *Group status* was a between-subjects factor and *prime* and *stereotype dimension* were within-subjects factors. The dependent variables in all analyses were aggregated mean response times for the traits for all four stereotype dimensions (high competence, low competence, high morality/warmth and low morality/warmth). Pairwise comparisons following significant effects were performed using the Bonferroni correction. The alpha value was set at .05 and partial eta squared (η^2) was calculated as the effect size.

Group Status, Stereotype Object and Stereotype Dimension:

As predicted ($H_{1.0}$) there was a significant three-way interaction between *group status*, *prime*, and *stereotype dimension*, $F(6, 804) = 36.003$, $p < .001$, $\eta^2 = .212$. To break down this interaction, follow-up one-way repeated measure ANOVAs were run to analyse the main effect of *prime* (High Status Group Prime: FIGURE, Low Status Group Prime: GROUND, and Neutral Prime: XXXXXX) separately for each level of *group status* (high status and low status) and *stereotype dimension* (high competence, low competence, high morality/warmth, low morality/warmth). (Traditional simple contrasts were also conducted for this interaction and are presented in Appendix G)

High Status Group: High Competence

There was a significant main effect of *prime* (high status in-group prime: FIGURE, low status out-group prime: GROUND, Neutral: XXXXXX) on high competence traits for the high status group, $F(2, 130) = 526.587$, $p < .001$, $\eta^2 = .890$. A polynomial trend analysis revealed that there was a significant linear trend, $F(1, 65) = 806.112$, $p < .001$, $\eta^2 = .925$. Pairwise comparisons revealed that, as hypothesized ($H_{1.1}$), mean response times were significantly lower when high competence traits were preceded by the high status in-group prime (FIGURE) compared to the low status out-group prime (GROUND) (see Table 5.0 below). Furthermore, as predicted ($H_{1.2}$), mean response times were significantly lower when high competence traits were preceded by the high status in-group prime (FIGURE) compared to the neutral prime (XXXXXX) (see Table 5.1 below). In other words, participants assigned to the high status group associated the high status in-group with high competence traits. No predictions were made regarding differences between the low status out-group prime and neutral prime, and pairwise comparisons revealed that there were no significant differences (see Table 5.2 below).

Table 5.0: High Status Group: High and Low Competence Mean Response Times Comparing the High Status In-Group Prime and Low Status Out-Group Prime.

<i>Stereotype</i>	<i>Prime</i>	
<i>Dimension</i>	H.S In-group (FIGURE)	L.S. Out-Group (GROUND)
High Competence	611.87*** (59.67)	952.18*** (72.18)
Low Competence	1260.36*** (78.35)	940.94*** (86.04)
<i>n</i>	66	66

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Table 5.1: High Status Group: High and Low Competence Mean Response Times Comparing the High Status In-Group Prime and Neutral Prime.

<i>Stereotype</i>	<i>Prime</i>	
<i>Dimension</i>	H.S In-group (FIGURE)	Neutral (XXXXXX)
High Competence	611.87*** (59.67)	941.23*** (67.76)
Low Competence	1260.36*** (78.35)	1000.05*** (68.56)
<i>n</i>	66	66

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Table 5.2: High Status Group: High and Low Competence Mean Response Times Comparing the Low Status Out-Group Prime and Neutral Prime.

<i>Stereotype</i>	<i>Prime</i>	
	L.S. Out-Group (GROUND)	Neutral (XXXXXX)
High Competence	952.18 (72.18)	941.23 (67.76)
Low Competence	940.94*** (86.04)	1000.05*** (68.56)
<i>n</i>	66	66

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

High Status Group: Low Competence

There was a significant main effect of *prime* (high status in-group prime: FIGURE, low status out-group prime: GROUND, Neutral: XXXXXX) on low competence traits for the high status group, $F(2, 130) = 441.385$, $p < .001$, $\eta^2 = .872$. A polynomial trend analysis revealed a significant linear trend, $F(1, 65) = 658.155$, $p < .001$, $\eta^2 = .910$. Pairwise comparisons revealed that, as hypothesized ($H_{1.3}$) mean response times were significantly higher when low competence traits were preceded by the high status in-group prime (FIGURE) compared to the low status out-group prime (GROUND) (see Table 5.0 above). Furthermore, as predicted ($H_{1.4}$), mean response times were significantly higher when low competence traits were preceded by the high status in-group prime (FIGURE) compared to the neutral prime (XXXXXX) (see Table 5.1 above). In other words, participants assigned to the high status group do not associate the high status in-group with low competence traits. No predictions were formulated regarding differences between the low status out-group prime and neutral prime, and pairwise comparisons revealed mean response times were slightly lower when low competence traits were preceded by the low status out-group prime (GROUND) compared to the neutral prime (XXXXXX) (see Table 5.2 above). This

suggests that members of the high status group associate the low status group with low competence traits.

Low Status Group: High Competence

There was a significant main effect of *prime* (low status in-group prime: GROUND, high status out-group prime: FIGURE, Neutral: XXXXXX) on high competence traits for the low status group, $F(2, 134) = 324.260, p < .001, \eta^2 = .825$. A polynomial trend analysis revealed that there was a significant linear trend, $F(1, 69) = 671.675, p < .001, \eta^2 = .907$. Pairwise comparisons revealed that, as hypothesized ($H_{1.5}$), mean response times were lower when high competence traits were preceded by the high status out-group prime (FIGURE) compared to the low status in-group prime (GROUND) (see Table 5.3 below). Furthermore, as predicted ($H_{1.6}$), mean response times were lower when high competence traits were preceded by the high status out-group prime (FIGURE) compared to the neutral prime (XXXXXX) (see Table 5.4 below). These results suggest that participants assigned to the low status group associate the high status out-group with high competence traits. Finally, contrary to expectations ($H_{1.7}$) that there will be no differences pairwise comparisons revealed that mean response times were slightly higher when high competence traits were preceded by the low status in-group prime (GROUND) compared to the neutral prime (XXXXXX) (see Table 5.5 below). This suggests that the low status group does not associate their in-group with high competence traits.

Table 5.3: Low Status Group: High and Low Competence Mean Response Times Comparing the Low Status In-Group Prime and High Status Out-Group Prime.

<i>Stereotype</i>	<i>Prime</i>	
<i>Dimension</i>	L.S. In-Group (GROUND)	H.S Out-group (FIGURE)
High Competence	970.36*** (60.42)	646.58*** (62.37)
Low Competence	1114.54*** (112.64)	1323.89*** (103.79)
<i>n</i>	70	70

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Table 5.4: Low Status Group: High and Low Competence Mean Response Times Comparing the High Status Out-Group Prime and Neutral Prime.

<i>Stereotype</i>	<i>Prime</i>	
<i>Dimension</i>	H.S. Out-Group (FIGURE)	Neutral (XXXXXX)
High Competence	646.58*** (62.37)	931.48*** (65.07)
Low Competence	1323.89*** (103.79)	983.48*** (98.56)
<i>n</i>	70	70

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. * = $p < .05$, *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Table 5.5: Low Status Group: High and Low Competence Mean Response Times Comparing the Low Status In-Group Prime and Neutral Prime.

<i>Stereotype</i>	<i>Prime</i>	
	L.S. In-Group (GROUND)	Neutral (XXXXXX)
High Competence	970.36* (60.42)	931.48* (65.07)
Low Competence	1114.54*** (112.64)	983.48*** (98.56)
<i>n</i>	70	70

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. * = $p < .05$, *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Low Status Group: Low Competence

There was a significant main effect of *prime* (low status in-group prime: GROUND, high status out-group prime: FIGURE, Neutral: XXXXXX) on low competence traits for the low status group, $F(2, 134) = 196.066$, $p < .001$, $\eta^2 = .740$. A polynomial trend analysis revealed that there was a significant linear trend, $F(1, 69) = 340.218$, $p < .001$, $\eta^2 = .831$. Pairwise comparisons revealed that, as hypothesized ($H_{1.8}$), mean response times were higher when low competence traits were preceded by the high status out-group prime (FIGURE) compared to the low status in-group prime (GROUND) (see Table 5.3 above). Furthermore, as predicted ($H_{1.9}$), mean response times were higher when low competence traits were preceded by the high status out-group prime (FIGURE) compared to the neutral prime (XXXXXX) (see Table 5.4 above). In other words, participants assigned to the low status group do not associate the high status out-group with low competence traits. However, contrary to expectations ($H_{2.0}$) that there will be no significant differences pairwise comparisons revealed that mean response times were higher when low competence traits were preceded by the low status in-group prime (GROUND) compared to the neutral prime (see Table

5.5 above). This suggests that participants assigned to the low status group do not associate their in-group with low competence traits.

High Status Group: High Morality/Warmth

There was a significant main effect of *prime* (high status in-group prime: FIGURE, low status out-group prime: GROUND, Neutral: XXXXXX) on high morality/warmth traits for the high status group, $F(2, 130) = 159.962$, $p < .001$, $\eta^2 = .711$. A polynomial trend analysis revealed that there was a significant linear trend, $F(1, 65) = 369.746$, $p < .001$, $\eta^2 = .850$. Pairwise comparisons revealed that, as predicted ($H_{2.1}$), mean response times were lower when high morality/warmth traits were preceded by the high status in-group prime (FIGURE) compared to the low status out-group prime (GROUND) (see Table 5.6 below). Furthermore, as predicted ($H_{2.2}$), mean response times were lower when high morality/warmth traits were preceded by the high status in-group prime (FIGURE) compared to the neutral prime (XXXXXX) (see Table 5.7 below). In other words participants assigned to the high status group associate the high status in-group with high morality/warmth traits. Finally, no predictions were formulated regarding differences between the low status out-group and neutral prime. However, pairwise comparisons revealed that mean response times were lower when high morality/warmth traits were preceded by the low status out-group prime (GROUND) compared to the neutral prime (XXXXXX) (see Table 5.8 below). This suggests that participants assigned to the high status group also associate the low status out-group with high morality/warmth traits.

Table 5.6: High Status Group: High and Low Morality/Warmth Mean Response Times Comparing the High Status In-Group Prime and Low Status Out-Group Prime.

<i>Stereotype</i>	<i>Prime</i>	
	H.S In-group (FIGURE)	L.S. Out-Group (GROUND)
High Morality/Warmth	694.53*** (79.75)	778.46*** (78.10)
Low Morality/Warmth	1043.48*** (105.19)	937.79*** (100.43)
<i>n</i>	66	66

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Table 5.7: High Status Group: High and Low Morality/Warmth Mean Response Times Comparing the High Status In-Group Prime and Neutral Prime.

<i>Stereotype</i>	<i>Prime</i>	
	H.S In-group (FIGURE)	Neutral (XXXXXX)
High Morality/Warmth	694.53*** (79.75)	896.90*** (85.31)
Low Morality/Warmth	1043.48*** (105.19)	954.44*** (99.22)
<i>n</i>	66	66

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Table 5.8: High Status Group: High and Low Morality/Warmth Mean Response Times Comparing the Low Status Out-Group Prime and Neutral Prime.

<i>Stereotype</i>	<i>Prime</i>	
	L.S. Out-Group (GROUND)	Neutral (XXXXXX)
High Morality/Warmth	778.46*** (78.10)	896.90*** (75.50)
Low Morality/Warmth	937.79 (100.43)	954.44 (99.23)
<i>n</i>	66	66

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

High Status Group: Low Morality/Warmth

There was a significant main effect of *prime* (high status in-group prime: FIGURE, low status out-group prime: GROUND, Neutral: XXXXXX) on low morality/warmth traits for the high status group, $F(2, 130) = 26.935$, $p < .001$, $\eta^2 = .239$. A polynomial trend analysis revealed that there was a significant linear trend, $F(1, 65) = 38.935$, $p < .001$, $\eta^2 = .375$. Pairwise comparisons revealed that, contrary to expectations ($H_{2.3}$) that there will be no differences, mean response times were higher when low morality/warmth traits were preceded by the high status in-group prime (FIGURE) compared to the low status out-group prime (GROUND) (see Table 5.6 above). Furthermore, contrary to expectations ($H_{2.4}$) that there will be no differences, mean response times were higher when low morality/warmth traits were preceded by the high status in-group prime (FIGURE) compared to the neutral prime (XXXXXX) (see Table 5.7 above). In other words participants assigned to the high status group do not associate the high status in-group with low morality/warmth traits. No predictions were formulated regarding differences between the low status out-group prime (GROUND) and the neutral prime (XXXXXX). Pairwise comparisons

revealed that there was no significant difference in mean response times for these primes (see Table 5.8 above).

Low Status Group: High Morality/Warmth

There was a significant main effect of *prime* (low status in-group prime: GROUND, low status out-group prime: FIGURE, Neutral: XXXXXX) on high morality/warmth traits for the low status group, $F(2, 134) = , p < .001, \eta^2 = .711$. A polynomial trend analysis revealed no significant linear trend, $F(1, 69) = .015, p = .903$. Pairwise comparisons revealed that, as hypothesized ($H_{2.5}$), mean response times were lower when high morality/warmth traits were preceded by the low status in-group prime (GROUND) compared to the high status out-group prime (FIGURE) (see Table 5.9 below). Furthermore, as predicted ($H_{2.6}$), mean response times were lower when high morality/warmth traits were preceded by the low status in-group prime (GROUND) compared to the neutral prime (XXXXXX) (see Table 6.0 below). This suggests that participants assigned to the low status group associate the low status in-group with high morality/warmth traits. Finally, no predictions were made regarding differences between the high status out-group prime (FIGURE) and the neutral prime (XXXXXX). Pairwise comparisons revealed that there were no differences in mean response times for these two primes (see Table 6.1 below).

Table 5.9: Low Status Group: High and Low Morality/Warmth Mean Response Times Comparing the Low Status In-Group Prime and High Status Out-Group Prime

<i>Stereotype</i>	<i>Prime</i>	
<i>Dimension</i>	L.S. In-Group (GROUND)	H.S Out-group (FIGURE)
High Morality/Warmth	867.74*** (106.36)	936.50*** (93.03)
Low Morality/Warmth	1088.71*** (115.73)	970.36**** (106.43)
<i>n</i>	70	70

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Table 6.0: Low Status Group: High and Low Morality/Warmth Mean Response Times Comparing the Low Status In-Group Prime and Neutral Prime.

<i>Stereotype</i>	<i>Prime</i>	
<i>Dimension</i>	L.S. In-Group (GROUND)	Neutral (XXXXXX)
High Morality/Warmth	867.74*** (106.36)	938.44*** (99.48)
Low Morality/Warmth	1088.71*** (115.73)	978.50*** (104.83)
<i>n</i>	70	70

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. *** = $p < .001$. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Table 6.1: Low Status Group: High and Low Morality/Warmth Mean Response Times Comparing the High Status Out-Group Prime and Neutral Prime.

<i>Stereotype</i>	<i>Prime</i>	
	H.S. Out-Group (FIGURE)	Neutral (XXXXXX)
High Morality/Warmth	936.50 (93.03)	938.44 (99.48)
Low Morality/Warmth	970.36 (106.43)	978.50 (104.83)
<i>n</i>	70	70

Note. Pairwise comparisons using Bonferroni correction were performed to compare means across rows. Means are in milliseconds. Standard deviations appear in parentheses below means. H.S = High Status, L.S = Low Status.

Low Status Group: Low Morality/Warmth

There was also a significant main effect of *prime* (low status in-group prime: GROUND, low status out-group prime: FIGURE, Neutral: XXXXXX) on low morality/warmth traits for the low status group, $F(2, 134) = 31.288$, $p < .001$, $\eta^2 = .312$. A polynomial trend analysis revealed no significant linear trend, $F(1, 69) = .264$, $p = .609$. Pairwise comparisons using the Bonferroni method revealed that, as hypothesized ($H_{2.7}$), mean response times were higher when low morality/warmth traits were preceded by the low status in-group prime (GROUND) compared to the high status out-group prime (FIGURE) (see Table 5.9 above). Furthermore, as predicted ($H_{2.9}$), mean response times were higher when low morality/warmth traits were preceded by the low status in-group prime (GROUND) compared to the neutral prime (XXXXXX) (see Table 6.0 above). This suggests that participants assigned to the low status group do not associate the low status in-group with low morality/warmth traits. Finally, no predictions were made regarding differences between the high status out-group prime (FIGURE) and the neutral prime (XXXXXX). Pairwise comparisons revealed there were no differences in mean response times for these two primes (see Table 6.1 above).

Table 6.2 Summary of High Status Group Results

	Prediction	Results
High Competence Traits	H _{1.1} : lower mean response times for high status in-group prime (FIGURE) compared to low status out-group prime (GROUND). H _{1.2} : lower mean response times for high status in-group prime (FIGURE) compared to neutral prime (XXXXXX).	Prediction supported. Prediction supported.
Low Competence Traits	H _{1.3} : higher mean response times for high status in-group prime (FIGURE) compared to low status out-group prime (GROUND). H _{1.4} : higher mean response times for high status in-group prime (FIGURE) compared to neutral prime (XXXXXX).	Prediction supported. Prediction supported.
High Morality/Warmth Traits	H _{2.1} : lower mean response times for high status in-group prime (FIGURE) compared to low status out-group prime (GROUND). H _{2.2} : lower mean response times for high status in-group prime (FIGURE) compared to neutral prime (XXXXXX).	Prediction supported. Prediction supported.
Low Morality/Warmth Traits	H _{2.3} : no difference in mean response times for high status in-group prime (FIGURE) compared to low status out-group prime (GROUND). H _{2.3} : no difference in mean response times for high status in-group prime (FIGURE) compared to neutral prime (XXXXXX)	Prediction not supported. Prediction not supported.

Table 6.3 Summary of Low Status Group Results

	Prediction	Results
High Competence Traits	H _{1.5} : lower mean response times for high status out-group prime (FIGURE) compared to low status in-group prime (GROUND).	Prediction supported.
	H _{1.6} : lower mean response times for high status out-group prime (FIGURE) compared to neutral prime (XXXXXX).	Prediction supported.
	H _{1.7} : no difference in mean response between low status in-group prime (GROUND) compared to neutral prime (XXXXXX).	Prediction not supported.
Low Competence Traits	H _{1.8} : higher mean response times for high status out-group prime (FIGURE) compared to low status in-group prime (GROUND).	Prediction supported.
	H _{1.9} : higher mean response times for high status out-group prime (FIGURE) compared to neutral prime (XXXXXX).	Prediction supported.
	H _{2.0} : no difference in mean response between low status in-group prime (GROUND) compared to neutral prime (XXXXXX).	Prediction not supported.
High Morality/Warmth Traits	H _{2.5} : lower mean response times for low status in-group prime (GROUND) compared to high status out-group prime (FIGURE).	Prediction supported.
	H _{2.6} : lower mean response times for low status in-group prime (GROUND) compared to neutral prime (XXXXXX).	Prediction supported.
Low Morality/Warmth Traits	H _{2.7} : higher mean response times for low status in-group prime (GROUND) compared to high status out-group prime (FIGURE).	Prediction supported.
	H _{2.8} : higher mean response times for low status in-group prime (GROUND) compared to neutral prime (XXXXXX).	Prediction supported.

An analysis of results involving main effects or interactions that were not of primary interest and for which no predictions were formulated can be seen in Appendix G.

V.6 Summary and Discussion

Implicit Default Group Status Stereotyping

In order to provide stronger evidence for a default group status stereotyping mode, experiment 3 investigated whether the results of experiment 2 could be replicated using an implicit measure of stereotyping. The findings of this experiment are consistent with the findings of experiment 2. A detailed summary and discussion of the main findings of experiment 3 are presented below.

High Competence Stereotypes:

In semantic priming tasks mean response times offer estimates for the degree to which a group prime activates the group stereotype. The hypothesis that participants assigned to the high status group would be significantly quicker at associating the high status in-group prime (FIGURE) with high competence compared to the low status out-group prime (GROUND) and the neutral prime was supported. Similarly, as predicted participants assigned to the low status group were significantly quicker at associating the high status out-group prime (FIGURE) with high competence compared to the low status in-group prime (GROUND) and the neutral prime. Furthermore, participants assigned to the low status group were slower at associating the low status in-group with high competence compared to the neutral prime. These findings are consistent with those of experiment 2 and the hypothesized default group status stereotyping mode.

Low Competence Stereotypes:

The hypothesis that participants assigned to the high status group would be significantly slower at associating the high status in-group prime (FIGURE) with low competence compared to the low status out-group prime

(GROUND) and the neutral prime was supported. Similarly, as predicted participants assigned to the low status group were significantly slower at associating the high status out-group prime (FIGURE) with low competence compared to the low status in-group prime (GROUND). These findings are also wholly consistent with those of experiment 2 and the hypothesized default group status stereotyping mode. Furthermore these findings add to the growing body of research which shows that low status groups often show out-group favouritism in favour of high status groups even when implicit measures are used (Dunham, Baron and Banaji, 2007, 2008). Furthermore, participants assigned to the low status group were slower at associating the low status in-group prime (GROUND) with low competence compared to the neutral prime. This suggests that although members of the low status group do not associate their in-group with high competence they also do not associate their in-group with low competence. This finding is consonant with social psychological research showing that members of low status groups do display in-group favouritism albeit weaker than that shown by members of high status groups (cf. Jost, Pelham and Carvallo, 2002).

High Morality/Warmth Stereotypes:

As predicted it was found that members of the high status group were quicker at associating their high status in-group prime (FIGURE) with high morality/warmth compared to the low status out-group prime (GROUND) and the neutral prime. These findings are consistent with those of experiment 2 and suggest that high status groups do not consider themselves to be lacking in morality/warmth. Furthermore, as expected members of the low status group were quicker at associating their low status in-group prime with high morality/warmth compared to the high status out-group prime and the neutral prime. These findings are also consistent with the findings of experiment 2. Although previous research by Fiske *et al.* (2002) has found that low status groups are perceived as highly moral/warm while high status groups are perceived as immoral/cold, they did not consider whether such stereotypes vary depending upon whether

participants are rating an in-group or an out-group. The findings of experiments 2 and 3 suggest members of high status and low status groups do not share the same stereotype of their respective groups.

Low Morality/Warmth Stereotypes:

Based on the results of experiment 2 it was predicted that there would be no significant difference in mean response times for low morality/warmth for the high status in-group prime (FIGURE) and the low status out-group prime (GROUND) for members of the high status group. However, contrary to this prediction it was found that participants assigned to the high status group were slower at associating the high status in-group prime (FIGURE) with low morality/warmth compared to the low status out-group prime (GROUND) and the neutral prime. In other words, they did not associate the high status in-group with low morality/warmth traits. This was the only difference between the results of experiments 2 and 3 and suggest it might be fruitful for researchers to consider differences between results obtained using implicit versus explicit measures of stereotyping. As predicted members of the low status group were slower at associating low morality/warmth the low status in-group prime (GROUND) compared to the high status out-group prime (FIGURE) and the neutral prime. This finding is consistent with the findings of experiment 2 and previous research by Fiske *et al.* (2002) showing that low status groups are perceived as highly moral/warm while high status groups are perceived as immoral/cold. Nonetheless, once again these results show that members of high and low status groups do not share the same stereotypes across all stereotype domains.

In summary, the results of this experiment support the main findings of experiment 2. Consonant with default group status stereotyping, the high status group was judged as more competent than the low status group by both members of the high status group and low status group. Furthermore, consistent with default morality/warmth stereotyping (see Chapter III),

members of both the high and low status groups judged their in-groups as highly moral/warm.

Overall, the results of this experiment provide additional support to the hypothesized default group stereotyping mode. These findings also strengthen the case that humans have evolved a sensitivity to cues of competence and morality/warmth and cues of group-based social status in their social judgements. This is the first study to show the formation of stereotypes based on the two dimensions of competence and morality/warmth in minimal groups varying in status using an implicit measure of stereotyping. The fact that these stereotypes can be elicited using an implicit measure adds additional weight to the theoretical claim made in Chapter II that cognitive predispositions might play a role in shaping the contents of social group stereotypes.

Chapter VI -The Ideological Functions of Stereotypes Part 1: Do Social Status Differences Trigger Essentialist Thinking?

VI.1 Introduction

Experiments 1, 2 and 3 have addressed the first part of the research question that this thesis seeks to address and explored how evolved cognitive predispositions may shape the contents of social group stereotypes. Now I shall move onto addressing the second part of the research question, namely, to what extent do evolved cognitive predispositions facilitate the ability of stereotypes to naturalise social status differences between groups. It was seen in Chapter I that social psychologists have argued that stereotypes can serve ideological functions. More specifically, they can, be used to justify and naturalise social status differences between groups (Jost and Banaji, 1994). It was also noted that the three approaches put forward to account for how stereotypes may serve ideological functions are based on a study of individual differences, and therefore can only explain why such stereotypes are more likely to be endorsed by some people more than others. Furthermore, while social psychologists focus on the ideological functions of stereotype contents they have neglected to consider the role of the conceptual structure of social group concepts. In Chapter II, by drawing on the Cognition and Culture approach, I suggested that the ability of stereotypes to function as ideological representations may be facilitated by the recruitment of an evolved cognitive predisposition, namely, psychological essentialism.²

It was seen in Chapter I that social cognition theorists have put forward different theories to account for the mental representations of social categories. The social psychology of stereotyping literature explicitly or implicitly understands categories to be attribute lists, associated with prototype or exemplar based accounts of concepts. However, Cognition and

² The research reported in this chapter was conducted in collaboration with Professor Deborah Prentice at the Department of Psychology, at Princeton University while I was a visiting researcher there in 2008.

Culture scholars have shown how concepts are embedded in theories as opposed to simply being a collection of covarying attributes (Murphy and Medin, 1985), and that these theories are often specific to particular conceptual domains (Hirschfeld and Gelman, 1994). In recent years there has been considerable interest in so-called 'theory-based' approaches to category representation. One such approach put forward by Cognition and Culture theorists is psychological essentialism. Medin and Ortony (1989) coined the term 'psychological essentialism' to refer to a theory of category representation which leads to people believing that members of a category share a deep underlying causal essence which confers their identity, and is responsible for many of their observable features, both perceptual and behavioural. Critical social theorists argue that essentialism emerges from certain philosophical and scientific traditions. In contrast, Cognition and Culture scholars argue that essentialism is a cognitive predisposition that emerges early in childhood. There is significant evidence showing that humans essentialise many social categories (Gil-White, 2001; Haslam *et al.*, 2000; Hirschfeld, 1996; Rothbart and Taylor, 1992; Taylor, 1996). As proposed in Chapter II, psychological essentialism as an account of the conceptual structure of social categories may help to shed light on the ability of stereotypes to function as ideological representations. Gelman (2003) has argued that essentialism motivates and underpins stereotyping. Furthermore, Yzerbyt *et al.* (1997) have argued that essentialist beliefs serve to rationalize existing social divisions between groups as large and unalterable. Therefore, it was argued that it is plausible that the ability of stereotypes to naturalise status differences between groups is facilitated by the recruitment of psychological essentialism from the domain of a *Folk Sociology*.

Although essentialist thinking about social categories is common, the specific categories that evoke this mode of representation vary across individuals, groups, and cultures (Astuti, Solomon, and Carey, 2004). According to Hirschfeld essentialism activates curiosity about the social world leading children (and adults) to seek out information about which

social aggregates are salient in their cultural environment. It was argued in Chapter II that one of the ways in which psychological essentialism may facilitate the ideological functions of stereotypes is by social status differences triggering essentialist beliefs about associated social groups. Experiments 2 and 3 provided evidence that status differences trigger the formation of stereotypes about social groups. It is possible that social status differences increase the salience of a social group, and thereby trigger essentialist beliefs. Therefore, the present research examined the possibility that status differences trigger essentialist beliefs about social groups. There is some previous research which has explored the relationship between essentialist beliefs and social status. For example, Mahalingham (2001) found that members of a high status caste (Brahmins) were more likely to hold essentialist beliefs about caste group membership than members of the low status caste (Dalits) in India. Haslam, Rothschild and Ernt (2000) have shown a correlation between social categories that are essentialized and their social status ratings. However, no research has attempted to experimentally manipulate social status. Therefore, the causal nature of this relationship remains unclear. Experiment 4 explored the causal impact of social status on essentialist beliefs about social groups. More specifically, it tested the claim that encountering a difference between someone with high social status and someone with low social status who are members of different groups triggers essentialist beliefs about those social groups.

VI.2 Experiment Overview

This experiment was designed to investigate whether status differences trigger essentialist thinking about social groups. The methods used by Prentice and Miller (2006) and Haslam *et al.* (2000) were adapted for the purposes of the present research and therefore will be described in detail. Prentice and Miller (2006) tested the claim that cross-category differences are what trigger essentialist thinking. More specifically, they explored whether encountering a difference between a woman and a man gives rise

to essentialist thinking about gender categories. Participants completed a test purportedly designed to measure a psychological attribute: dot-estimation. Following the test participants were told that they were either over-estimators or under-estimators (this feedback was in fact predetermined). Finally, they completed measures of the inferences they made about the attribute. The test was administered under 3 different experimental conditions and participants learned that (a) that they were similar to a member of the opposite gender on a novel attribute (same-style condition); (b) that they were different from a member of the opposite gender on a novel attribute (different-style condition), or (c) just their own standing on a novel attribute (alone condition). Results showed that participants essentialized the attribute in question in the different style condition when they learned it distinguished them from a member of the other gender but not in the other two conditions.

In the literature essentialist beliefs are described and measured in many different ways. Hirschfeld (1996) emphasized the element of inherence, discreteness, and naturalization in his studies of racial categorization. Yzerbyt *et al.* (1997) list the elements of necessary features, immutability, inductive potential, coherence and exclusivity. Haslam *et al.* (2000) designed a study to explore the structure of essentialist beliefs about social categories to find out if these distinct conceptualizations are tapping a single syndrome. They asked participants to rate 40 social categories (including age groups, ethnic groups, gender groups) on nine elements of essentialism proposed by social scientists, philosophers and psychologists (discreteness, uniformity, informativeness, naturalness, immutability, stability, inherence, necessity and exclusivity). A factor analysis supported a two-dimensional understanding of essentialist beliefs about social categories. The first dimension, *naturalness*, encompassed judged naturalness, necessary characteristics, immutability, discreteness and stability. The second dimension, *entitativity*, encompassed informativeness, uniformity, inherence, and exclusivity. They found categories such as gender, ethnicity and racial groups were rated as highly

natural, while categories such as political groups, homosexuals and religious groups were rated as highly entitative. They also asked participants to rate the categories on their evaluative status (i.e. how favourably this category is viewed in society) and found an interaction between status and essentialist beliefs. More specifically, they found that categories essentialised on both dimensions were especially likely to have low social status, for example ethnic groups and women.

Experiment 4 adapted a paradigm utilized in Prentice and Miller's (2006) study of gender and essentialism described above. This experiment was designed to investigate whether social status differences would function in the same way as gender - i.e. whether participants would essentialize a group when they learned it distinguished between members of two groups along status lines. Participants completed a dot-estimation test that purportedly measured an unfamiliar psychological attribute: their perceptual style. Based on this they were assigned to one of two perceptual style groups: over-estimators or under-estimators. After receiving predetermined feedback about their group membership they were assigned to either the high-status role of a boss or the low-status role of a subordinate for an upcoming task. Finally, they completed a measure of essentialist beliefs about their perceptual style category based on the two-dimensions of essentialism found by Haslam *et al.* (2000) as noted above. This test was administered under three different experimental conditions. In the critical condition, two participants completed the test in the same experimental session and learned that they were members of two different perceptual style groups. Subsequently one participant was assigned to the role of a boss and the other to the role of a subordinate. In another condition, participants completed the same procedure, but alone rather than in pairs. This condition was included to provide a baseline indication of people's tendency to link their status assignment to their perceptual style group on the basis of a single observation. In a third condition, two participants completed the test in the same experimental session and learned that they were members of the same perceptual style group. This

condition was included to test whether cross-group differences trigger essentialist thinking.

VI.3 Method

VI.3.1 Participants

The required sample size was calculated using G*Power 3 for Mac (see Faul, Erdfelder, Lang and Buchner, 2007). Parameters used in the estimate were the effect size (set to .30), type I error level (set to .05), type II error level (set to .80) and the number of groups (2). The sample size calculated by the software was 128. One hundred and thirty-eight Princeton undergraduates participated in this experiment in exchange for course credit. For the two paired conditions, participants were run in same-sex pairs. Seven participants were removed after failing to pass manipulation checks. This left 131 participants (69 females, 62 males).

VI.3.2 Materials and Procedure

Participants took part in the experiment either alone or in same-sex pairs of previously unacquainted individuals. Same-sex pairs were used in order to ensure sex as a social category varying in social status did not confound the results of the experiment. The experimenter introduced the research as ‘a study of perceptual style and its correlates’. Participants were told the study would take 30 minutes to complete and were given a consent form to read and sign.

Part 1: Perceptual Style Test

Following Prentice and Miller (2006), participants were told they are required to complete a test ostensibly measuring their perceptual style: a dot-estimation test. This test was selected because for the purposes of the present research, the basis on which participants are assigned to a group

needed to be novel, evaluatively neutral, and one on which participants held no a priori expectations of a status difference. A perceptual styles test meets these conditions (see Miller, Turnbull, and McFarland, 1988; Tajfel, Billig, Bundy and Flament, 1971). Pilot testing has indicated that people do not view one of these styles as more positive than the other (Prentice and Miller, 2006).

The participants were shown a series of ten slides using a slide projector onto a screen (see Figure 6.0 for an example of the dot slides used and Figure 6.1 for the layout of the research laboratory during the experiment). Each slide was presented for about half a second, and participants were required to write down their estimate of the number of dots on each one as accurately as possible. After leaving the room to score responses, the experimenter returned to deliver the feedback. Participants were told that previous research has suggested that in trying to estimate the number of dots on a slide, which are presented too quickly to count, people are rarely accurate and their test results place them in one of two groups: over-estimators (i.e. they consistently over-estimated the number of dots on the slides) or under-estimators (i.e. they consistently under-estimated the number of dots on the slides). They were also informed that research has shown dot-estimation reflects a consistent way of perceiving the world.

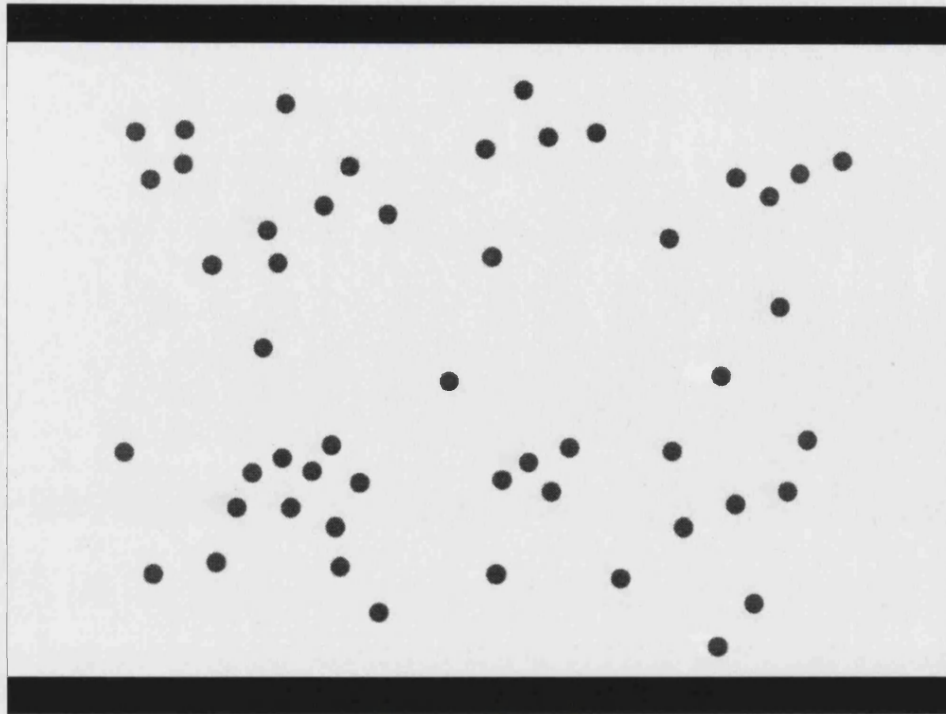


Figure 6.0: Example of Dot-test Slide

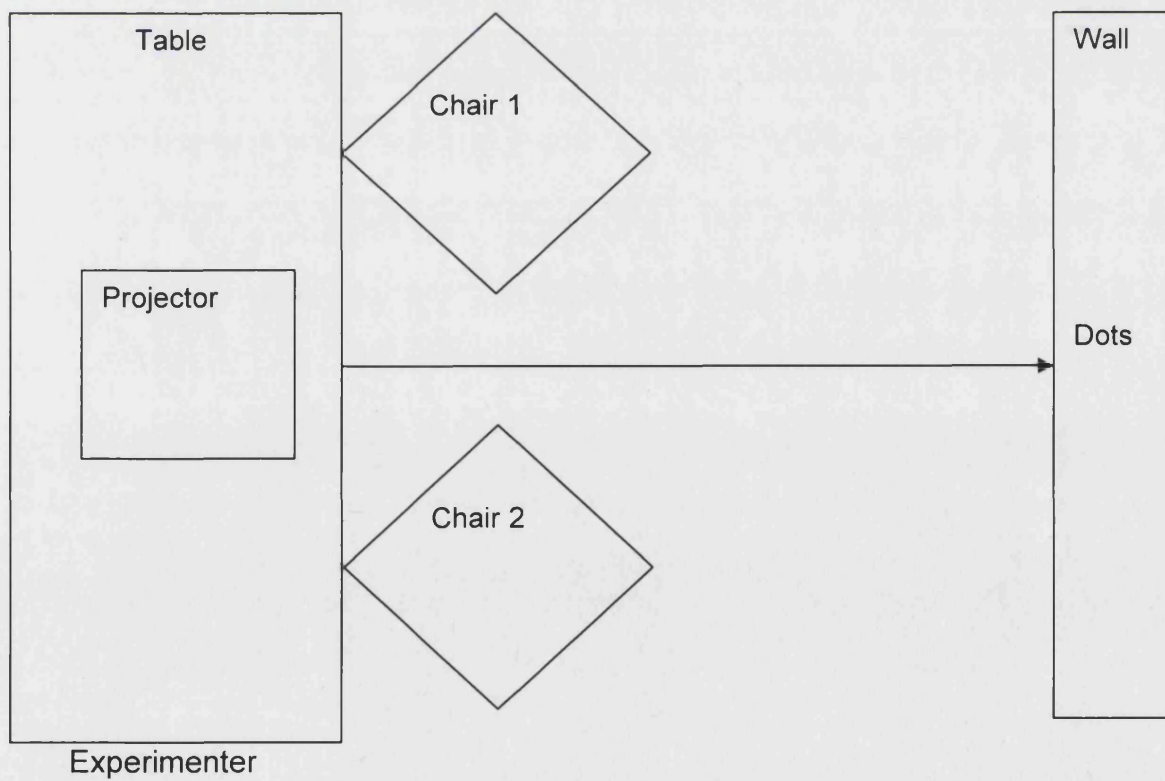


Figure 6.1: Layout of Research Laboratory during Dot-estimation Test.

The test was administered under three different experimental conditions:

(1) Different Style Condition: In this condition, two participants completed the test in the same experimental session. The experimenter told one participant they were a member of the group over-estimator and the other participant was told they were a member of the group under-estimator. This is the critical condition designed to test whether status differences trigger essentialist thinking about associated social groups.

(2) Same Style Condition: In this condition, two participants completed the test in the same experimental session. The experimenter told both participants that they were members of the same group, i.e. that they were both over-estimators or that they were both under-estimators. This condition served as a control condition to verify that it is indeed cross-group status differences which trigger essentialist thinking.

(3) Alone Condition: In this condition, participants completed the same procedure, but alone rather than in pairs. This condition was included to provide a baseline indication of people's tendency to link their status assignment to their perceptual style group on the basis of a single observation.

Status Manipulation

In the two paired conditions, one participant was informed that for an upcoming task he or she has been assigned to the high status role of a boss, and the other participant was told that he or she was assigned to the low status role of a subordinate. The participant assigned to the high status role was given a red folder containing an envelope labeled 'boss' which they were informed contained the specification of their role and the task instructions, while the low status participant received a blue folder with an envelope labeled 'subordinate'. Each of the folders also contained a corresponding red or blue sticker which the participant was told to place on

their shirt for purposes of identification. This procedure was slightly altered for the alone condition, the participants were informed that for an upcoming task they would be working with another Princeton undergraduate and were assigned to the high or low status role in the same way as above. The high status participant was informed that the other participant was assigned to the low status role and given a blue folder and sticker or vice versa for the low status participant. Assignment to experimental condition, perceptual style group and status were determined at random prior to each experimental session.

The procedure for reinforcing the status assignment was adapted from a behavioural economics study which explored the impact of status on voluntary monetary contributions by Kumru and Vesterlund (2005). In Kumru and Vesterlund's study after assigning participants to a high and low status group, high status participants were assigned to a star-group, and they were given a black folder with a gold star with their instructions for the task inside and a star ribbon to wear, while low-status participants were assigned to the no-star group and given a yellow folder with their instructions for the task and no ribbon to wear. In the present study the colours red and blue were used in order to reinforce the status differences between the participants. These colours were chosen as previous research has indicated that wearing the colour red as opposed to blue confers an advantage in many sports (see Attrill, Gresty, Hill and Barton, 2008). For example, Hill and Barton (2005) found when red and blue uniforms were randomly assigned to contestants in various sports (boxing, wrestling), the frequency of winners wearing red was significantly higher than those wearing blue. The authors concluded that wearing red might reflect an innate response to red as a signal of dominance.

Part 2: Dependent Measure

Following assignment to a perceptual style group and status category the participants completed a dependent measure of essentialist beliefs in the

form of a survey. Participants were asked to rate their own perceptual style group (i.e. over-estimator or under-estimator) on eight elements reflecting the two dimensions of essentialism uncovered by Haslam *et al.* (2000): (1) naturalness (encompassing 'discreteness', 'naturalness', 'immutability', 'stability'); (2) entitativity (encompassing 'uniformity', 'informativeness', 'inherence' and 'exclusivity') on a 5-point scale where 1 = strongly agree and 5 = strongly disagree. The element 'necessity' was excluded as in the context of the current experiment asking participants whether there are necessary features required to be a member of the group over-estimator or under-estimator was largely redundant. The items were written as follows:

Discreteness: "People are either an under-estimator or they are not: those who are under-estimators are a distinct type of person"

Naturalness: "To what extent is being an under-estimator based on biological or genetic-make-up? Please circle your answer"

0 % 10% 20% 30% 40% 50% 60% 70% 80% 90%
100%

Immutability: "It is easy to change being an under-estimator: it is not a fixed attribute of person"

Stability: "The group under-estimator has always existed and it is stable over time"

Uniformity: "People who are under-estimators are very similar to one another; they have many things in common"

Informativeness: "Knowing that a person belongs to the group under-estimator tells us a lot about that person"

Inherence: “Being an under-estimator is a deeply-rooted part of a person: it lies deep within the person and underlies the person’s behaviour”

Exclusivity: “Belonging to the group under-estimator excludes a person from belonging to other groups”

After collecting the surveys, the experimenter informed the participants that time had run out for the joint task. Finally, participants were asked to complete three manipulation check questions: (1) Which perceptual style group are you a member of; (2) Were you assigned to a high status or low status role; and (3) ‘What do you think the purpose of this experiment was? Following the experiment the participants were fully debriefed and were given an opportunity to express any concerns or queries regarding the study with the experimenter. Participants were given a copy of the debriefing document and of their experiment consent form.

VI.4 Hypotheses

Essentialist Beliefs:

It was predicted that participants would hold more essentialist beliefs in the critical different style condition, where differences in perceptual style group were correlated with status assignment than in the same-style or alone conditions in which status and perceptual style group are uncorrelated.

Naturalness vs. Entitativity:

Given that no previous research has explored the causal impact of social status on essentialist beliefs about social groups, no predictions were made concerning whether any differences in essentialist beliefs between the experiment conditions will emerge on the naturalness dimension, the entitativity dimension, or both.

VI.5 Results

Previous research by Haslam *et al.* (2000) has indicated that the eight elements of essentialist beliefs used as a dependent measure in this study do not compose a unitary set. Therefore a principal components analysis (PCA) was conducted on the eight essentialism items using Oblimin rotation (Varimax). An initial analysis was run to obtain eigenvalues for each component in the data. A two-factor solution was clearly superior as two components had eigenvalues over Mineigen's criterion of 1 and in combination explained 60% of the variance. Additional factors had eigenvalues < .75. Table 6.0 shows the varimax factor loadings after rotation.

Table 6.0: Varimax-rotated Loadings of the Essentialism Items (decimal omitted)

	Component	
	1	2
Discreteness	81	32
Naturalness	79	36
Immutability	81	25
Stability	69	29
Uniformity	32	74
Informativeness	21	86
Inherence	43	78
Exclusivity	55	58
% variance	46.2	13.7

The two factors revealed by the PCA correspond closely to Haslam *et al.*'s (2000) two dimensions of essentialism. The items that clustered on component 1 were 'discreteness', 'stability', 'naturalness' and 'immutability'. This component is identical to Haslam *et al.*'s naturalness dimension. The items that clustered on component 2 were 'uniformity', 'informativeness' and 'inherence'. This component is identical to Haslam

et al.'s entitativity factor, except for the item exclusivity which loaded equally onto both components. These two components were used to construct two scales for essentialist beliefs: a naturalness scale and an entitativity scale.

The two scales (naturalness and entitativity) were analysed using separate 2 (*sex*: male, female) X 3 (*condition*: alone, same-style, different-style) X 2 (*perceptual style group*: overestimator, underestimator) X 2 (*status*: boss, subordinate) ANOVAs. One planned contrast testing the difference between the different style condition and the same-style and alone conditions was used. The naturalness scale was reliable ($\alpha = .74$). The main effect of experimental condition was statistically significant, $F(2, 119) = 2.53$, $p < .05$, $\eta^2 = 0.35$. None of the other main effects or interactions reached statistical significance. The planned contrast revealed a statistically significant difference between the naturalness scores in the different style condition compared to the same-style and alone conditions, $F(1, 119) = 4.71$, $p < .05$, $\eta^2 = 0.32$. As Figure 6.2 illustrates participants in the different style condition rated the group perceptual style significantly higher on the naturalness scale than participants in the same-style and alone conditions.

The entitativity scale was also reliable ($\alpha = .78$). The main effect of experimental condition failed to reach statistical significance, $F(2, 119) = 0.40$, $p = .67$. None of the other main effects or interactions reached statistical significance. The planned contrast revealed no significant differences between the entitativity scores across all experimental conditions, $F(1, 119) = 0.26$, $p = 0.61$.

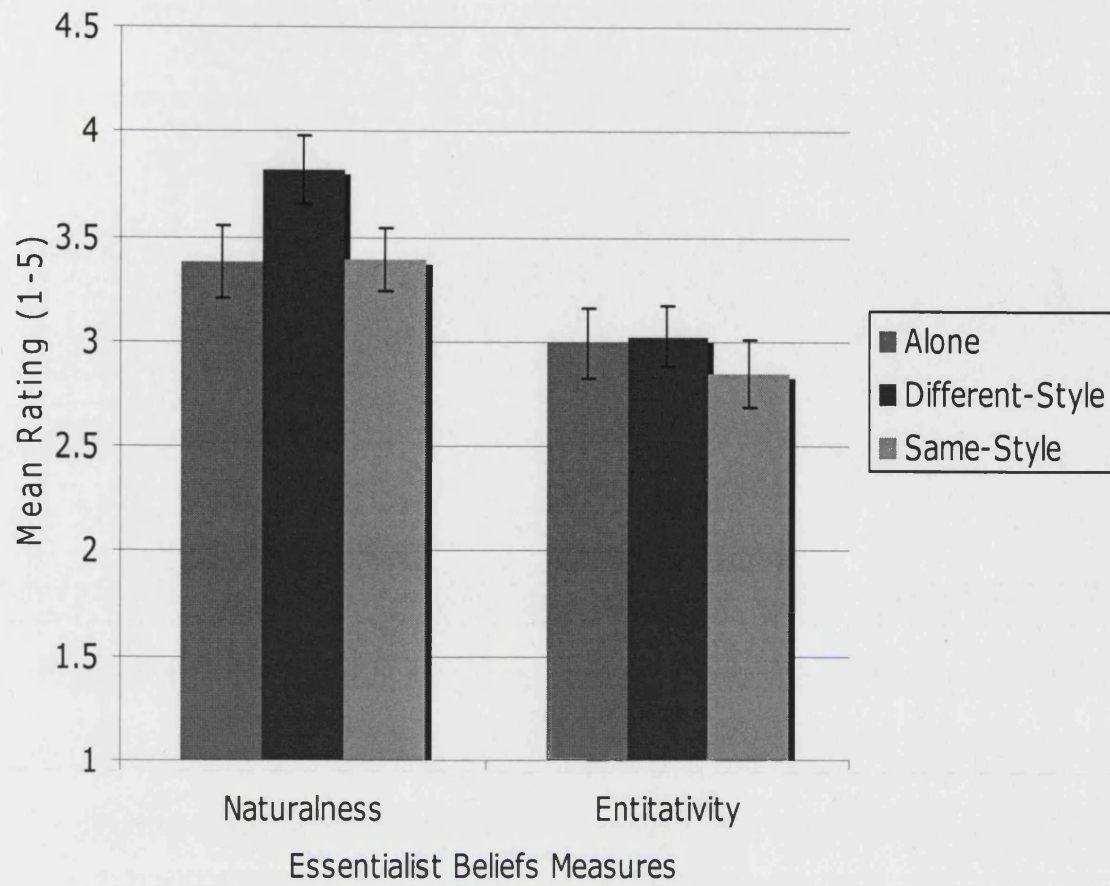


Figure 6.2: Essentialist Beliefs Mean Ratings by Experimental Condition

VI.6 Summary and Discussion

Psychological essentialism is bad metaphysics...[but] may prove to be good epistemology

- Douglas Medin (1989: 1476)

Psychological essentialism entails a belief that social groups have an inner essence that is responsible for the observable (and indeed unobservable) properties of group members. By combining two paradigms used to study essentialist beliefs about social groups, experiment 4 explored whether social status differences trigger essentialist beliefs about social group membership. More specifically, it explored whether encountering a difference between someone with high social status and someone with low social status triggers essentialist beliefs about social groups.

The results supported the prediction that participants were more likely to essentialize social group membership in the different style condition where differences in perceptual style group assignment were correlated with the social status assignment (if you recall in this condition participants were assigned to different perceptual style groups and different status roles) as compared to the same-style or alone conditions where social status assignment and perceptual style group assignment were uncorrelated. It is important to remember that participants came to the experiment with no knowledge about perceptual styles and certainly no knowledge of a link between perceptual style groups and social status. Although previous studies have hinted at a relationship, or shown they are correlated, this is the first study, to my knowledge, to demonstrate the causal impact of social status on essentialist beliefs about social groups. This study also supports Prentice and Miller's (2006) claim that differences that cross group boundaries can trigger essentialist thinking. The fact that status differences trigger essentialist thinking about social groups may help to explain the findings of Astuti, Solomon and Carey's (2004) study of folk sociological knowledge among Vezo children in Madagascar. They found

that children essentialized the contrast between Karany and Vezo group identities but did not essentialize the contrast between Vezo and Masikoro group identities. Perhaps these findings can be explained by the fact that whereas the former groups vary considerably in socio-economic status, the latter groups are both of equal status.

This experiment also sheds light upon the structure of essentialist beliefs. A key finding was that the eight elements of essentialist beliefs used as a dependent measure in this study did not compose a unitary set. Supporting the work of Haslam *et al.* (2000) it was found that the items constitute two independent dimensions. The first dimension, identical to Haslam *et al.*'s naturalness dimension, consisted of beliefs in the discreteness, stability, naturalness and immutability of a social group. The second dimension, virtually identical to Haslam *et al.*'s entitativity dimension, consisted of beliefs in the uniformity, informativeness, and inherence of a social group. The item for exclusivity of social group membership loaded equally on both factors and therefore was excluded from further analysis. This is the first study to corroborate Haslam *et al.*'s findings that there are two dimensions of essentialist beliefs, at least for the social domain. These two dimensions were used to construct separate scales and it was found that social status only triggered beliefs about the naturalness of social groups. There were no differences in the entitativity scale scores across the three experimental conditions.

Overall, the results of this experiment suggest that people hold essentialist beliefs about group differences that are associated with status differences. This lends empirical support to the theoretical claim that psychological essentialism might help to account for the ability of stereotypes to naturalise social status differences between groups. In order to provide stronger evidence for this claim a follow up study is currently underway which explores whether people hold more essentialist beliefs about group differences that are associated with status differences than about group differences that are associated with status similarities. In this follow-up

study participants are assigned to different perceptual style groups and are then assigned to equal status roles. I predict that there will be little or no essentialization of social group membership in this follow-up study. Future research also needs to investigate what triggers beliefs in the entitativity of social groups. The present study also provides indirect evidence that people are sensitive to cues of social status and that group membership takes on a heightened significance if groups vary in social status.

In conclusion, the results of this study support the theoretical claim that social status differences lead to people naturalizing membership in associated social groups. It was argued in Chapter II that another potential way in which psychological essentialism may facilitate the essentialization of group-based status differences is by social status itself being construed as an attribute of an essentialized social group. This would, of course, provide stronger evidence that the naturalization of social status differences between groups is facilitated by the recruitment of psychological essentialism. This is the goal of the experiments reported in the next chapter.

Chapter VII - The Ideological Functions of Stereotypes Part 2: An Investigation of Essentialist Beliefs about Group-based Social Status

VII.1 Introduction

Psychological essentialism leads people to treat groups as homogeneous, mutually exclusive and unalterable and therefore appears to be one of the central cognitive biases underlying stereotyping (Gelman, 2003). It was seen in Chapter VI that groups distinguished by status are perceived to be more natural (although not more entitative). It was concluded that status differences may well trigger beliefs about the naturalness of associated social groups. However if, as postulated in Chapter II, the naturalization of status differences is facilitated by the recruitment of psychological essentialism from the domain of a *Folk Sociology*, it is plausible that people also essentialise social status as an attribute of social group membership. Psychological essentialism as a theory of category representation leads us to assume a causal relationship between membership in a social group (i.e. its essence) and the various attributes (both perceptual and behavioural) of group members. It is highly plausible that the social status of a group is conceived of as an attribute which is causally linked to the group essence. Previous research has shown a correlation between social categories that are essentialized and their social status ratings (Haslam *et al.*, 2000), but no previous research has explored whether people consider the social status of a social group as an essentialized attribute of an essentialized social group. This was the aim of experiment 5.

VII.2 Experiment 5 Overview

Psychological essentialism is an intuitive heuristic therefore it is difficult to acquire direct evidence for it. Hence, in order to examine whether people hold essentialist beliefs about social status a thought experiment was designed as this research method may be more conducive to uncovering

people's implicit mental representations, than more explicit methods such as surveys or interviews (Gelman, 2003). Thought experiments, employed for several thousands of years by philosophers, have been used successfully by Cognition and Culture scholars to evoke people's intuitions about various phenomena including social categories (see, for example, Mahlingham and Rodriguez, 2003; Taylor, 1996; Hirschfeld, 1996).

There were three experimental conditions, two of which contained a thought experiment based on a pre-existing paradigm and designed to provide evidence for different aspects of essentialism, and a control condition. One of the manifestations of essentialism is a belief that properties of category members are immutable and impervious to environmental influences (Gelman and Wellman, 1991). In order to obtain evidence for this the *Adoption Paradigm* (Hirschfeld, 1996) was adapted and forms the basis for the Adoption condition. In this condition, participants read a story about two individuals; one born to a high status group and the other born to a low status group who were accidentally switched at the hospital. Another manifestation of essentialism is a belief in nativism; the assumption that properties of category members are the result of an innate potential. Therefore Mahalingham and Rodriguez's (2001) *Brain Transplant Paradigm* was used as a more direct test of essentialist beliefs. In this condition, participants read that the brain of the individual born into a high status group had been switched with that of the individual born into the low status group. Finally, in the control condition participants were required to make inferences on the basis of group status alone. This condition also provided a baseline level of responses to ensure that the attributes used were ones that participants found to be stereotypically associated with high and low status. If participants are prepared to make inferences about status attributes based on group membership this may also provide evidence of essentialism given that one of its manifestations is that social groups are infused with inductive potential.

A 3 (*experimental condition*: adoption, transplant and control) x 2 (*status of social group*: high status or low status) design was employed. Experimental condition was a between-subjects factor and group status was a within-subjects factor. In all conditions, after reading a short story participants completed dependent measures designed to elicit whether participants held essentialist beliefs about group-based social status in the form of a survey.

VII.3 Method

VII.3.1 Participants

The required sample size was calculated using G*Power 3 for Mac. The sample size calculated by the software was 133. A total of 151 participants of various nationalities completed the study, with 71 males and 80 females. Sixty-two percent of the sample identified themselves as British, 17.6% American, 9% European, 3.8% Australian, 4% Canadian and 2% Chinese. The remainder identified themselves as Indian, Japanese and Mexican (<1%).

VII.3.2 Materials and Procedure

The study appeared online as a web-based study 'Beliefs about Social Status'. Invitations to participate were posted on three online psychology research directories ('Social Psychology Network', 'Online Psychology Research UK' and 'Psychological Research On The Net'). The survey's first page provided information about the general nature of the study, stating "You are invited to participate in an on-line study about social status. This study forms part of a doctoral project in Social Psychology". Participants were informed that the survey would take no longer than 15 minutes to complete and that they would be given further instructions if they chose to participate. The remainder of the text related to ethical issues: potential

benefits and risks and informed consent. After reading and signing the consent form participants were directed to the first page of the study.

Participants were randomly assigned to one of the three experimental conditions: adoption, transplant, control. In each condition, participants read a short story about a member of a high status group (Orinthians) called Damorin and a member of a low status group (Ackmians) called Dolack (see Tables 7.0, 7.1, 7.2). In order for the status manipulation to work it was vital that participants did not hold any a priori associations between the names of the groups or characters and high or low social status. Hence, the names of the characters and the social groups in the present research were selected from a study by Hoffman and Hurst (1990) which explored how certain traits can become stereotypically linked to categories using fictional groups. Hoffman and Hurst (1990) conducted a pre-test to confirm that participants did not hold any pre-existing impressions of these groups and names.

TABLE 7.0: Story used in Adoption Condition

Imagine a society in which there are 2 different groups. There is a group called the Orinthians and a group called the Ackmians. The Orinthians are a group who have high social status, while the Ackmians are a group who have low social status. Now suppose, a child named Damorin born into the high status Orinthian group was accidentally switched at birth at the hospital with a child named Dolack born into the low status Ackmian group. So Damorin was brought up by Ackmians and Dolack was brought up by Orinthians.

TABLE 7.1: Story used in Transplant Condition

Imagine a society in which there are 2 different groups. There is a group called the Orinthians and a group called the Ackmians. The Orinthians are a group who have high social status, while the Ackmians are a group who have low social status. Damorin is a member of the group Orinthians and Dolack is a member of the group Ackmians. Now suppose, that someone takes the brain of Damorin, and puts it in the head of Dolack, and takes the brain of Dolack and puts it in the head of Damorin.

TABLE 7.2: Story used in Control Condition

Imagine a society in which there are 2 different groups. There is a group called the Orinthians and a group called the Ackmians. The Orinthians are a group who have high social status, while the Ackmians are a group who have low social status. Damorin is a member of the group Orinthians and Dolack is a member of the group Ackmians.

After reading the story, participants completed dependent measures designed to elicit whether they held essentialist beliefs about social status, in the form of a survey. The perceived social status of the two characters, Damorin (section 1) and Dolack (section 2) were assessed with four items. The first item consisted of the following question: ‘do you think Dolack (or Damorin) has high or low social status now?’, response options were as follows: ‘high social status’, ‘low social status’, ‘other’. Participants were provided with a small box to explain their choice. The final three items derived from Fiske and Oldmeadow (2008) asked participants to rate Dolack and Damorin on 3 indicators of social status. The questions were as follows: ‘How prestigious do you think the job held by Dolack is likely to be?’, ‘How economically successful do you think Dolack is?’ and ‘How prestigious a car do you think that Dolack drives?’. Seven response options ranged from 1 = ‘not at all’ to 7 = ‘extremely’.

At the end of the study, participants were also asked to complete four manipulation check questions; (1) 'Are the Orinthians a...' with response categories 'High status group', 'Low status group' or 'Don't know'; (2) 'Are the Ackmians a...' with response categories 'High status group', 'Low status group' or 'Don't know'; (3) 'What was Dolack's social status at birth?'; (4) 'What was Damorin's social status at birth?' with response categories 'High social status' and 'Low social status.' Clicking a 'submit study' button recorded the data and directed participants to a debriefing page.

VII.4 Results

Dependent Measure 1:

The participants' answers were analysed by response type. For instance, for the high group status target character for the adoption paradigm, the response that Damorin (who is born into the Orinthians a high status social group but brought up by the Ackmians a low group status social group) is going to be high status as an adult was counted as a "no change in status" response, because the adoption did not affect Damorin's status. The response that Damorin is going to be low status was counted as a "change in status" response, because the adoption did affect Damorin's status. The coding for the low group status target character for the adoption paradigm followed a similar logic. If the target person, Dolack (who was born into the Ackmians but brought up by Orinthians), the response that Dolack is high status as an adult was counted as a "change in status" response because the adoption affected Dolack's status. If Dolack is designated low status as an adult, the response was counted as a "no change in status" response.

For the control condition, for the high group status target character the response that Damorin (who was born into a high status social group) has high status as an adult was counted as a "no change in status" response. The response that Damorin has low status was counted as a "change in status" response. The coding for the low group status target character for the control condition followed a similar logic. If the low group status target

character, Dolack (who was born into a low status social group) the response that Dolack has high status as an adult was counted as a “change in status” response. If Dolack was designated low status as an adult, the response was counted as a “no change in status” response.

Finally, for the transplant condition, for the high group status target character the response that Damorin (whose brain was switched with Dolack born into a low status social group) has high status following the transplant was counted as a “no change in status” response. The response that Damorin has low status was counted as a “change in status” response. The coding for the low group status target character for the control condition followed a similar logic. If the low group status target character, Dolack (whose brain was switched with Damorin born into a high group status family) the response that Dolack has high status following the transplant was counted as a “change in status” response. If Dolack was designated low status, the response was counted as a “no change in status” response.

Chi-square analyses were run on the “no change in status”, “change in status” and “don’t know” responses separately for the high and low status target characters. If participants hold essentialist beliefs about social status they would predict that there would be a change in status in the transplant condition but no change in the control and adoption conditions. For the high status group target character when the three patterns of responses were crossed with the three conditions in a chi-square analysis, there was a significant difference in the pattern of responses across the three conditions with more “change in status” responses associated with the adoption condition and more “no change in status” responses associated with the control and transplant conditions, $\chi^2 (4, N = 181) = 131.614, p < .001$. See Table 7.3. For the low status group target character when the three patterns of responses were crossed with the three conditions in a chi-square analysis, there was a significant difference in the pattern of responses across the three conditions with more “change in

status” responses associated with the adoption condition and more “no change in status” responses associated with the control and transplant conditions, $X^2(4, N = 181) = 161.301, p < .001$. See Table 7.4. This suggests that participants do not essentialise group-based social status.

TABLE 7.3: Frequency of Responses for High Status Group Target Character by Experimental Condition

Response Type	Experimental Condition		
	Control	Transplant	Adoption
No Change	57 (96.6%)	40 (65.6%)	4 (6.6%)
Change	0 (.0%)	16 (26.2%)	50 (82.0%)
Don't Know	2 (3.4%)	5 (8.2%)	7 (11.5%)
Total	59	61	61

TABLE 7.4: Frequency of Responses for Low Status Group Target Character by Experimental Condition

Response Type	Experimental Condition		
	Control	Transplant	Adoption
No Change	57 (96.6%)	40 (65.6%)	0 (.0%)
Change	0 (.0%)	17 (27.9%)	52 (85.2%)
Don't Know	2 (3.4%)	4 (6.6%)	9 (14.8%)
Total	59	61	61

Dependent Measure 2:

Preliminary MANOVAs revealed no significant main effect or interactions involving sex or nationality of participant, and thus data were pooled across this variable. For all subsequent analyses one-way independent ANOVAs were used. All comparisons among means following significant ANOVAs were conducted using the Gabriel test and r was calculated as the effect size.

High Status Group Character Social Status Attribute Ratings:

If participants hold essentialist beliefs about social status they should rate the likelihood that the high status group target character has high social status attributes as being lower in the transplant condition compared to the adoption and control condition. The three items derived from Fiske and Oldmeadow (2008) used as status indicators formed a reliable scale ($\alpha = .94$). A one-way MANOVA was performed to test the main effect of experimental condition on the ratings of status attributes for the high status group character for the control, transplant and adoption conditions. The multivariate test of differences between groups using the Wilks' Lambda criteria was statistically significant, $\Lambda = 0.50$, $F(6, 352) = 24.530$, $p < .001$, $\eta^2 = .295$. Follow-up one-way ANOVAs revealed significant main effect of experimental condition on the following 3 status indicators: *Prestigious job* ($F(2, 178) = 72.421$, $p < .001$, $\eta^2 = .449$); *economic success* ($F(2, 178) = 57.138$, $p < .001$, $\eta^2 = .391$) and *prestigious car* ($F(2, 178) = 72.266$, $p < .001$, $\eta^2 = .448$). The results of post-hoc tests conducted following significant ANOVAs results are presented in Table 7.5. For all three status attributes the high group status character in the adoption condition received statistically significantly lower social status attribute ratings than the high group status character in the transplant and control conditions.

TABLE 7.5: High Group Status Character Social Status Attribute Ratings by Experimental Condition

Status Indicator	Experimental Condition		
	Control	Transplant	Adoption
Prestigious job	5.66 _a (.863)	4.90 _a (1.480)	3.05 _b (1.642)
Economic success	5.64 _a (.943)	5.07 _a (1.548)	3.25 _b (1.287)
Prestigious car	5.51 _a (1.006)	5.15 _a (1.504)	2.82 _b (1.432)

Note. Ratings were made on 7 point scales (1 = not all, 7 = extremely). Standard deviations appear in parentheses below means. Means in the same row that do not share sub-scripts significantly differ at $p < .05$ in the Gabriel test of pairwise differences.

Low Group Status Character Social Status Attribute Ratings:

If participants hold essentialist beliefs about social status they should rate the likelihood that the low group status target character has high social status attributes as being higher in the transplant condition compared to the adoption and control condition.

The three items derived from Fiske and Oldmeadow (2008) used as status indicators formed a reliable scale ($\alpha = .97$). A one-way MANOVA was performed to test the main effect of experimental condition on the ratings of status attributes for the low status character for the control, transplant and adoption conditions. The multivariate test of differences between groups using the Wilks' Lambda criteria was statistically significant, $\Lambda = 0.53$, $F(6, 352) = 21.955$, $p < .001$, $\eta^2 = .271$. Follow-up one-way ANOVAs revealed significant main effect of experimental condition on the following three status indicators: *Prestigious job* ($F(2, 178) = 56.205$, $p < .001$, $\eta^2 =$

.387); *economic success* ($F(2, 178) = 50.506, p < .001, \eta^2 = .362$) and *prestigious car* ($F(2, 178) = 72.525, p < .001, \eta^2 = .449$). The results of post-hoc tests conducted following significant ANOVAs results are presented in Table 7.6. Of the three status attributes the low group status character in the adoption condition received statistically significantly higher social status attribute ratings than the low group status character in the control and transplant condition.

TABLE 7.6: Low Group Status Character Social Status Attribute Ratings by Experimental Condition

Status Indicator	Experimental Condition		
	Control	Transplant	Adoption
Prestigious job	2.80 _a (.924)	3.56 _a (1.587)	5.25 _b (1.287)
Economic success	3.02 _a (.938)	3.46 _a (1.618)	5.30 _b (1.308)
Prestigious car	2.66 _a (.921)	3.26 _a (1.515)	5.39 _b (1.718)

Note. Ratings were made on 7 point scales (1 = not all, 7 = extremely). Standard deviations appear in parentheses below means. Means in the same row that do not share sub-scripts significantly differ at $p < .05$ in the Gabriel test of pairwise differences.

Justifications for Damorin's Status: All Conditions

Participants were given the opportunity to justify their status judgments. In almost all cases they did so (see Appendix H). A content analysis was performed on these justifications. Justifications were coded according to the coding framework shown in Table 7.7. *Essentialist* justifications were those that mentioned status being fixed, innate, having an essence, located in the brain etc. *Nurture* justifications were those responses that

mentioned upbringing or environment as determining social status. *Group status* justifications were those that mentioned group social status as a sufficient explanation. *Group* justifications were those that mentioned membership in a group as a sufficient explanation. *Individual intrinsic* justifications were those where the participants denied that status is the result of one's upbringing or membership in a group. All other justifications were coded as *Other*.

Table 7.7: Criteria for Coding Justifications

<i>Code</i>	<i>Criteria</i>
Essentialist	Invoke ideas about status being fixed, innate, the result of an inner essence (“social status is inherited”)
Nurture	Invoke upbringing or social environment as determining social status (e.g. “status is a product of your environment”)
Group Status	Refer to group status as a sufficient explanation for the status of the character (e.g. “Damorin is a member of the Orinthians who have high social status”)
Group	Refer to membership in a group as sufficient explanation for the status of the character (e.g. Damorin is an Orinthian)
Individual Intrinsic	Deny that social status is acquired through inheritance, upbringing or membership in a group (e.g. “just because someone is a member of a high status group doesn’t mean they have high status”)
Other	All other justifications

Note. Coding criteria adapted from Astuti *et al.*, 2004.

There were a total of 140 justifications across experimental conditions. In the control condition, *Group Status* justifications were the most common, accounting for 76.3% of all justifications, followed by *Group* justifications, accounting for 11.9% of the total. *Essentialist* justifications were the next most common, accounting for 3%, followed by 2% *Individual Intrinsic* and 2% *Other* justifications. None of the participants provided *Nurture* justifications. In the transplant condition, *Essentialist* justifications were the most common, accounting for 41.4% of all justifications, followed by *Other* justifications, accounting for 29.3% of the total. *Group status* justifications were the next most common, accounting for 20.7%, followed by 5.2% *Group* justifications, 1.7% *Nurture* justifications and 1% *Individual Intrinsic* justifications. In the adoption condition, *Nurture* justifications were the most common, accounting for 60% of all justifications, followed by *Group* justifications, accounting for 11.6% of the total. *Group status* justifications were the next most common, accounting for 10%, followed by 8.3% *Other* justifications, 5% *Essentialist* justifications and 5% *Individual Intrinsic* justifications.

Justifications for Dolack's Status: All Conditions

There were a total of 125 justifications across experimental conditions. In the control condition, *Group Status* justifications were the most common, accounting for 81.1% of all justifications, followed by *Group* justifications, accounting for 9.4% of the total. *Essentialist* justifications were the next most common, accounting for 7.5%, followed by 3.8% *Nurture* and 3.8% *Other* justifications. None of the participants provided *Individual Intrinsic* justifications. In the transplant condition, *Essentialist* justifications were the most common, accounting for 45% of all justifications, followed by *Other* justifications, accounting for 26.6% of the total. *Group status* justifications were the next most common, accounting for 11.6%, followed by 8.3% *Group* justifications, 6.6% *Nurture* justifications and 1.6% *Individual Intrinsic* justifications. In the adoption condition, *Nurture* justifications were the most common, accounting for 71.7% of all justifications, followed

by *Group* justifications, accounting for 8.3% of the total. *Group status* justifications were the next most common, accounting for 5%, followed by 6.6% *Other* justifications, 3.3% *Essentialist* justifications and 5% *Individual Intrinsic* justifications.

VII.5 Summary and Discussion

By combining two thought experiment paradigms, this study explored whether psychological essentialism as a mode of category representation applies to human mental representations of group status. As this was an exploratory study, and the first experimental study to investigate the essentialism of group-based social status no ad hoc hypotheses were formulated. My analysis of the experiment results appear to suggest that people do not hold essentialist beliefs about group-based social status. For instance, the results from the first dependent measure showed that participants predicted that following a brain transplant from a member of a low status group, there was less likely to be a change in the social status of a member of a high status group, as compared to member of a high status group brought up by members of a low status group (adoption condition), or someone born into and brought up by members of a high status group (control condition). Similarly, participants predicted that following a brain transplant from a member of a high status group, there was less likely to be a change in the status of a member of a low status group than if they were brought up by members of a high status group (adoption condition), or someone born into and brought up by members of a low status group (control condition).

There was further support for the lack of essentialist beliefs about group-based social status from the results from the second dependent measure. Participants rated the likelihood of a member of the high status group possessing indicators of high status as

greater in the control condition than in both the transplant and adoption conditions. While, participants rated the likelihood of a member of a low status group possessing indicators of high status as higher in the adoption condition than in the transplant and control conditions. These results appear to suggest that people do not view a group's social status as being innate or having a biological basis in the brain, but rather social status is perceived as open to and strongly influenced by environmental factors.

At first glance the results of experiment 5 show that humans do not essentialise group-based social status. However, an analysis of participants' justifications for their responses in the brain transplant paradigm suggest that many participants did not perceive the brain to be central to social status. For example, participant 24 states 'by changing brains some things would change but not their social status'. Similarly, participant 2 claimed 'Although Dolack has a different brain, Dolack is still an Ackmian.' As the analysis of participants' qualitative responses for the brain transplant paradigm revealed participants did not always give justifications that were consistent with the reasoning implicit in their judgment. In many cases participants gave essentialist justifications for a no-change in status judgment as opposed to a nurture justification. For instance, participant 100 said 'because once high social status is obtained it is retained and doesn't change.' Another participant (33) claimed that 'the brain is not the essence of a person, Damorin still has the same soul and therefore is still an Orinthian.' In fact 41.4% of the justifications for the high status group character Damorin and 45% of the justifications for the low status group character Dolack were classified as essentialist. In their articulation of psychological essentialism, Medin and Ortony (1989) argue that essentialism is a placeholder notion, i.e., people do not necessarily know what the essence of a particular natural or social category is. A direct implication of this for the brain transplant paradigm used in this

experiment is that it is plausible that the participants do essentialise group status but they do not perceive the brain to be central to the identity of a group nor to the attributes of a group including the group's status.

Furthermore, in his study of essentialist beliefs about caste groups in India, Mahalingham (2001) coded a no change in caste related behaviour following a brain transplant from a high or low caste individual as an indication of essentialist beliefs, and a change in caste related behaviour as lack of evidence for essentialist beliefs. The reverse coding criteria was used in the present experiment (i.e. change in status following a brain transplant was counted as evidence for essentialism of group status and lack of change was counted as lack of evidence for essentialism) in keeping with previous essentialism studies in which a change in identity of a category member following a removal or exchange of internal parts (i.e. blood, bones, organs etc) was counted as evidence for essentialism, while a change in identity of a category member following a removal or exchange of external parts (i.e. fur, skin etc) is counted as lack of evidence for essentialism (cf. Keil, 1989; Gelman and Wellman, 1991).

Overall, given that the brain transplant paradigm may not provide a good test of essentialist beliefs, I was cautious in concluding from a single study that people do not essentialise group-based social status. Therefore, in order to overcome the shortcomings of the brain transplant paradigm, experiment 6 re-examines essentialist beliefs about group-based social status by using two alternative thought experiment paradigms.

VII.6 Experiment 6 Overview

At first glance, the results of experiment 5 suggest that people do not hold essentialist beliefs about group-based social status. However, an examination of the justifications for the responses to the brain transplant paradigm suggest that many participants did not perceive the brain to be central to group or status identity. Therefore, to investigate this possibility and overcome the shortcomings of using the brain transplant paradigm, a follow-up experiment re-examines essentialist beliefs about group-based social status using two alternative paradigms.

There were two experimental conditions, each based on a different thought experiment. Soul and personality exchanges were selected as there is evidence from previous research that they are part of people's folk beliefs about identity. For instance, in a study exploring whether American children differentiate the soul from the brain, Richert and Harris (2006) found 6-12 year old children believed the brain changes and grows while they believed the soul is something which remains constant. Haslam, Bastian and Bissett (2004) found evidence for essentialist beliefs about personality characteristics. In the soul exchange condition a paradigm used by Johnson and Wellman (1982) and Richert and Harris (2006) was adapted. In this condition, participants read a story about two individuals; Damorin (born to the high status Orinthians group) and Dolack (born to the low status Ackmians group). They were told to imagine someone switched Damorin's soul with Dolack's soul. In the personality exchange condition participants read a story about two individuals; Damorin (born to the high status Orinthians group) and Dolack (born to the low status Ackmians group). They were told to imagine someone switched Damorin's personality with Dolack's personality.

A 2 (*experimental condition*: soul exchange, personality exchange) x 2 (*status of social group*: high status or low status) design was employed. Experimental condition was a between-subjects factor and group status was

a within subjects factor. In all conditions, after reading one of the two stories, participants completed the same dependent measures used in experiment 5 designed to elicit whether participants hold essentialist beliefs about group-based social status in the form of a survey.

VII.7 Method

VII.7.1 Participants

The required sample size was calculated using G*Power 3 for Mac. The sample size calculated by the software was 102. A total of 121 participants of various nationalities completed the study, with 52 males and 69 females. Fifty-eight percent of the sample identified themselves as British, 20% American, 12% European, 5% Australian, 2% Canadian, 2% Chinese. The remainder identified themselves as Indian, Cuban, Japanese and Pakistani (<1%).

VII.7.2 Materials and Procedure

The materials and procedure were virtually identical to those used in experiment 5 (see above). The study appeared online as a web-based study 'Social Thought Experiment'. Invitations to participate were posted on three online psychology research directories ('Social Psychology Network', 'Online Psychology Research UK' and 'Psychological Research On The Net'). After reading and signing the consent form participants were directed to the first page of the study.

Participants were randomly assigned to one of the two experimental conditions: soul exchange, personality exchange. In each condition, participants read a short story about a member of a high status group (Orinthians) called Damorin and a member of a low status group (Ackmians) called Dolack (see Tables 7.8 and 7.9). After reading the story participants completed the same dependent measures used in experiment 5.

TABLE 7.8: Story used in Soul Exchange Condition

Imagine a society in which there are 2 different groups. There is a group called the Orinthians and a group called the Ackmians. The Orinthians are a group who have high social status, while the Ackmians are a group who have low social status. Damorin is a member of the group Orinthians and Dolack is a member of the group Ackmians. Now suppose, that someone takes Damorin's soul and replaces it with Dolack's soul and takes Dolack's soul and replaces it with Damorin's soul.

TABLE 7.9: Story used in Personality Exchange Condition

Imagine a society in which there are 2 different groups. There is a group called the Orinthians and a group called the Ackmians. The Orinthians are a group who have high social status, while the Ackmians are a group who have low social status. Damorin is a member of the group Orinthians and Dolack is a member of the group Ackmians. Now suppose, that someone switches Damorin's personality with Dolack's personality.

VII.8 Results

Dependent Measure 1:

The participants' answers were analysed by response type. For the soul exchange condition, for the high status social group target character the response that Damorin (whose soul was switched with Dolack born into a low status social group) has high status following the exchange was counted as a "no change in status" response. The response that Damorin has low status was counted as a "change in status" response. The coding for the low status group target character for the control condition followed a similar logic. If the low status group target character, Dolack (whose soul was switched with Damorin born into a high status social group) the response that Dolack has high status following the exchange was counted as a "change in status" response. If Dolack was designated low status, the response was counted as a "no change in status" response.

Similarly, for the personality exchange condition, for the high status social group target character the response that Damorin (whose personality was switched with Dolack born into a low status social group) has high status following the exchange was counted as a "no change in status" response. The response that Damorin has low status was counted as a "change in status" response. The coding for the low group status target character for the control condition followed a similar logic. If the low status group target character, Dolack (whose personality was switched with Damorin born into a high status social group) the response that Dolack has high status following the exchange was counted as a "change in status" response. If Dolack was designated low status, the response was counted as a "no change in status" response.

Chi-square analyses were run on the "no change in status", "change in status" and "don't know" responses separately for the high and low status target characters. For the high status group target character when the three patterns of responses were crossed with the two conditions in a chi-

square analysis, there was a significant difference in the pattern of responses across the two conditions with more “change in status” responses associated with the soul exchange condition and more “no change in status” responses associated with the personality exchange condition, $X^2(2, N = 121) = 34.828, p < .001$. For the low status group target character when the three patterns of responses were crossed with the two conditions in a chi-square analysis, there was a significant difference in the pattern of responses across the three conditions with more “change in status” responses associated with the soul exchange condition and more “no change in status” responses associated with the personality exchange condition, $X^2(2, N = 121) = 29.002, p < .001$. See Tables 7.10 and 7.11. This suggests that participants do essentialise group-based social status as an attribute of a group, and that they believe the soul constitutes the essence of a group.

TABLE 7.10: Frequency of Responses for High Group Status Target Character by Experimental Condition

Response Type	Experimental Condition	
	Soul Exchange	Personality Exchange
No Change	14 (23.0%)	44 (73.3%)
Change	43 (70.5%)	12 (20.0%)
Don't Know	4 (6.6%)	4 (6.7%)
Total	61	60

TABLE 7.11: Frequency of Responses for Low Group Status Target Character by Experimental Condition

Response Type	Experimental Condition	
	Soul Exchange	Personality Exchange
No Change	14 (23.0%)	42 (70.0%)
Change	45 (73.8%)	16 (26.7%)
Don't Know	2 (3.3%)	2 (3.3%)
Total	61	60

Dependent Measure 2:

Preliminary MANOVAs revealed no significant main effects or interactions involving sex or nationality of participant, and thus data were pooled across this variable. For all subsequent analyses one-way independent ANOVAs were used. All comparisons among means following significant ANOVAs, independent sample t-tests were conducted and r was calculated as the effect size.

High Group Status Character Social Status Attribute Ratings:

The three items derived from Fiske and Oldmeadow (2008) used as status indicators formed a reliable scale ($\alpha = .97$). A one-way MANOVA was performed to test the main effect of experimental condition on the ratings of status attributes for the high status character for the soul exchange and personality exchange conditions. The multivariate test of differences between groups using the Wilks' Lambda criteria was statistically significant, $\Lambda = 0.72$, $F(3, 117) = 15.011$, $p < .001$, $\eta^2 = .278$. Follow-up one-way ANOVAs revealed significant main effect of experimental condition on the following 3 status indicators: *Prestigious job* ($F(1, 119) = 38.264$, $p < .001$, $\eta^2 = .243$); *economic success* ($F(1, 119) = 44.834$, $p < .001$, $\eta^2 = .274$) and *prestigious car* ($F(1, 119) = 32.961$, $p < .001$, $\eta^2 = .217$). An independent-

samples t-test revealed statistically significant differences between the two experimental condition for all three status indicators: *Prestigious job*, $t(119) = 6.186$, $p < .001$, $r = 0.49$; *economic success*, $t(119) = 6.696$, $p < .001$, $r = 0.52$ and *prestigious car*, $t(119) = 5.741$, $p < .001$, $r = 0.47$. The means are presented in Table 7.12. For all three status attributes the high group status character in the soul exchange condition received statistically significantly lower social status attribute ratings than the high group status character in the personality exchange condition.

TABLE 7.12: High Status Character Social Status Attribute Ratings by Experimental Condition

Status Indicator	Experimental Condition	
	Soul Exchange	Personality Exchange
Prestigious job	3.56 _a (1.962)	5.57 _b (1.588)
Economic success	3.38 _a (1.942)	5.60 _b (1.699)
Prestigious car	3.44 _a (2.054)	5.33 _b (1.526)
Total	61	60

Note. Ratings were made on 7 point scales (1 = not all, 7 = extremely). Standard deviations appear in parentheses below means. Means in the same row that do not share sub-scripts significantly differ at $p < .05$ in the Gabriel test of pairwise differences.

Low Group Status Character Social Status Attribute Ratings:

The three items derived from Fiske and Oldmeadow (2008) used as status indicators formed a reliable scale ($\alpha = .99$). A one-way MANOVA was performed to test the main effect of experimental condition on the ratings of status attributes for the low status character for the soul exchange and personality exchange conditions. The multivariate test of differences between groups using the Wilks' Lamda criteria was statistically significant, $\Lambda = 0.77$, $F(3, 117) = 11.734$, $p < .001$, $\eta^2 = .231$. Follow-up one-way ANOVAs revealed significant main effect of experimental condition on the

following three status indicators: *Prestigious job* ($F(1, 119) = 35.126, p < .001, \eta^2 = .228$); *economic success* ($F(1, 119) = 34.215, p < .001, \eta^2 = .209$) and *prestigious car* ($F(1, 119) = 31.537, p < .001, \eta^2 = .223$). An independent-samples t-test revealed statistically significant differences between the two experimental condition for all three status indicators: *Prestigious job*, $t(119) = 5.927, p < .001, r = 0.48$; *economic success*, $t(119) = 5.849, p < .001, r = 0.47$ and *prestigious car*, $t(119) = 5.616, p < .001, r = 0.46$.

The means are presented in Table 7.13. Of the three status attributes the low group status character in the soul exchange condition received statistically significantly higher social status attribute ratings than the low group status character in the personality exchange condition.

TABLE 7.13: Low Status Character Social Status Attribute Ratings by Experimental Condition

Status Indicator	Experimental Condition	
	Soul Exchange	Personality Exchange
Prestigious job	5.25 _a (2.055)	2.95 _b (2.205)
Economic success	5.30 _a (2.076)	3.07 _b (2.114)
Prestigious car	5.20 _a (2.076)	3.12 _b (2.051)
Total	61	60

Note. Ratings were made on 7 point scales (1 = not all, 7 = extremely). Standard deviations appear in parentheses below means. Means in the same row that do not share sub-scripts significantly differ at $p < .05$ in the Gabriel test of pairwise differences.

Justifications for Damorin's Status: All Conditions

Justifications were coded according to the criteria shown in Table 7.7 above (see Appendix I). *Essentialist* justifications were those that mentioned status being fixed, innate, having an essence, located in the brain etc. *Nurture* justifications were those responses that mentioned upbringing or environment as determining social status. *Group status* justifications were those that mentioned group social status as a sufficient explanation. *Group* justifications were those that mentioned membership in a group as a sufficient explanation. *Individual intrinsic* justifications were those where the participants denied that status is the result of one's upbringing or membership in a group. All other justifications were coded as *Other*.

There were a total of 100 justifications across experimental conditions. In the soul exchange condition, *Essentialist* justifications were the most common, accounting for 68.3% of all justifications, followed by *Group* justifications, accounting for 21.2% of the total. *Group status* justifications were the next most common, accounting for 5%, followed 3% *Nurture* justifications and 2.5% *Individual Intrinsic* justifications. In the personality exchange condition, *Group status* justifications were the most common, accounting for 41.2% of all justifications, followed by *Essentialist* justifications, accounting for 23.2% of the total. *Group* justifications were the next most common, accounting for 18.6%, followed by 10% *Other* justifications, 5% *Nurture* justifications and 2% *Individual Intrinsic* justifications.

Justifications for Dolack's Status: All Conditions

There were a total of 85 justifications across experimental conditions. In the soul exchange condition, *Essentialist* justifications were the most common, accounting for 70% of all justifications, followed by *Other* justifications, accounting for 18.2% of the total. *Group status* justifications

were the next most common, accounting for 4.2%, followed 3.5% *Group status* justifications, 3.1% *Nurture* justifications and 1% *Individual Intrinsic* justifications. In the personality exchange condition, *Group status* justifications were the most common, accounting for 45.2% of all justifications, followed by *Essentialist justifications*, accounting for 25.4% of the total. *Group* justifications were the next most common, accounting for 18.2%, followed by 18% *Other* justifications, 2.2% *Nurture* justifications and 1% *Individual Intrinsic* justifications.

VII.9 Summary and Discussion

Experiment 6 examined essentialist beliefs about group-based social status by using two thought experiment paradigms: personality exchange and soul exchange. The results of this experiment suggest that people do hold essentialist beliefs about group membership and about group-based social status. Furthermore, they believe that the essence of a group resides in the soul of members of a social group. For instance, the results from the first dependent measure showed that participants predicted that following a soul exchange from a member of a low status group, the member of the high status group would lose their high status and gain the status of the member of the low status group. In comparison, very few participants predicted a change in social status following an exchange of personalities between a member of a high status group and a member of a low status group. These findings are corroborated by participants' qualitative responses; 68.3% of participants in the soul exchange condition provided essentialist justifications compared to 23.2% in the personality exchange condition.

There was further support for essentialist beliefs about group-based social status in the soul exchange paradigm from the results of the second dependent measure. Participants rated the likelihood of the member of the low status group possessing indicators of high status as high following a soul exchange with member of a high status group. Conversely, participants

rated the likelihood of the member of the high status group possessing indicators of high status as low following the soul exchange. In the personality exchange condition, participants rated the likelihood of the member of the low status group possessing indicators of high status as low and the likelihood of the member of the high status group possessing such indicators as high following an exchange of personalities. In other words, participants did not believe that exchanging personalities would lead to a change in group-based social status.

This experiment highlights the need for future research exploring essentialist beliefs to adopt more than one experimental paradigm. The fact that participants believe the soul as opposed to a more tangible biological entity such as the brain constitutes the essence of a group is a reminder that essentialist beliefs need not be biological and, even if they are biological, that we may not have a firm grasp on what common sense takes to be biological - it could as easily be blood, the soul, as genes. Indeed assuming that essences map onto genes or the brain may be imposing a scientific structure on a commonsense that is in reality more intangible. Hence, the causal theory that underpins psychological essentialism need not be biological but simply naturalistic (Prentice and Miller, 2007).

In light of this it is useful to re-consider the findings from the adoption condition in experiment 5 above. This experiment appears to show that people do not essentialise group status as they believe a member of a high status group brought up by members of a low status group would drop down the ranks and vice versa. However, it could be argued that a truly non-essentialist representation of group status would deny that an individual's status can be determined by the status of a group they belong to, or indeed be determined by a change in the brain, soul or environment as represented by the individual intrinsic code for participants' qualitative justifications for their responses. However, there was very little evidence in either of these experiments of participants providing such a justification.

For example, no more than 5% of the justifications across all experimental conditions in both experiments were coded as 'individual intrinsic.' Furthermore, it could be argued that psychological essentialism as a theory of category representation leads people to believe there is a causal mechanism or essence linking a category with its attributes and nothing precludes this causal mechanism from being environmental. In other words, the essence could reside in the environment. Indeed, as the anthropologist Ann Stoler's extensive work analysing the Dutch archives of Colonial Indonesia shows colonial masters were worried whites would become Javanese if they were exposed to Javanese culture for too long (Stoler, 1995).

A final methodological issue that needs to be addressed concerns the use of thought experiments as a way of uncovering essentialist representations. There is some evidence to suggest certain participants over-interpreted the task, for instance participant 12 mentioned that a brain transplant is not possible. Psychological essentialism is an intuitive heuristic and therefore perhaps there is a need for future research to utilise a more sensitive measure of essentialism. One possibility is using a more implicit measure such as measuring response times.

Overall, these results are consistent with the hypothesis that psychological essentialism as a mode of category representation is applied to group-based social status. Indeed, this is the first study to provide direct evidence for this. The findings of this experiment lend empirical support to the theoretical claim that the ability of stereotypes to help naturalise social status differences between groups may be facilitated by the recruitment of psychological essentialism from a *Folk Sociology*. Not only do status differences trigger beliefs about the naturalness of associated social groups as found in experiment 4 (see Chapter VI), but as these results show the group's status itself is construed as being part of this essence. Finally, given that psychological essentialism is the cognitive predisposition underpinning our representations of social groups, and given that

stereotypes are about social groups, I would argue that it is not stereotypes in and of themselves that naturalise social status differences between groups but rather the conceptual underpinnings of stereotypes. The research presented here illustrates how research on conceptual structure can help to shed light on stereotypes and that these two areas of investigation are complementary. This will be discussed in more detail in the next chapter.

Chapter VIII - Stereotypes: Made to Stick? Discussion and Implications

Rarely is the mind a blank slate on which a fresh stereotype can be inscribed...its surface is marked with many well-known grooves that make certain stereotypes more likely to appear

- McGarty, Yzerbyt and Spears (2002:3)

VIII.1 Summary

The study of stereotypes is one of the oldest and central subjects of investigation in social psychology. A review of the social psychology of stereotyping literature in Chapter I highlighted how stereotypes have been, broadly speaking, studied using two different approaches. It was seen that early research adopted a descriptive approach which focused on the contents of stereotypes, and how they are shaped by the social context. Later, following the cognitive revolution, the social cognition approach came to predominate. This approach focuses on the cognitive processes underpinning stereotyping, and the nature of the cognitive structure of social group concepts. Finally, it was noted that in recent years there has been a revival of interest in the contents of stereotypes, and specifically the ideological functions of stereotype contents, i.e. how stereotypes can naturalise group-based status inequalities. However, as noted in Chapter I, these approaches only offer a partial account of stereotypes and what has been missing is a conceptual framework which allows for an integrated study of both the contents of stereotypes and the cognitive processes/structures underpinning stereotyping.

In this thesis, in an attempt to fill this theoretical and empirical gap, I have argued that the 'Cognition and Culture' approach is best suited to facilitate an integration of the study of the contents of stereotypes and the cognitive processes/structures underpinning them. The Cognition and Culture approach takes as its starting point a view of the mind as comprising a set

of domain-specific cognitive competences, each of which predisposes humans to particular kinds of conceptual representations (with particular structures and contents). In order to become stabilized within a cultural population, cultural representations need to trigger or exploit these domain-specific competences. Therefore, in some domains, domain-specific competences strongly influence the contents and structure of cultural representations. Applying this approach to social group stereotypes, I argued that evolved cognitive predispositions which are a part of a domain-specific competence underpinning social group cognition, a *Folk Sociology*, may influence the contents and functions of stereotypes. More specifically, it was argued that as stereotypes fall under the domain of a *Folk Sociology*, cognitive predispositions which are a part of a *Folk Sociology* place a strong constraint on the contents and structure of representations of social groups, including stereotypes. In other words, a *Folk Sociology* provides the ‘well-known grooves’ which make certain stereotypes easier to think, communicate, and ultimately achieve cultural success i.e. to stick. Hence, the central question addressed in this thesis was ‘to what extent and in what ways do evolved cognitive predispositions shape the contents of stereotypes and facilitate the naturalization of status differences between groups?’

To provide empirical support for this theoretical framework, six experiments were conducted utilizing measures adapted from social psychology and cognitive psychology; three experiments explored how cognitive predispositions may shape the contents of social group stereotypes, and three experiments explored how cognitive predispositions may facilitate the naturalization of status differences between social groups. The first three experiments investigated whether cognitive predispositions shape the contents of social group stereotypes by adapting the *Minimal Group Paradigm* (MGP) and a research paradigm from the *Stereotype Content Model* (SCM). The MGP paradigm was originally designed to explore whether there is a cognitive component to prejudice, beyond any economic, political or historical factor (cf. Crisp, 2006). The

MGP was judged to be optimal for exploring whether cognitive factors shape stereotype content given that minimal groups represent the most basic form of social categorization, and unlike 'real world' social groups (for example, 'race', gender etc) participants did not have preconceived views about these groups prior to the experiments. The first experiment was designed to investigate whether humans have evolved a default stereotyping mode based on two dimensions found to capture social group stereotypes universally: competence and morality/warmth. The results of this experiment supported this prediction as participants rated members of their own group as being competent and moral/warm. However, experiment 1 did not allow us to shed light upon what leads to the formation of stereotypic judgments concerning the competence and morality/warmth of the out-group, given that the ratings were neutral. The SCM suggests that such an understanding comes from a consideration of the structure of inter-group relations, for example status differentials. It was argued in Chapter II that sensitivity to inter-group status differentials may also be strongly motivated by evolved cognitive predispositions which are a part of a *Folk Sociology*. The second experiment was designed to test for a default group status stereotyping mode leading people to assume that members of high status groups are competent and possibly immoral/cold, and members of low status groups are incompetent, and possibly moral/warm. Consistent with this hypothesized default group status stereotyping mode, it was found that members of both the high status and low groups rated the high status group as competent and the low status group as incompetent. Furthermore, as predicted, members of the low status group rated their low status in-group more positively than the high status out-group on both the high and low morality/warmth dimensions. Although, contrary to expectations, members of the high status group rated their in-group more positively on the high morality/warmth dimension than the low status out-group. For the low morality/warmth dimension there were no significant differences between the high status in-group and low status-out group ratings.

While the first two experiments utilised an explicit measure of stereotyping, in order to rule out the possibility that these results are due to demand characteristics or experimenter effects, a third experiment was conducted which made use of an implicit measure of stereotyping. Experiment 3 used the same experimental paradigm as experiment 2 but instead of using explicit dependent measures of stereotyping, participants completed a semantic priming task in which the two group names were used as primes. Experiment 3 replicated the main findings of experiment 2; it was found that members of both the high status and low status group were quicker at identifying traits denoting high competence and slower at identifying traits denoting low competence when primed by the high status group name as compared to the low status group name. Furthermore, it was found that members of both the high and low status groups were quicker at identifying high morality/warmth traits, and slower at identifying low morality/warmth traits when primed by their respective in-groups. These are the first experiments, to my knowledge, to provide evidence for stereotypes based on the dimensions competence and morality/warmth in minimal groups.

Social psychologists have focused on the ideological functions of the contents of stereotypes, and have neglected the potential role of cognitive structures in supporting these functions. The final three experiments explored whether the ability of stereotypes to function as ideological representations is facilitated by the recruitment of an evolved cognitive predisposition arising from the domain of a *Folk Sociology*, psychological essentialism. Experiment 4 examined the possibility that status differences trigger essentialist beliefs about social groups. This experiment adapted a paradigm utilized in Prentice and Miller's (2006) study of gender and essentialism. Participants were assigned to one of two groups ('over-estimators' or 'under-estimators') following a test that purportedly measured an unfamiliar psychological attribute: their perceptual style. After receiving predetermined feedback about their group membership, they were assigned to either the high-status role of boss or the low-status

role of subordinate for an upcoming task. Finally, they completed a measure of essentialist beliefs about their group based on the two-dimensions of essentialism found by Haslam *et al.* (2000). It was found that in the critical experimental condition where social group membership was correlated with status assignment, participants expressed stronger essentialist beliefs about group membership than in the two conditions in which status and social group membership were uncorrelated.

However if, as postulated in Chapter II, the naturalization of status differences is facilitated by the recruitment of psychological essentialism from the domain of a *Folk Sociology*, it is plausible that people also essentialise social status as an attribute of social group membership. Therefore, experiment 5 was designed to investigate whether people essentialise group status as an attribute of an essentialized social group. There were two main experimental conditions; each containing a story experiment based on a pre-existing essentialism paradigm (adoption and brain-transplant) and designed to provide evidence for different aspects of essentialism. Results from the experiment suggested that people do not hold essentialist beliefs about group-based social status. However, there was an indication from participants' qualitative responses that the experimental paradigms used were not optimal. Therefore, a final follow-up experiment was conducted utilizing two alternative paradigms to tap into essentialist beliefs: soul exchange paradigm and personality exchange paradigm. Experiment 6 found evidence for essentialist beliefs about group-based social status in the soul exchange condition. Participants believed that a member of a high status group whose soul had been exchanged with the soul of a member of a low status group would lose their high status and vice versa. These are the first experiments to investigate the causal impact of social status on essentialist beliefs, and the essentialization of group-based social status.

Overall, the empirical research reported in this thesis provides support to the theoretical framework presented in Chapter II. The research findings serve to substantiate the proposition that cognitive predispositions may well influence both the contents and functions of social group stereotypes. I shall now move onto a detailed discussion of the theoretical implications of this research.

VIII.2 Theoretical Implications

This thesis set out to fill a gap in the social psychology of stereotyping literature; to explore the potentials of the Cognition and Culture approach to serve as an overarching theoretical framework allowing us to bring together a study of the contents and functions of stereotypes and the cognitive processes/structures underpinning stereotyping. I believe I have been successful in this undertaking by demonstrating both theoretically and empirically how the Cognition and Culture approach facilitates an exploration of how cognitive predispositions which are a part of a *Folk Sociology*, may influence both the contents and functions of social group stereotypes. I shall now move onto a discussion of the theoretical implications of this thesis, both for the social psychology of stereotyping field and the Cognition and Culture approach.

VIII.2.1 The Social Psychology of Stereotyping

For social psychologists studying stereotyping, the theoretical framework and the empirical findings of this thesis provided both affirmations and challenges. Experiments 1-3 lend support to the *Stereotype Content Model*, specifically the idea that humans are sensitive to the two dimensions of competence and morality/warmth in their social judgements. Furthermore, the lack of stereotypes for the out-group in experiment 1 backs up recent social psychological research utilizing the minimal group paradigm which shows that participants form neutral attitudes towards the out-group (as opposed to negative as originally believed). These three studies also

illustrate that it is possible, and indeed worthwhile, to combine two hitherto distinct research domains in social psychology, namely research on stereotype contents and *Minimal Group Paradigm* research.

The theoretical framework articulated in Chapter II led to predictions and research findings which cannot easily be accommodated by existing social psychological theories such as SIT or SCM. SIT theorists, for example, would predict that in experiment 1 participants would attribute all the positive qualities to the in-group, and the negative qualities to the out-group. However, the ratings of the out-group were not negative but neutral. Indeed, according to social psychologists stereotypes derive their contents from the social context of inter-group relations, and cognitive processes or structures do not shape or influence such contents but merely process or represent them. This is a result of, as discussed in Chapter II, the fact that much social psychology rests upon the assumption that the human mind is domain-general and composed of content-free faculties. While not denying that the social context plays an important role in shaping stereotype contents, I have shown in experiments 1-3 that there is also a potential role for evolved cognitive predispositions which are a part of a *Folk Sociology* in shaping such contents. The very fact that people form, albeit rudimentary, stereotypes in minimal groups would seem to be counter-intuitive to social psychologists who suggest that the contents of stereotypes are derived wholly from the immediate social context. According to the SCM the contents of stereotypes are derived from the structure of inter-group relations. It is conventional in the social sciences to locate social status as being external to mental representations - in social structures and discourses. And whilst not denying that it does exist there, I have proposed that humans may have evolved a cognitive predisposition sensitive to inter-group status differences. This proposition is supported by the fact that in experiments 2 and 3 competence based stereotypes were elicited in minimal status groups. These are the first studies to find evidence for the formation of stereotypes at both an explicit and implicit level in minimal

groups varying in status. This research suggests that cognitive and structural factors may act in concert to shape the contents of stereotypes.

The findings of these experiments also have important implications for understanding the maintenance and justification of status hierarchies. They suggest that one might gain an understanding of the formation and stability of such hierarchies in the absence of the endorsement of specific ideologies (system justification, social dominance orientation). More specifically, it appears as though the mere existence of groups varying in status itself has effects such as default stereotyping of high status groups as competent and low status groups as incompetent which would help to sustain and justify the hierarchy and unequal relations. However, default group status stereotyping would almost certainly be bolstered by hierarchy-enhancing ideologies. Therefore, future research could explore whether such default stereotyping is stronger amongst those high in social dominance orientation or system justifying motives.

The SCM research focuses almost wholly on stereotypes of out-groups. In relation to the in-group it is claimed that due to in-group favouritism people may perceive their in-group to be high in both competence and warmth. In two studies they explicitly included in-group ratings and found that participants rated their in-groups (e.g., Americans, students, middle-class and Whites) as highly competent and highly warm (Cuddy *et al.*, 2007, Study 1; Fiske *et al.*, 2002, Study 2). However, these groups were all high-status groups and the results may be due to the status of the groups rather than in-group favouritism per se. So far, to my knowledge, there has been no investigation of ratings of other in-groups (e.g., women, men, Hispanics, Asians and Blacks). Experiment 1 explicitly investigated the ratings of in-group vs. out-groups on these two dimensions and found that in-groups are rated high in competence and morality/warmth. While out-groups were rated neutral on the competence dimensions and the morality/warmth dimensions. In experiment 2 it was found that while members of the high status group and low status group rated the high status group as being

highly competent, only members of the high status group rated the low status group as being highly incompetent. Members of the low status group rated their in-group as relatively high to neutral on the competence dimensions. Furthermore, in Experiment 3 members of the low status group were slower at associating their in-group prime with low competence traits compared to the neutral prime. These findings highlight the importance of considering whether the effects of structural factors such as status differences on stereotype contents are moderated by group membership.

SCM researchers, thus far, have only used explicit measures (i.e. ratings of groups on a list of traits). The findings of experiment 3 demonstrate how stereotypes based on the dimensions of competence and morality/warmth can also be elicited using an implicit measure. The semantic priming task used in experiment 3 could easily be adapted to explore whether the stereotypes found in SCM research can be replicated using implicit measures. As noted in Chapter 1, social psychologists are increasingly making use of implicit measures to overcome biases arising from political correctness or indeed demand characteristics. While the results of experiments 2 and 3 were highly similar there was one notable difference. More specifically, in experiment 2 for members of the high status group there was no difference in the mean ratings for the high status in-group compared to the low status out-group on the low morality/warmth dimension. However, in experiment 3 a significant difference was found and members of the high status group did not associate their high status in-group prime with low morality/warmth traits compared to the low status out-group prime and the neutral prime. Therefore, it would be interesting and fruitful for future research to investigate whether or not explicit and implicit measures produce similar results for 'real world' social groups.

I shall now move onto addressing the implications of the second part of the empirical investigation in the thesis, namely, to what extent do evolved cognitive predispositions facilitate the ability of stereotypes to naturalise social status differences between groups. It was seen in Chapter 1 that

social psychologists have argued that stereotypes can serve ideological functions. More specifically, they can justify and naturalise social status differences between groups (Jost and Banaji, 1994). It was also noted that the three approaches put forward to account for how stereotypes may serve ideological functions are based on a study of individual differences, and therefore can only explain why such stereotypes are more likely to be endorsed by some people more than others. Furthermore, these approaches focus on the ideological functions of stereotype contents and have ignored the potential role of cognitive structures.

An analysis of the process of social categorization is fundamental to a study of stereotyping given that we cannot form impressions of groups unless we can categorize people into one group or another. However, extant social psychological theories of category representation do not provide an adequate account of the process of social categorization as they, like most social scientific theories, assume that human cognitive abilities are domain-general. Cognition and Culture scholars have argued that a domain-specific competence, a *Folk Sociology*, underpins social categorization and our social group concepts are grounded in a folk theory of category representation, psychological essentialism. In Chapter II, by drawing on the Cognition and Culture approach, I suggested that the ability of stereotypes to function as ideological representations may be facilitated by the recruitment of an evolved heuristic, namely, psychological essentialism. In social scientific accounts essentialism is described as external to mental representations, and conceived of as a by-product of philosophical and cultural traditions. In contrast, Cognition and Culture scholars have argued that essentialism is an evolved cognitive predisposition which underpins social categorization and thereby stereotyping.

The rationale for exploring how research on category representation can shed light upon the study of stereotypes was quite straightforward. Stereotypes are based or rely upon categories, and in particular they rely on categories of people. As noted in Chapter II, perhaps the clearest

articulation of the link between essentialism and stereotyping is provided by Susan Gelman and is worth reiterating here:

Essentialism seems to motivate and underlie stereotyping. To put it bluntly, stereotyping borrows the language and conceptual framework of essentializing. Different groups of people are treated in distinct, non-obvious ways, and social group differences are assumed to be innately determined and fixed. To the extent that people buy into this way of thinking they will have a basis for treating social group differences as central to an individual's identity, for drawing inferences about an individual based on the group to which the individual belongs. The stereotyping individual treats social groups as natural kinds (2003: 13-14).

Hence, my argument was that rather than viewing stereotypes, in and of themselves, as naturalising social status differences, we should consider that such naturalization occurs as a result of the essentialist nature of social group category representations.

Two potential ways in which psychological essentialism may facilitate the naturalization of status differences between groups was explored. Firstly, given that psychological essentialism is triggered by the salience of social categories within a cultural context (Hirschfeld, 2001), and given the proposed evolved sensitivity to social status (see Chapter II), it is possible that social status differences increase the salience of a social group and thereby trigger essentialist beliefs about associated social groups. In other words, we essentialize membership in social groups which vary in social standing (for e.g. 'racial' groups). On this view, the social status of the group is external to the essentialist representation of the group. This proposition was supported by the findings of experiment 4 in which it was found that participants were more likely to essentialize a social group when the groups varied in social status. Secondly, it was argued that the social status of a social group might be essentialized by proxy - it could be construed as an *attribute* of an essentialized social group. Psychological essentialism

as a theory of category representation leads us to assume a causal relationship between membership in a social group (i.e. its essence) and the various attributes (both perceptual and behavioural) of group members. It is important to point out that the argument was not that social status itself is essentialized but rather that the social status of a group is conceived of as an *attribute* of a social group which is causally linked to the group essence. In the same way that skin colour may be essentialized as an attribute of racial groups. The results of experiment 6 supported this proposition as it was found that people assume the essence of a group resides within the soul of members of a social group, and social status was essentialized as an attribute of the group. Hence, aside from studying the contents of social categories and the processing of information about such contents, social psychologists could gain further insights into stereotyping by examining beliefs about the conceptual structure of the categories themselves. By studying evolved cognitive predispositions social psychologists might be able to explain why stereotypes which help to naturalise social status differences between groups prove to be so “sticky”.

Overall, the most important implications of the present work for the social psychology of stereotyping is that it challenges the extant and often implicit conception of the nature of the human mind more generally, and the nature of social cognition more specifically. Cognition and Culture scholars argue that not all concepts are equal, and that their contents and structure varies in important ways across distinct domains (Hirschfeld and Gelman, 1994). The Cognition and Culture approach allows for an integration of the study of cognitive processes/structures and contents as this approach, unlike the social cognition approach, makes claims about universality of cognitive processes/structures and contents across cultures.

However, while Cognition and Culture scholars highlight how domain-specific competences may result in the universality of cognitive contents across cultures, such contents tend to be quite generic, and often pertain to structural contents. The Cognition and Culture approach can gain useful

insights about more specific contents from social psychological research. For instance, in the context of the present work the *Stereotype Content Model* provided invaluable insights into universal dimensions upon which stereotypes of social group are based. By integrating theoretical and empirical insights from the social psychology of stereotyping and the Cognition and Culture approach this thesis illustrates that these approaches are not necessarily mutually exclusive, but can be seen as complementary.

VIII.2.2 The Cognition and Culture Approach

For Cognition and Culture scholars the theoretical framework and empirical findings of this thesis provided affirmations, but they also raised questions regarding the nature of the cognitive structures underpinning social cognition. The results of experiments 1-3 contribute to a debate concerning the independence of a domain-specific competence underpinning group-based social cognition, a *Folk Sociology* (FS), from a domain-specific competence underpinning human representations of the mental states of individuals, a *Theory of Mind* (ToM). Before considering the implications of the findings of experiments 1-3, a brief review of the evidence supporting a ToM and a FS will be presented.

If you see a person looking up at the sky and taking out their umbrella from their bag you are likely to interpret the person as an intentional agent who believes that it is going to rain and who wants to avoid getting wet. Cognition and Culture scholars have argued that our capacity to understand such behaviour relies on our having a “theory” about the minds of others, and this capacity is governed by a domain-specific competence namely a *Theory of Mind* (ToM). Formally, a ToM refers to the capacity to interpret, predict and explain the behaviour of others in terms of their underlying mental states (e.g. beliefs, desires, intentions, emotions, etc.) (Leslie, 1994). It has been argued that ToM capacities are responsible for key social skills including intentional communication, persuading/deceiving others, developing shared goals, and the development of cultural representations

(Baron-Cohen, 1995; Tomasello, 2008). There is evidence to support a ToM from several lines of empirical research; developmental, cross-cultural and neurobiological.

A ToM has often been thought to require its owner to have acquired the concept of a false belief. In the example above, someone might reason that the person took out their umbrella because it was going to rain even if this person's belief was false and it does not actually rain. Subsequently, much ToM research has focused on a single task paradigm examining children's understanding of false beliefs. The standard version of the false belief task presents the child with a character, Sally, who leaves a bar of chocolate in her basket before leaving the room. During her absence, another character, Anne, enters the room and removes the chocolate bar from the basket and places it in a box. Children are asked to predict where Sally will look for the chocolate bar when she returns to the room. There is considerable evidence that four-year olds tend to succeed at this task -, saying she will look for the chocolate in the basket, correctly attributing a false belief to Sally - while younger children tend to fail (saying she will look in the box) (Wimmer and Perner, 1983; Baron-Cohen, Leslie and Frith, 1986; Avis and Harris, 1992; Baron-Cohen, 1999). Some researchers have used the fact that 3 year-olds fail false belief tests while 4 year-olds pass, to support the view that at four years of age a fundamental shift takes place in children's understanding of others' behaviour; more specifically a shift from a non-representational to a representational theory of mind. However, other researchers have suggested that a representational theory of mind is present much earlier and younger children's failure in passing the false belief test is the result of excessive linguistic and other task demands (Leslie, 1987; Chandler, Fritz and Hala, 1989; Fodor, 1992). Indeed, there is evidence that 3 year olds and even some 2-year olds succeed at non-verbal false belief tests (Clements and Perner, 1994; Garnham and Ruffman, 2001, Onishi and Baillargeon, 2005).

In recent years there has been much criticism of the false belief task as a litmus test for a ToM (see Bloom and German, 2000; Dennett, 1979). There is a significant body of research showing that children younger than 3 years of age demonstrate an ability to understand the knowledge, goals and intentions of others even though they fail tests of false belief (see Call and Tomasello, 2008 for a review). Consequently, many researchers increasingly subscribe to a broader definition of a ToM that encompasses a wider range of mental states (perception, intention, emotion, etc) (for a review see Flavell, 1999; Tager-Flusberg, 2001).

There also appears to be evidence for a developmental program governing the elaboration of ToM capacities. Tomasello, Carpenter, Call, Behne and Moll (2005) have suggested the following developmental sequence: 3 month old infants are able to engage in dyadic relations (child-other); they understand intentional action as animate and can take part in protoconversations (mutual gaze, turn taking in smiling). By 9 months infants engage in triadic relations (child-other-object); they understand intentional action as goal-directed and they can share goals and perception. By 14 months infants can take part in collaborative relations (child-other-shared goal); they understand intentional action as intentional and they can share intentions.

There is evidence to suggest that the development of ToM skills in young children may be universal. Cross-cultural research using a verbal false belief task indicates that ToM skills are present in children by the age of five across different cultural settings (Callaghan, Rochat, Lillard, Claux, Odden, Itakura, Tapanya and Singh 2005). Sabbagh, Xu, Carlson, Moses and Lee (2006) found that Chinese and American children are the same age when they pass the false belief task (age 4). Avis and Harris (1992) conducted a study of ToM skills among 2-6 year old children of the Baka, a preliterate hunter-gatherer people of South-East Cameroon. Using a culturally sensitive version of the false belief test they found that by the age of 4-5 years Baka children were able to understand false beliefs.

However, there is some evidence for cross-cultural differences in the use of ToM. Wu and Keysar (2007) for instance found that participants from China were far more likely to take the perspective of another person than participants from the United States who were far more ego-centric in their approach to a communication game. They concluded that there are no differences across cultures in ToM capacities, however culture influences people's tendency or motivation to adopt the perspective of the other. It has also been argued that ego-centricism in communication is a cognitive default and the use of ToM is failure-driven (Franks, 2011; Franks and Dhesi, 2011).

In recent years, cognitive neurologists and neuroscientists have begun to explore the neural bases of ToM skills (see Siegal and Varley, 2002, for a review). Several functional imaging studies using multi-modal and diverse cognitive paradigms indicate that ToM abilities appears to be mediated by a specific region of the brain, namely, the anterior paracingulate cortex (McCabe, Houser, Ryan, Smith and Trouard 2001; Gallagher, Jack, Roepstorff and Frith, 2002, Gallagher and Frith, 2003). Further evidence to support the view that a ToM is a domain-specific cognitive competence comes from studies of autism (Gallagher and Frith, 2003). Autism is a neuro-cognitive developmental disorder characterized by impairment in social and communicative functioning that affects roughly 1/250 individuals (Gillberg and Wing, 1999). It has been argued that selective impairment of a ToM is a core cognitive feature of autism spectrum disorders (Baron-Cohen, 2001). Many children with autism fail to pass false belief tests, even though children with Down's syndrome of an equivalent mental age pass these tests (Baron-Cohen, Leslie and Frith, 1985). A large number of studies have demonstrated that children with autism not only have difficulties in understanding false beliefs but also understanding knowledge (Baron-Cohen, Leslie and Frith, 1986; Leekam and Perner, 1989; Reed and Peterson, 1990; Swettenham, 1996; Swettenham, Baron-Cohen, Gomez and Walsh (1996); complex emotions (Baron-Cohen, 1991; Baron-Cohen, Spitz and Cross, 1993); an inability to use gaze direction as indicative of what

other people might want or are referring to (Baron-Cohen and Cross, 1992; Hobson, 1984).

There is considerable debate within the literature concerning the extent to which a ToM is a uniquely human cognitive capacity or whether it is present in other non-human primates. The majority of studies of non-human primates suggest chimpanzees may possess low level ToM skills for example, they appear to understand that visual gaze is an indicator of mental focus, but these skills appear to be restricted to competitive (as opposed to collaborative) situations (see Tomasello, Call and Hare, 2003 for a review). Furthermore, there is disagreement regarding the nature of the adaptive mechanisms responsible for a ToM. Some have argued strongly that a ToM is a domain-specific and modular cognitive competence (Fodor, 1992; Leslie and Thaiss, 1992; Baron-Cohen, 1996). While others have argued that a ToM is underpinned by two general purpose adaptations; (i) understanding intentional action as goal directed (shared by human and non-human primates) and (ii) a motivation and ability to share mental states (distinctly human) (Tomasello et al., 2005).

Hirschfeld (2001) has argued that aside from a *Theory of Mind*, humans have evolved a cognitive competence which governs group-based social cognition i.e. our capacity categorize humans into groups and to explain human behaviour by reference to membership in a group. This proposition is fairly non-controversial as most social psychologists would accept that group-based reasoning is a universal cognitive ability. However, Hirschfeld (2001) makes the stronger claim that humans have evolved a domain-specific cognitive competence, a *Folk Sociology*, which governs the development of group-based reasoning i.e. our ability to represent, acquire and communicate about human social groupings (see Chapter II).

There is evidence for the existence of a *Folk Sociology* from several lines of research. A surprisingly small number of social taxonomies appear to predominate in all cultures and across all historical periods: sex/gender,

age, kinship, language spoken, and race/ethnicity (Hirschfeld, 2001). Furthermore, Hirschfeld (2001) notes that these social taxonomies appear to be linked to a singular mode of reasoning; psychological essentialism. There is support from experimental studies for essentialist beliefs about social groups across cultures, including caste groups (Mahalingham, 2001) gender (Taylor, 1996; Prentice and Miller, 2006), kinship (Hirschfeld, 1986), 'race' (Hirschfeld, 1996) and ethnicity (Gil-White, 2001, McIntosh, 2005).

There is evidence for the early development of *Folk Sociology* capacities in infants and young children. Developmental research suggests that human infants are capable of categorizing humans into social groups. Three month olds have been found to prefer their own race to other race faces (Kelly, Quinn, Slater, Leek, Gibson, Smith, Ge and Pascalis, 2005). Six month olds distinguish their mother's native language when spoke in a foreign accent from mother's native language not spoke in a foreign accent (Kinzler, Dupoux and Spelke, 2007). Two year old children are capable of distinguishing people by gender and kinship status (Katz, 1983; Hirschfeld, 1989). Three year old children are able to grasp the constancy of gender (Taylor and Gelman, 1998) and racial categories (Hirschfeld, 1996) contrary to conventional wisdom (Aboud, 1988; Semaj, 1980). Three year olds attend to verbal (culturally rich) input over visual information even for perceptually marked groups such as 'race' (Hirschfeld, 1995). Three year olds predict that some groups (based on race) predict language differences, whereas others do not (based on age) (Hirschfeld and Gelman, 1997). Four year olds have been found to express negative attitudes and stereotypes towards racial out-groups (Aboud, 1988; Hirschfeld, 1998; Bigler and Liben, 2006). Finally, there is also evidence suggesting that even young children essentialize groups such as 'race', gender and ethnicity (Hirschfeld, 1996; Taylor, 1996).

Another line of research which supports the proposal of a *Folk Sociology* is research on implicit or automatic prejudice and stereotyping (Hirschfeld, 2001). There is evidence that stereotypes of various social groups (e.g. age,

sex, race) can be automatically or unconsciously activated (Devine, 1989; Perdue and Gurtman, 1990; Pratto and Bargh, 1991; Macrae, Bodenhausen, Milne and Jetten, 1994). Recent research on the development of implicit attitudes in children has shown that an implicit racial in-group bias emerges early in White American children (age 6), and remains stable into adulthood (Baron and Banaji, 2006). Dunham, Baron and Banaji (2006) examined 6 year old White American children's implicit and explicit 'race' attitudes toward their own group, compared with two out-groups: Black Americans and Japanese. Six year olds were found to show an implicit preference for White over Black and Japanese. Similar findings of in-group bias have been found among samples of children belonging to majority groups in the UK and Japan (Rutland, Cameron, Milne and McGeorge, 2005; Dunham *et al.*, 2006). Put together, this research suggests that very young children possess adult-like attitudes about social groups at a very early age and this strongly challenges the protracted domain-general social learning models prevalent within the social sciences (Dunham, Baron and Banaji, 2008).

In recent years cognitive neuroscientists have begun to explore the neural bases of stereotyping and prejudice. Although this research is in its early stages it has been found that racial stereotypes activate unique patterns of neural activation (Phelps, O'Connor, Cunningham, Funayama, Gatenby and Gore, 2000; Hart, Whalen, Shin, McInerney, Fischer and Rauch, 2000; Wheeler and Fiske, 2005; Eberhardt, 2005). For example, Phelps *et al.* (2000) were the first to link the amygdala to implicit attitudes about 'race'. They used fMRI to measure blood-oxygen dependent (BOLD) responses in White American participants while they were viewing faces of unfamiliar Black and White males. They also assessed the participants' implicit attitudes about 'race'. They found that the magnitude of the amygdala response when participants viewed Black as opposed to White faces was significantly correlated with measures of participants' implicit race-related attitudes. Cunningham, Johnson, Raye, Gattenby, Gore and Banaji (2004) replicated these findings in a study in which the faces of

Whites and Blacks were presented to the participants subliminally. In another study, Wheeler and Fiske (2005) found a heightened amygdala response to Black (compared to White) faces when participants were given a social categorization task; to judge whether the person was older or younger than 21 years of age but such a response disappeared when attention was directed away from the social category and participants were given an individuation task; whether the person pictured liked a certain vegetable.

As the review above suggests there is considerable evidence to support the existence of a *Theory of Mind* which governs our capacity to explain the behaviour of others in terms of their mental states. Within the social sciences there is a widespread assumption that group-based reasoning is governed by the same cognitive processes and mechanisms that governs person perception (Crawford, Sherman and Hamilton, 2002; Sherman and Hamilton, 1996). However, Hirschfeld (2001) has argued that we may have evolved a *Folk Sociology* which governs our capacity to explain the behaviour of others in terms of their group membership. There is also evidence supporting this proposition as seen above. There is empirical support for the independence of a *Theory of Mind* and a *Folk Sociology* from recent neuro-cognitive research.

In a study of brain localisations of social concepts, Sanders, McClure and Zárate (2004) found that the left cerebral hemisphere was more heavily implicated in processing social group information, whilst the right hemisphere was heavily implicated in processing information about individuals. Evidence for the selective impairment in a *Theory of Mind* but not in a *Folk Sociology* would provide strong support for the independence of group-based reasoning from reasoning about individual mental states. Indeed, there is evidence of such selective impairments in studies of people with neuro-cognitive disorders. For example, research has shown that although individuals with autism have difficulty recognizing emotional mental states when shown pictures of people's faces expressing various

emotions, they had no trouble discerning the social categories to which these individuals belonged (such as gender or age) (Baron-Cohen, Wheelwright and Jolliffe, 1997). Another study found that adults suffering from Aspergers Syndrome who had significantly impaired *Theory of Mind* skills, were not impaired in attributing stereotypes to photographs of individuals (White, Hill, Winston and Frith, 2006). In a study of children suffering from autism it was found that six year old autistic children who failed false belief tests, despite being severely impaired in their capacity to interpret and predict others' actions in terms of mental states, held gender and racial stereotypes and used these stereotypes to predict other people's behaviour (Hirschfeld, Bartmess, White and Frith, 2007). These findings are consistent with the view that group-based reasoning is subserved by a distinct domain-specific competence i.e. a *Folk Sociology*, and that this is independent of a cognitive competence for reasoning about the mental states of individuals i.e. a *Theory of Mind*.

The theoretical framework developed within this thesis aimed to provide evidence to support the claim that cognitive predispositions arising from a *Folk Sociology* shape the contents of social group stereotypes. This claim was supported by the findings of experiments 1-3. These experiments provided evidence for the default stereotyping of minimal groups along the dimensions of competence and morality/warmth. Social psychological theories are (implicitly or explicitly) based on an assumption that human cognitive capacities are domain-general. Furthermore, they assume that the same cognitive processes and structures underpin our representations of and reasoning about physical objects, individuals and social groups. In contrast, the Cognition and Culture approach provides a domain-specific account of the cognitive processes and structures underpinning group-based reasoning. These findings lend further empirical support to this domain-specific view and to the existence of a *Folk Sociology*. As discussed in the previous section, these findings could neither be predicted nor explained by drawing on social psychological theories of stereotyping which assume that the contents of stereotypes are derived wholly from the social

context. Furthermore, these findings contribute to the debate about the independence of a *Folk Sociology* which governs reasoning about groups *qua* groups from a *Theory of Mind* which governs reasoning about individuals *qua* individuals. In each of these experiments (1-3) participants inferred the traits of individuals based on their membership in a group. In experiment 1, participants assumed that all members of their in-group were highly competent and moral/warm. In experiment 2 participants stereotyped all members of a high status group as being highly competent i.e. intelligent, motivated, confident etc, while all members of the low status group were stereotyped as being highly incompetent i.e. stupid, lazy, etc. Experiment 3 provided even stronger support for such stereotyping by utilizing an implicit or unconscious measure of stereotyping. These findings are consonant with Hirschfeld's (2001) claim that group-based reasoning (Folk Sociology) is independent of reasoning about individuals (Theory of Mind). Indeed, the very advantage (or disadvantage) of stereotypes is that they act as heuristics and enable us to assume that all members of a particular group share various traits, beliefs, etc and we are not required to consider them as individuals in their own right. Stereotypes lead us to assume that a specific social group member is essentially identical to other members of the group, and the group as a whole is thus perceived and treated as being homogeneous. As Hilton and von Hippel (1996) point out, although heuristics such as stereotyping involves "information loss" through failure to recognize the individuality of each group member, stereotyping also provides "information gain" through ascribing group characteristics to individual members. Hence, once an individual is categorized as a group member the observer can assume that person possesses many features characteristics of group members, even in the absence of empirical evidence about that particular individual. As Allport (1954: 21) aptly noted "If I can lump thirteen million of my fellow citizens under a simple formula 'Negroes are stupid, dirty, and inferior' I simplify my life enormously".

The present work also raises other questions about the nature of the cognitive structures underpinning social relations. The sociologist Max Weber (1922) distinguished between systems of horizontal segregation, for instance ethnicity, and systems of vertical segregation such as 'caste'. He elaborates this distinction as follows:

The difference is that the horizontal relationships of ethnic groups, which leads to mutual repulsion and contempt, permit each ethnic community to consider its own status as the highest, whereas a caste system brings with it a hierarchy of subordination and a recognition of the 'higher status' conferred on the privileged castes (Weber, 1922/1978: 51).

It was argued in Chapter II that the domain of a *Folk Sociology* could be expanded to include a social status detector. Dunham, Baron and Banaji (2008) have similarly proposed a broadening of a *Folk Sociology*'s domain to include the detection of hierarchical relations between social groups. An extensive review of existing developmental, cross-cultural and primate research presented in Chapter II supported this possibility. The experiments reported in this thesis also supported the view that humans are sensitive to inter-group social status differentials. For example, in experiments 2 and 3 participants formed stereotypes about minimal status groups. These findings suggest that there is a cognitive component to group status stereotypes, aside from social, economic and political components. It was argued in Chapter II that the proper domain of the proposed status detector would be hierarchical social relations, triggered by any reliable cues of differential ability to acquire resources whether that be via dominance (as seen in non-human primate hierarchies) or social status (as found in human social hierarchies).

It was also noted in Chapter II that in our closest primate relatives, while there is plenty of evidence for intra-group hierarchies there is little evidence of the type of inter-group social hierarchies found in many human societies (such as racial hierarchies) (Cummins, 2005). However, as Sidanius

and Pratto (1999) point out almost all modern human societies contain group-based social hierarchies. They argue that a group-based social hierarchy is something quite distinct from an individual-based social hierarchy. In an individual-based social hierarchy, individuals enjoy great power, prestige or wealth by virtue of their own highly valued characteristics such as athletic ability, high intelligence, or artistic, political or scientific talent or achievement. Group-based social hierarchy on the other hand refers to the social power, prestige and privilege that an individual possesses in virtue of his or her ascribed membership in a particularly socially constructed group such as race, religion, clan, tribe, lineage, ethnic group, or social class (Sidanius and Pratto, 1999).

As highlighted in Chapter II, there is a general consensus in the anthropological and evolutionary psychology literature that prior to the Neolithic few (if any) members of the species *Homo Sapiens* would have lived in societies large-scale and complex to support institutionalized social hierarchies (Boehm, 1993). Nonetheless, it has been argued that rank differentials existed in simple hunter-gather societies and social rank was associated with differences in reproductive success (Buss, 1994). Hence, given that hierarchies among non-human primates and amongst humans in the Pleistocene are usually intra-group hierarchies, I suggested that proper domain for the proposed status detector is intra-group hierarchical relations. The actual domain also includes inter-group hierarchical relations. The cultural domain includes inter-group hierarchical relations such as caste, or 'racial' hierarchies.

However, there is another possibility that needs to be considered which is that perhaps there is more than a single cognitive competence underlying the representation of social groups. It is possible that the representation of social groups may be the by-product of two distinct cognitive competences, one which evolved to represent horizontal forms of segregation i.e. social groups; a *Folk Sociology*, and the second for representing vertical forms of segregation i.e. social hierarchies; tentatively labelled a *Folk Politics*.

Boyer (2001) has suggested that different inferential processes may be activated in the interpretation of a single input. Following this, Cosmides, Tooby and Kurzban (2003) posited that different folk beliefs about 'race' may be generated by different inferential machinery. Hence, in contexts where the concept 'race' represents a system of horizontal segregation it may be underpinned by a *Folk Sociology*, while in contexts where 'race' represents a system of vertical segregation it may be underpinned by both a *Folk Sociology* and a *Folk Politics*. Such a combination of core cognitive competences is supported by Spelke and Kinzler's (2007) account of the development of human cognition. Indeed even Hirschfeld (1994) has suggested that although he has argued there is a single cognitive competence for the social domain, there may be several such competences for different aspects of this domain. While a *Folk Politics* appears to be a plausible candidate for an evolved domain-specific competence, empirical tests need to be carried in order to uncover whether the human mind discriminates between vertical and horizontal systems of segregation.

Another issue that needs to be considered is the fact that a single model of essentialism may not suffice. The results of experiment 4 supported Haslam *et al.*'s (2000) findings that essentialism may not be unitary but based on two independent dimensions: naturalness and entitativity. Furthermore, it was found that social status triggers beliefs about the naturalness of social groups but not their entitativity. Therefore, future research needs to explore what triggers beliefs in the entitativity of social groups. Research on entitativity has a long history in social psychology as domain of study in its own right and another possibility is that it is not a dimension of essentialism after-all. Barrett (2001) has argued while it may be true that people essentialise everything from tigers to ethnic groups the term "essentialism" may be too broad to explain the subtleties of representation and inference which characterize these different cases. Barrett argued that there may be functionally incompatible modes of essentialist thinking for different kinds (and as suggested above even the same 'kinds'). Furthermore, Gelman and Hirschfeld (1999) also concede it

is not known if each instance represents the same notion of essence as phenomena which appears quite similar might represent wholly distinct conceptualizations.

VIII.3 Limitations and Future Research

Despite support for the theoretical framework developed, the empirical and theoretical work in this thesis are not without limitations.

I shall begin by considering some of the methodological limitations of the research. The use of Internet-based methods allowed for an efficient large-scale recruitment of participants. This method also helped to minimise the impact of experimenter effects. Previous studies have shown that the pairing of experimenter gender and participant gender can influence participant response. Such studies have manipulated both participant and experimenter gender and demonstrated effects involving pain (Levine and Simone, 1991) exertion (Boutcher, Fleischer-Curtain and Gines, 1988), sex-role attitudes (Galla, Frisore, Jeffrey and Gaer, 1981), and competence (Etaugh, Houtler and Ptasnik, 1988). Men have evolved preference for healthy, fertile mates, which are related to perceptions of female attractiveness, and signal a woman's reproductive value, while females have evolved a preference for high status males (Miller, 2001). Hence, in the context of the experiments described above, given that the experimenter is a young, attractive female, in an attempt to impress the experimenter male participants may explicitly or implicitly reject assignment to the low status group. This may result in the failure of the status manipulation which is the key independent variable in some of experiments in this thesis. Therefore, it is important to control this potential source of bias, and this is one of the advantages of the fact that all but one of the experiments (which needed to be conducted in a laboratory as a requirement of the experiment paradigm used) were

conducted via the Internet, and participants were informed of their status assignment via a computer screen.

Nonetheless, it is acknowledged that internet experiments have their drawbacks. For instance, they do not provide a consistent setting like a laboratory. Furthermore, there is the issue of invariable screen-size and viewing distance which are problematic for experiment 3 which was reliant on the perceptual measure of a semantic priming task. Assuming that the less stringent controls possible in this research did not produce any systematic biases, any remaining variables that could not be controlled for must be treated as random errors in the interpretation of the experiment results. The use of Internet experiments may have influenced the demographics of the samples, although this problem has decreased over the past few years. In an attempt to reduce any response biases in experiments 1, 2, 3, 5 and 6 participants were offered prize draw entries to win Amazon vouchers, while students in experiment 4 participated in exchange for course credits. Nonetheless, it is possible that some self-selection biases and responses biases remained. Although, given that the purpose of experimental research is to compare across experimental conditions, random assignment to experimental conditions renders some non-random biases somewhat less challenging than other research methods. Nevertheless, it is important to recognise that, as with most experimental studies, caution must be used in assessing the generalisability and ecological validity of the results obtained in the present research.

The participants which took part in the research were mostly Western, English native speakers. There is an opportunity for future research to broaden the diversity of participants. The experiments here could easily be adapted for use in other cultures, and in other languages. I would predict that these results would, broadly speaking, be replicated in such research. However, I would also expect some differences across cultures. There is some indication from previous research that people living in collectivist cultures show a greater sensitivity to cues of morality/warmth, while

people living in individualistic cultures show a greater sensitivity to cues of competence (Wojcizke, 1997). Research on the concept of 'face' (public image maintenance) in cross-cultural psychology also points to some potential cultural differences. Mao (1994) notes that in Chinese two Chinese characters are used to convey the meaning of the word 'face'; *miàanzi* and *liǎn*. *Miàanzi* stands for prestige and reputation earned via achievements, and *liǎn* refers to the respect of a group for someone with a good moral reputation. *Miàanzi* appears to map onto the competence dimension, while *liǎn* maps on the morality/warmth dimension. Mao (1994) argues that in the West we tend to focus solely on *miàanzi* and neglect *liǎn*. According to Ho (1975), in China to lose *liǎn* is considered far more serious than to lose *miàanzi*. Therefore, it is important for future research to explore how culture may influence/change the default stereotypes found in the current research. Furthermore, in this research the focus, as in the *Stereotype Content Model* research, has been on generic traits for competence and morality/warmth. However, often the contents of stereotypes are more specific, groups are perceived to be competent in particular domains. For instance, Asians are assumed to be highly competent in mathematics, while African Americans are assumed to be highly competent in athletics. While a study of evolved cognitive predispositions can inform us which dimensions stereotypes are based upon, and that we are sensitive to, we still need to consider the economic, social and political factors which result in the more specific stereotypes that people form in any particular social or cultural context about any specific social group.

From its beginning, social psychological research has defined the contents of stereotypes in terms of traits. In the three experiments conducted to explore the impact of evolved cognitive predispositions on the contents of social group stereotypes (Chapters III, IV, and V), stereotypes were assessed in relation to traits denoting competence and morality/warmth. However, this focus on traits has been criticised as failing to adequately capture stereotype content. As Hamilton, Gibbons, Stroessner and Sherman (1992:

103) point out stereotypes “also include mental representations of specific instances of experiences with group members as well as of other general, non-trait features, such as physical features, occupation and socio-economic characteristics, and likely behaviour patterns.” While accepting this highlights a limitation of the research reported in this thesis, the reason the present research focused on traits was in order to highlight how evolved cognitive predispositions shape stereotype contents. As yet, the only aspect of stereotypes which social psychologists have found to be universally invariant are traits based on the competence and morality/warmth dimensions. Future research in social psychology needs to investigate whether other aspects of stereotype content are similarly universal. Based on the Cognition and Culture perspective, I would predict that humans across cultures are likely to have evolved a sensitivity to features and behaviours of group members which signal competence and morality/warmth and social status.

The focus in this thesis has been on the cognitive aspects of stereotypes, and therefore it neglects the emotional components of stereotypes. There is significant evidence to support the view that human mental representations are not merely descriptive, but are intertwined with emotions (see Clore and Huntsinger, 2008; Wilson, 2002). Indeed, Fiske and colleagues have expanded the *Stereotype Content Model* to focus on how structural factors and stereotype contents predict emotional prejudice towards specific groups. For example, high warmth and high competence stereotypes elicit admiration, while high warmth and low competence elicit pity (Cuddy *et al.*, 2007). Future research needs to investigate the emotional components of stereotypes. There is a potential role for an evolutionary perspective in understanding the emotional aspects of stereotypes. For example, Keltner, Haidt and Shiota (2006) have argued that many emotions have specific adaptive functions. In relation to group relations, they have argued that emotions such as gratitude and guilt help to support reciprocal altruism, while emotions such as pride and shame help to support dominance or status hierarchies. It is highly plausible that

humans may have evolved default emotional responses to social groups. This could be investigated by adapting the experimental paradigm used in experiments 1-3.

Stereotypes are primarily of interest to social psychologists because they are shared. Social psychologists would argue that such sharing results from a shared common environment. Although, it has not been the focus of the present research the theoretical framework developed in this thesis could be used to study how these cognitive predispositions influence the communicability and cultural transmission of social group stereotypes. According to the Cognition and Culture approach both ecological and psychological factors need to be taken into account in order to explain the cultural success of cultural representations. One of the key psychological factors are domain-specific cognitive competences which predispose humans to particular kinds of conceptual representations. Furthermore, cultural representations in order to become stabilized rely on and exploit these domain-specific competences. Therefore, Cognition and Culture scholars argue that cultural transmission is biased toward information which falls under the domain of a domain-specific competence.

In Chapter II it was argued that humans may have evolved a sensitivity to traits denoting competence and morality/warmth as a result of a *Folk Sociology*. If this is the case then stereotypes based on these two dimensions should enjoy a selective advantage in cultural transmission over stereotypes not based on these dimensions. It was also argued that humans may have evolved a sensitivity to cues of social status. It is plausible that stereotypes about groups varying in social status would have a higher selective advantage in cultural transmission than stereotypes about equal status social groups. In order to explore the impact of cognitive constraints on the cultural transmission of stereotypes, the transmission chain method could be used. This method, originally developed by Bartlett (1932) is similar to the children's games "Chinese Whispers" or "Broken Telephone" and involves passing material (usually written text) relevant to the

hypothesis being tested along chains of participants. The first participant in the chain reads or hears the material, and following a short delay or distracter task, attempts to recall it. The resultant recall is then given to the second part participant, who does the same. Their recall is in turn passed to the third participant, and so on along the chain. The changes that occur to the material as it is transmitted along the chain, and/or the different degradation rates of different types of material, can then reveal systematic biases in cultural transmission. This method was recently used by Mesoudi, Whiten and Dunbar (2006) to test the Machiavellian intelligence hypothesis (Byrne and Whiten, 1988) which posits that primate intelligence evolved primarily to deal with complex social problems (as opposed to ecological ones). They found that social information or gossip (information about intense third-party social relationships) was transmitted with greater accuracy and in greater quantity than non-social information (information about the physical environment or information concerning individual behaviour). In the present case, the information or material would be contrived social group stereotypes: social group stereotypes based on the dimensions competence and morality/warmth versus stereotypes based on dimensions unrelated to competence and morality/warmth and stereotypes based on groups varying in status versus groups equal in status. This research would, of course, be a natural extension of the present work, and would provide evidence that some stereotypes are more contagious than others, in other words they are indeed 'made to stick'.

As mentioned, some unresolved questions remain at the end of thesis. Clearly, there is a need for a fuller understanding of the interrelationship between contents and cognitive processes/structures in the formation of social group stereotypes. Although I hope I have shown the fruitfulness of the Cognition and Culture approach as an overarching conceptual framework which allows the integration of the study of contents and process/structure. The research presented here can be further developed in several important directions. In this research I have focused on one

structural factor which predicts stereotype contents, inter-group status differentials. According to the *Stereotype Content Model* stereotypes of morality/warmth are better predicted by inter-group competition. Future research needs to investigate whether we have default stereotypes when groups are in a cooperative or competitive relationship. I would predict, based on the SCM model, that cues of cooperation between groups would result in stereotypes of the out-group as moral/warm and cues of competition between groups would result in stereotypes of the out-group as immoral/cold. Furthermore, there is evidence for discrimination and negative attitudes towards high status groups by low status groups if the status differences are perceived illegitimate. I did not manipulate legitimacy of status differentials in this research. However, I would predict a reversal of the findings of experiments 2 and 3 if the status difference between the groups was illegitimate. Low status group members would presumably rate members of the high status group as lacking both competence and morality/warmth.

Finally, there are some limitations of the Cognition and Culture approach which need to be considered. Recent accounts of embodied cognition rejects standard theories of cognition which assume that knowledge is represented by abstract amodal symbols stored in memory. Embodied cognition theorists asserts that mental representations and processes are intrinsically grounded in the body, or the brain's modality-specific systems for perception (e.g., vision), action (e.g., movement) and introspection (e.g., emotion) (Wilson, 2002). The Cognition and Culture view of the mind, as it currently stands, does not appear to be compatible with the main tenets of embodied cognition (for a detailed discussion see, Franks, 2011). There is a growing body of evidence which suggests that, like all knowledge structures, social group concepts are embodied in various ways. One example of how social group information processing is embodied comes from category priming research. In a classic study Bargh, Chen and Burrows (1996) found participants primed with the elderly stereotype walked slower down a corridor than control participants. Presumably this occurred

because the social category priming activated the stereotype of the elderly which triggers action schemas leading to the embodiment effect of walking slower. As Franks and Dhesi (2011) note, a complete explanation of human social relations necessarily needs to account for how our mental representation of social groups are embodied by being intrinsically connected with dispositions towards action and emotions. This would also result in a more complete account of the emotional and behavioural components of social group stereotypes.

VIII.4 Social Policy Implications

As Solomon Asch noted “the term stereotype has come to stand for nearly all that is deficient in popular thinking” (1952: 232). If stereotypes are, as this thesis claims, ‘made to stick’ then one could wonder what hope there is for social policy interventions aimed at combating stereotyping. Indeed as Ehrenreich and McIntosh (1997) have pointed out social scientists often posit a false dichotomy according to which if something is entirely socially constructed it is malleable, whereas if it is influenced by cognitive predispositions it is inevitable and immutable. I hope I have shown in the course of this thesis that by exploring the role of cognitive predispositions we can greatly enrich our understanding of the contents of stereotypes, their functions, and their ability to become widespread in cultural populations. Therefore, I argue that without knowledge of the properties of the human mind which makes humans susceptible to stereotyping our understanding of stereotypes is incomplete and as a result there is even less hope for social policy interventions. I shall now consider some potential implications of the research presented in this thesis for social policies aimed at improving inter-group relations.

First and foremost, it is important to consider the extent to which the stereotype one is trying to combat is true or false. It is often assumed by social psychologists that all stereotypes are inaccurate. McGarty, Yzerbyt

and Spears (2002), in an attempt to challenge this view, ask 'if stereotyping is so central to our understanding of the world how plausible is that the process could be so deficient?' (2002: 4). Furthermore, as Asch discusses at some length:

It is wrong to assume that we can best achieve a correct view of a person by ignoring his group relations. Not only is the advice futile because it violates our modes of functioning; but also it could lead to our excluding relevant data. The issue is not whether to take into account or ignore group data, but rather whether our knowledge of group facts is adequate or not. The effort to see an individual in his group relation is not in itself invalid. What causes error is a grossness in the understanding of group qualities or a tendency to see group characteristics as inherent in individuals as first causes or the failure to understand their causal conditions. To ignore group facts can be right only assuming that conceptions formed of groups are necessarily subjective and factually wrong. They often are, but they need not be (1952: 238).

It is important to remember, as noted in Chapter I, that the extent to which stereotypes are accurate or not is an empirical question.

It has been argued in this thesis that stereotypes fall under a domain-specific competence, a *Folk Sociology*, which predisposes humans to seek out information about the social groups that are salient in diverse cultural populations. It is important to note that a *Folk Sociology* does not determine which social groups we divide humans up into, this is determined by various social, political and economic factors operating in specific cultural populations. What a *Folk Sociology* does do is help us to explain why the social construction of many groups has proven so effective. I think it would be naive in the extreme to assume that humans could stop classifying people into groups, and judge each individual in their own right, or indeed that we can eradicate stereotyping. Nonetheless, I do believe that attempts can be made to reduce the salience of various social groups

which ultimately would make us less susceptible to stereotypes about those specific groups. For instance, Gelman, Taylor and Nguyen (2004) have suggested that children may use indirect cues to inform them about which categories are salient in the cultural environment. One way of doing this is the use of generics which implies commonalities among members of a group and serves to highlight the salience of the group per se. Aside from avoiding such generics, in relation to the social category gender for example, the salience of gender categories can be attenuated by avoiding use of gendered practices such as providing gender-specific clothing (i.e. blue for boys and pink for girls) or toys.

I have argued, and presented some indirect evidence to support the view, that humans may have evolved a cognitive predisposition sensitive to cues of group status. This has potential implications for attempts to reduce prejudice. The contact hypothesis states that an increase in contact between two groups would lead to a subsequent reduction in inter-group prejudice (Williams, 1947). This idea has become something of a truism amongst policy makers. However, in his development of the intergroup-contact theory Allport (1954) emphasized the importance of establishing optimal conditions within the contact situation; 1) equal status between the groups in the situation; 2) common goals; 3) no competition between the groups; and 4) authority sanction for the contact. Hence, based on the theoretical framework presented here, contact may reduce prejudice when groups are of equal status, but may fail to do so when groups are of unequal status. It has been found that members of different status groups show dramatically different responses to the same contact experience (Devine and Vasquez, 1998). In a meta-analytic analysis of 515 studies conducted in 38 countries over the past 60 years, Tropp and Pettigrew (2005), found that the contact-prejudice effect varied significantly in relation to the societal status of the groups involved. Specifically they found contact-prejudice relationships were generally weaker for members of minority status groups than for members of majority status groups. In order to explain this finding

they suggest that perhaps minority group members are not able to overcome their internalized group devaluation.

In recent years dual process models of prejudice postulate that while explicit prejudice is flexible, labile, motivated, implicit prejudice, as a consequence of years of exposure to associations in the environment is impervious to conscious control and relatively stable (Devine and Monteith, 1999). However, recent research has challenged the dual-process assumption that implicit prejudice is impervious to change by demonstrating that it can be reduced or even reversed by social context (reviewed in Blair, 2002). Nevertheless, according to Henry and Hardin (2006) it may be easier for friendly interpersonal contact to reduce implicit prejudice towards groups for whom positive associations are broadly represented in society, that is, high-status groups, and more difficult for friendly interpersonal contact to reduce implicit prejudice towards groups for whom positive associations are not as broadly represented in society, that is, lower-status groups. In two parallel experiments examining intergroup contact and implicit prejudice between Whites and Blacks in the United States and between Christians and Muslims in Lebanon, Henry and Harden (2006) found that intergroup contact only reduces the implicit prejudice of low status groups towards high status groups but not vice versa.

Fiske and colleagues have extended the 'Stereotype Content Model' to show how stereotype contents based on the dimensions competence and warmth predict emotional responses and behaviour towards groups. The SCM focuses on how the contents of social group stereotypes are determined by the structure of inter-group relations. I have shown in this thesis that stereotype contents may also be partly shaped by evolved cognitive predispositions arising from a *Folk Sociology*. In fact, I argued that cognitive and structural factors act in concert and are mutually reinforcing. I believe this may have implications for improving inter-group relations. I propose that changes to inter-group relations can be achieved

by manipulating both the cognitive and structural components of group-relations. It is difficult, of course, to eradicate competition over resources or socio-economic and power inequalities between groups. Therefore, the cognitive components may be easier to manipulate. For example, manipulating the perceived warmth of members of a group may help to change the perception of inter-group relations from competitive to cooperative. Similarly, manipulating the perceived competence of members of a low status group may help to change the perception of inter-group relations from unequal to equal group status. This can be achieved by disseminating information/stories highlighting the warmth of members of a group in the former case, and competence of members of a group in the latter case.

It has been shown in this thesis that studying the conceptual structure of representations of social groups, namely psychological essentialism as a mode of category representation, can enrich our understanding of stereotypes. The negative consequences of essentialist beliefs are well-documented both by critical social theorists and cognitive psychologists. Prentice and Miller (2007) extensively discuss the social consequences of essentialist beliefs. They point out how the fact that psychological essentialism leads to a belief in the stability and immutability of social groups and their attributes can result in a reduced motivation to change essentialized groups or their members. Williams and Eberhardt (2006) found that people who endorsed an essentialist conception of 'race' saw racial disparities as more insurmountable and less problematic than those who endorsed a social conception of race. In this thesis it has been shown that essentialist beliefs may facilitate the naturalization of social status differences between groups. Critical social theorists have attempted in various guises to try and de-naturalize or de-essentialize social groups. As Wagner, Holtz and Kashima (2009) point out there have been heated debates amongst feminists about essentialism. On the one hand, feminists have been trying to replace the representation of men and women as naturally different, but on the other hand attributing an essence to a group

helps to given them visibility in political struggles. This dilemma is best articulated by Fuss (1989: 2): “Essentialism emerges most strongly within the very discourse of feminism, a discourse which presumes upon the unity of its object of inquiry (women) even when it is at pains to demonstrate the differences within this admittedly generalizing and imprecise category.”

Although essentialism may be an evolved cognitive predisposition there may be ways of attenuating it. Humans do not essentialize all social groups but only those groups marked as important in the cultural environment they inhabit. As noted above, there are ways in which we may reduce the salience of social groups. Furthermore, Haslam *et al.* (2000) and I have shown (see Chapter VI) that there are two distinct forms of essentialism - naturalness and entitativity. As Haslam *et al.* (2000) suggest this means that policy-makers may have to adopt two distinct strategies. Any attempts at changing representations of social groups as being natural would have to challenge beliefs about the immutability, stability, discreteness and necessary features. While attempts at changing representations of social groups as being entitative need to challenge beliefs about their uniformity, exclusivity, informativeness and inherence.

VIII.5 Conclusion

In conclusion, as McGarty *et al.* (2000) aptly point out, the human mind is not a blank slate on which stereotypes can be inscribed but rather it is shaped by grooves arising from human cognitive architecture. I hope I have shown how this thesis contributes to existing knowledge by providing a more coherent account of the cognitive ecology of stereotyping. More specifically, how applying the Cognition and Culture approach to the study of social group stereotypes can facilitate an integration of the study of stereotype contents, and the cognitive processes/structures underpinning stereotyping by explicating the role of cognitive predispositions in

influencing both the contents and functions of stereotypes. Of course, I would not claim to have fully integrated a study of stereotype contents and cognitive processes/structures. However, I have attempted to highlight the potentials of the Cognition and Culture approach in facilitating such an integration. As discussed above this research has implications for the social psychology of stereotyping and the Cognition and Culture approach, and demonstrates how integrating insights from both is mutually beneficial. Finally, it has been shown that this thesis also has potential social policy implications. While I don't believe we can eliminate stereotyping, which would be a Sisyphean task if ever there was one, if an attempt is to be made to design policies or campaigns that counteract prevailing stereotypes they need to be based on a comprehensive understanding of the conceptual underpinnings of stereotypes. The present research constitutes a modest step in this direction. Of course, I acknowledge that understanding alone is not sufficient but as McIntosh (1997) claims:

Understanding the cognitive architecture that may undergrid social attitudes could help us to recognize and, if it should ever be possible, thwart what can otherwise be a mutually reinforcing link between innate cognitive predisposition and local hegemony (1997: 4).

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Appendices

Appendix A: Perceptual Styles Minimal Groups Pre-Test Materials

Method

The study appeared online as a web-based 'Perceptual Styles Study'. Invitations to participate went to various email lists. The survey's first page provided information about the general nature of the survey, stating "You are invited to participate in an on-line study about perceptual style which forms part of a doctoral project in Social Psychology". Participants were informed that the survey will take no longer than 5 minutes to complete and that they would be given further instructions if they chose to participate. The remainder of the text related to ethical issues: potential benefits and risks and informed consent.

Instructions asked participants to read the following information about perceptual styles:

Psychologists have found differences in the way in which people organize visual information. Although there are many individual differences, two different perceptual styles have been identified:

- (1) Figure Style: people with the figure style organize information by primarily focusing on figures (the objects that attracts attention) in a visual scene and only later turning their attention to the surrounding background.
- (2) Ground Style: people with a ground style choose the opposite sequence: focusing on the surrounding background and only later turning their attention to any figures or objects in a visual scene.

Participants answered 6 questions about perceptual styles. These questions are designed to elicit whether participants have any a priori assumptions about these perceptual styles. It is emphasized that there are no right or

wrong answers and that the researcher is only interested in their personal opinion.

The questions and response options were as follows:

“Do you think either of the perceptual styles (Figure or Ground) described above indicates greater competence in visual information processing?” and they responded by clicking one of the following options: ‘Yes’, ‘No’, or ‘Don’t Know’.

“If yes, which perceptual style do you think indicates greater competence in visual processing” and the options are ‘Figure’ or ‘Ground’.

“Do you think either of the perceptual styles (Figure or Ground) described above indicates greater warmth as a personality characteristic?” and the options were again ‘Yes’, ‘No’, or ‘Don’t Know’.

“If yes, which perceptual style do you think indicates greater warmth as a personality characteristic: and the options were ‘Figure’ or ‘Ground’.

The final two questions were designed to elicit whether participants had any ideas about their own perceptual style and whether they showed any preference towards either of the two styles and the options for both questions

were ‘Figure’, ‘Ground’, ‘Both’, ‘Neither’ and ‘Don’t Know’. The questions were as follows:

“Which perceptual style do you think you have?”

“Which perceptual style would you prefer to have?”

Clicking a ‘submit survey’ button recorded the data.

Appendix B: Word Selection Pre-Test Materials

Method

Rosenberg (1978) noted that the notion of psychological relatedness between 2 traits may be interpreted in at least 2 ways, each of which implies somewhat different research purposes and measurement procedures. One interpretation is that of trait similarity i.e. the semantic substitutability of the two traits i.e. synonyms. The second interpretation is that of the co-occurrence i.e. the degree to which 2 traits are perceived as occurring in the same individual. For e.g. 'intelligent' and 'industrious' are not likely to be judged as synonyms but they are likely to be seen as going together in the same individual. While 'Adept' and 'skillful' are judged as highly similar and will also be attributed to the same person.

For the purposes of the present pilot, a trait co-occurrence measure was constructed. The reason for this is that we are interested in the words people use to assess the morality, competence and warmth of people. Hence, it was decided to frame the task in terms of assessing personality characteristics as opposed to word meaning.

Materials and Procedure

The study appeared online as a web-based 'Personality Characteristics Study'. Invitations to participate went to various email lists and postings on 3 online psychology studies directories (Social Psychology Network, Online Psych Research and Psychological Research On The Net).

The survey's first page provided information about the general nature of the survey, stating "You are invited to participate in an on-line study about personality characteristics. This study forms part of a doctoral project in Social Psychology". Participants are informed that the survey will take no longer than 15 minutes to complete and that they would be given further instructions if they chose to participate. The remainder of the text related to ethical issues: potential benefits and risks and informed consent.

There were six versions of the survey and each participant was randomly allocated to complete one version in which they rated the words for competence or morality or warmth. As asking participants to rate 144 words was a tall order, these words were randomly divided into 2 lists of 72 words each. Hence, the following design was used: 3 (domain: competence/morality/warmth) X 2 (Word List: 1 and 2).

Participants were given the following instructions in Versions 1 and 2:

“We are interesting in finding out which personality characteristics you think are likely to go together in the same individual. Psychologists have found that one of the characteristics we use to assess individuals is competence. A competent person is one who is able or has the potential to efficiently attain a goal, whatever the goal may be. In contrast, an incompetent person is who is unable or lacks the potential to efficiently a attain a goal, whatever the goal may be. We would like you to rate each of the personality characteristics listed below according to whether a person who exhibited each of the characteristics would be a COMPETENT or an INCOMPETENT person. There is no right or wrong answer, we are just interested in your person opinion. In making your ratings use the following scale, 1 = Competence, 7 = Incompetent.

Instructions for versions 3 and 4 were identical except participants were asked to rate the words for morality, defined as “A moral person is one who follows moral rules and/or does good things for others. In contrast, an immoral person is one who breaks moral rules and/or does bad things to others”. Instructions for versions 5 and 6 were identical except participants were asked to rate the words for warmth, defined as “A warm person is one who has positive intentions towards others. In contrast , a cold person is one who has negative intentions towards others”.

Responses to the 72 items were made by clicking one of seven response options where 1 = Moral and 7 = Immoral (Version 1, 2), 1 = Competent and 7 = Incompetent (Version 3, 4) and 1 = Warm and 7 = Cold (Version 5, 6). The final section asked for participants’ nationality, first language, fluency in

English (ranging from Native Speaker, Fluent, Basic, Poor), gender and name and email address (the final two are optional and only participants who wanted to enter into a prize draw to receive £15 Amazon vouchers needed to complete these). Clicking a 'submit survey' button recorded the data.

Appendix C: Perceptual Styles Test Materials and Stimuli (used in Experiments 1-3)

TASK 1: PERCEPTUAL STYLE TEST

Your first task is to complete an online test which assesses your perceptual style.

CONTINUE

Read the information below and follow the instructions at the bottom of the screen.

Perceptual Styles

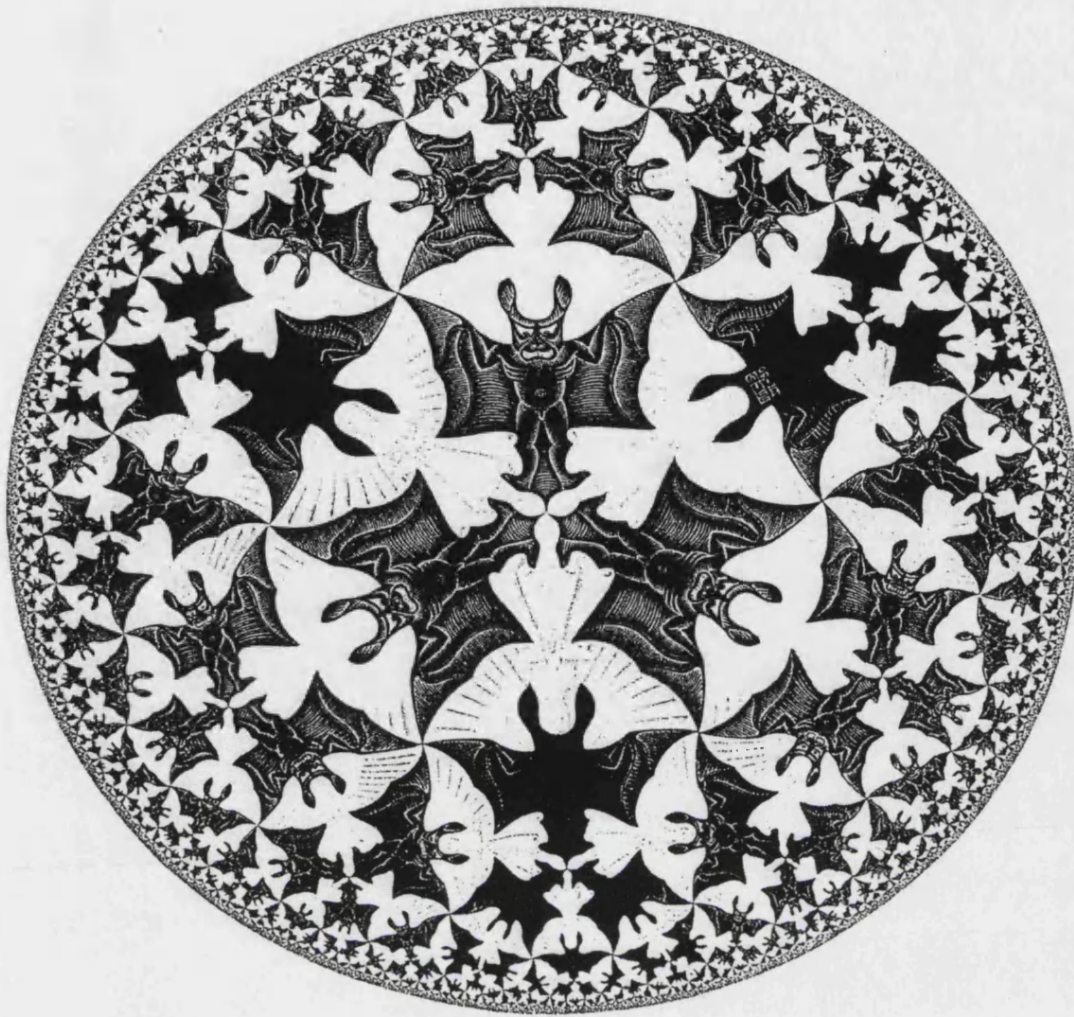
Psychologists have found differences in the way in which people organize visual information. Although there are many individual differences, two different **perceptual styles** have been identified:

- (1) **Figure Style:** people with the figure style organize information by primarily focusing on 'figures' (the objects that attracts attention) in a visual scene and only later turning their attention to the surrounding background.
- (2) **Ground Style:** people with a ground style choose the opposite sequence: focusing on the surrounding background and only later turning their attention to any figures or objects in a visual scene

According to psychologists both of these perceptual styles are equally valid ways of organizing visual information.

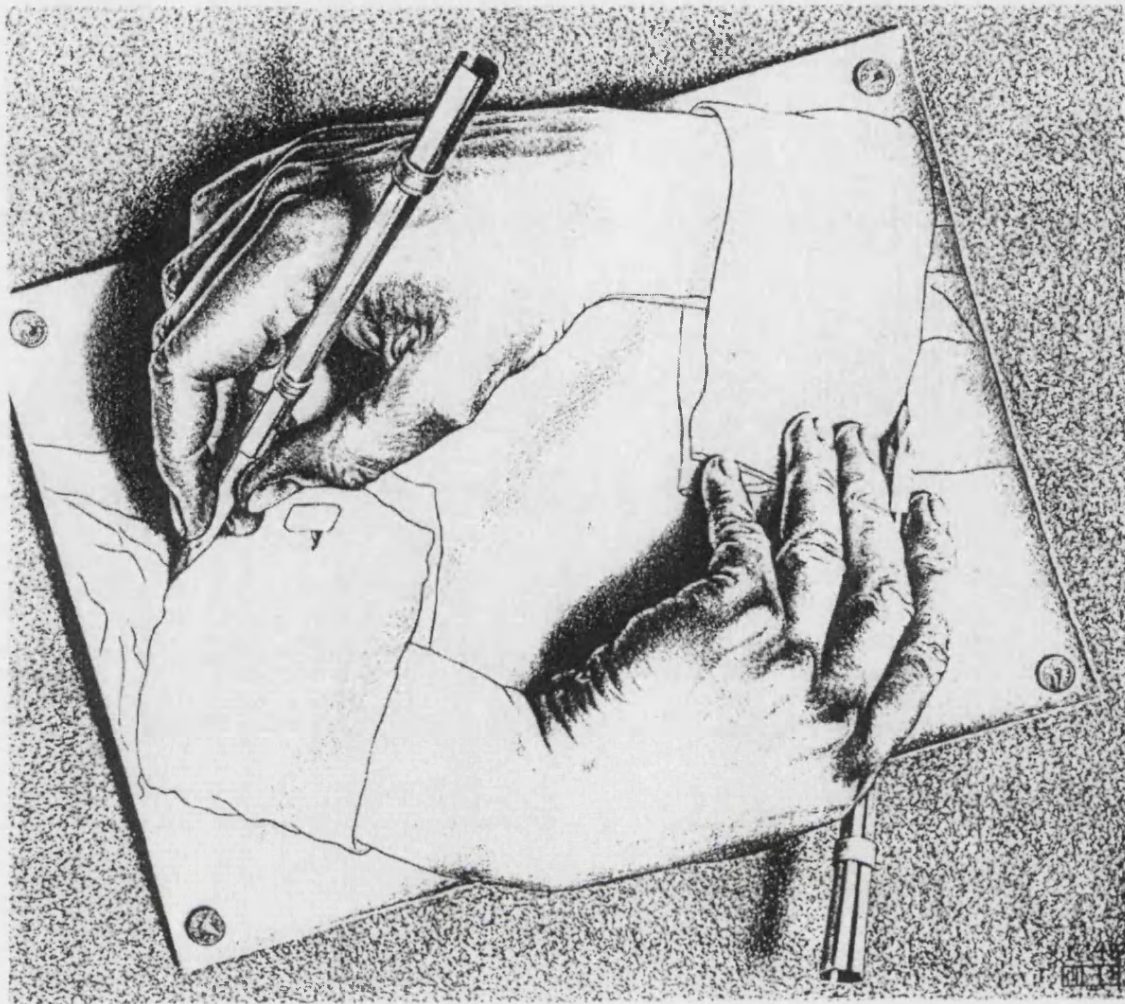
Instructions: You are now required to complete a short online test which is designed to identify a person's perceptual style. Your task will be to look at eight different pictures (some of which you may recognise). Each picture will be shown on the screen for a few seconds and will be followed by the presentation of two or three alternative interpretations. There is no right or wrong interpretation and you may be able to see the picture in either way. You need to indicate which of the alternatives was prevalent for you or first came into your mind. Then, continue with the next picture, until you have done all of them. Finally, you will be given the results of the test.

START TEST



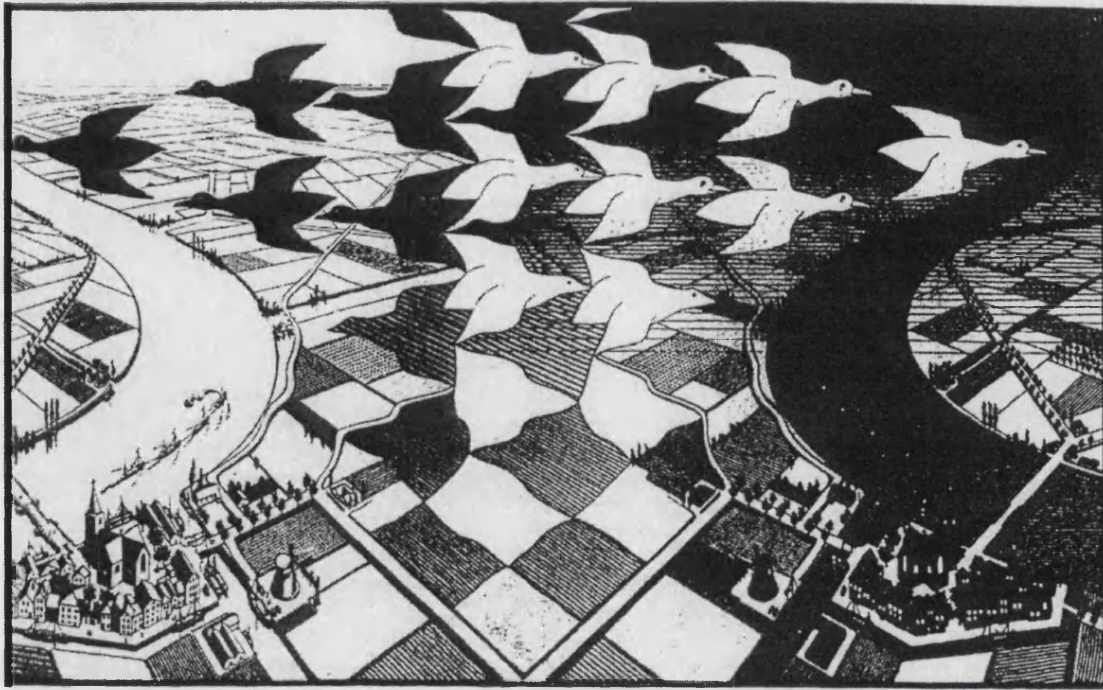
What did you see first?

1. Bats
2. Angels



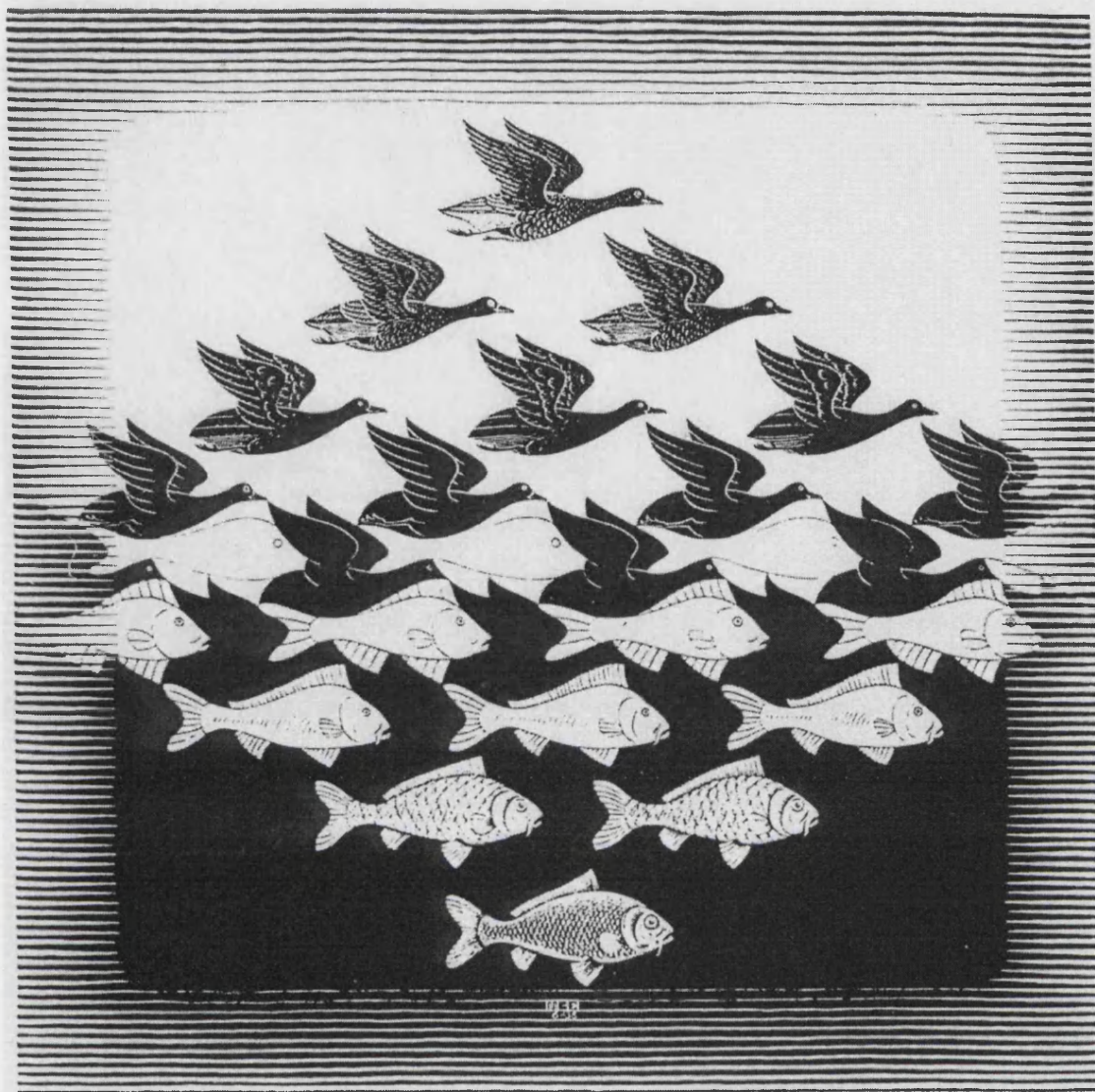
What did you see first?

1. hand(s)
2. a piece of paper
3. pen(s)



What did you see first?

1. white geese flying from left to right
2. a village
3. black geese flying from right to left



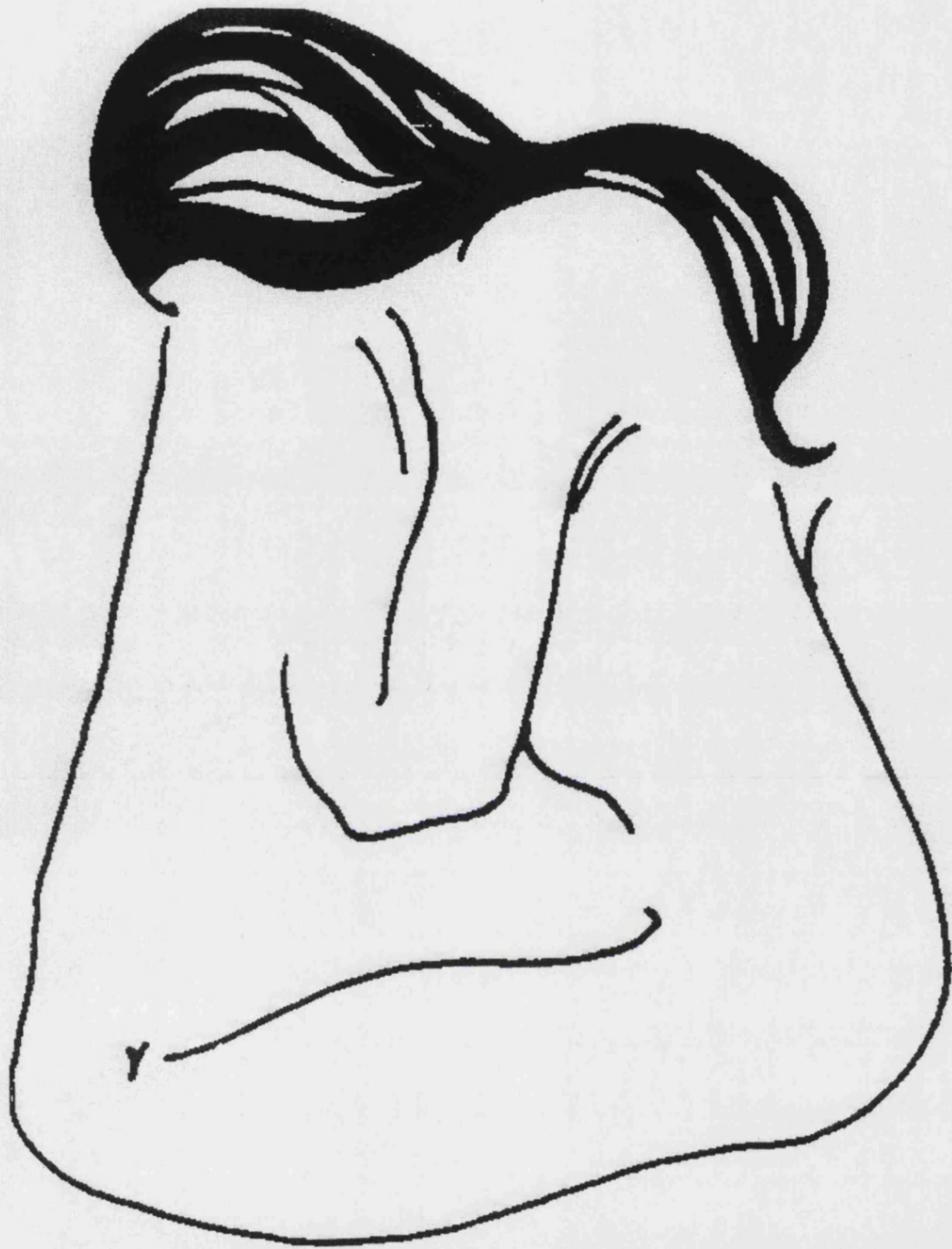
What did you see first?

1. black geese
2. white fish



What did you see first?

1. white man
2. black man
3. something else



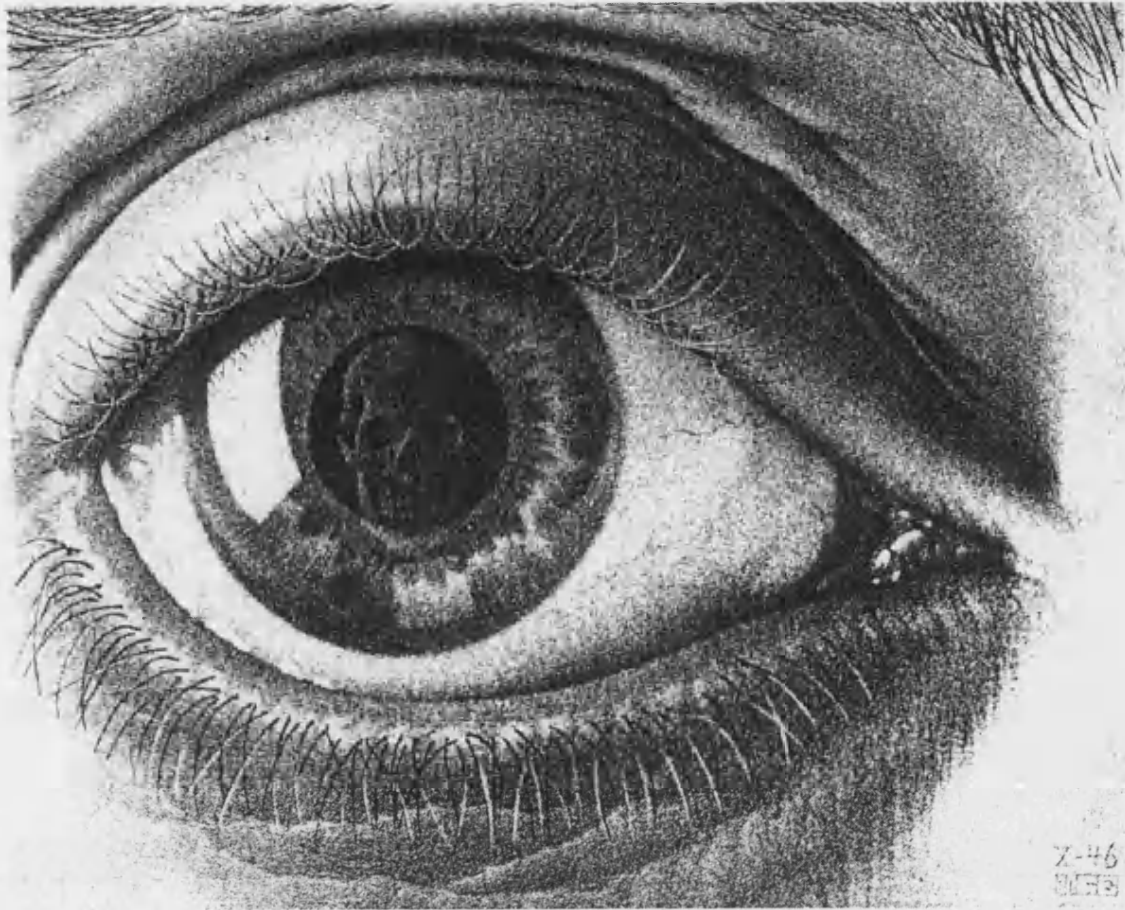
What did you see first?

1. a man's face
2. young woman sitting



What did you see first?

1. white fish
2. black fish
3. eye(s)



What did you see first?

1. eye
2. skull

You have successfully completed this test. Please Wait. Your data are being processed

Test Results

An analysis of your test results places you in the **Figure Group**. You may recall that members of this group organize visual information by primarily focusing on 'figures' in a visual scene and only later pay attention to the surrounding background.

In contrast members of the **Ground Group** choose the opposite sequence: they primarily focus on the surrounding background and only later turn their attention to any figures or objects.

Appendix D: Example of Consent Form (Experiment 1)

The London School of Economics and Political Science



Institute of Social Psychology

St. Clements Building
Houghton Street
London WC2A 2AE
Tel: 020 7955 7712
Fax: 020 7955 7565

Research Consent Form

PURPOSE OF RESEARCH

You are invited to participate in an experimental study about perceptual styles. The study forms part of a doctoral project being undertaken at the Institute of Social Psychology at the LSE. Participants will be asked to complete 2 tasks which measure perceptual style and its correlates.

PROCEDURES

The study is expected to take approximately 30 minutes to complete. If you choose to participate in this study, please select continue at the bottom of this page and you will be given further instructions.

POTENTIAL RISKS AND BENEFITS

There are no risks associated with this research.

It is not expected that you will receive direct benefits by participating in this research. However, it is hoped that it will be an interesting experience and will allow you to learn more about how psychological research is conducted.

PARTICIPANTS' RIGHTS

You should not feel obliged to agree to participate.

If you first agree to participate and then you change your mind, you are **free to withdraw** your consent and discontinue your participation at any time during the study.

Your identity will be kept as confidential as possible as required by law. The results of this research survey may be presented at social science conferences or published in social science journals. However, your identity will not be disclosed as you will be identified only by a unique code number.

This study has been approved by the London School of Economics Institutional Review Board

You can print a copy of the consent form by [clicking here](#).

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If you want to know more about your rights, you may contact the head of the Departmental Ethics Committee at the Institute of Social Psychology:

Professor Catherine Campbell

Institute of Social Psychology

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Fax: +44 (0)20 7955 7565

E-mail: c.campbell@lse.ac.uk

I HAVE READ AND UNDERSTOOD THE ABOVE INFORMATION, AND GIVE MY
CONSENT TO PARTICIPATE IN THIS STUDY.

Appendix E: Bogus Article (Chapter IV)

Before receiving your test results, we'd like you to read the following article about perceptual styles.

Perceptual Style

Research Into An Important New Individual Difference Variable

[excerpted from *Psychology Today*, 2008]

For almost a century, psychologists have been working to develop tests that would predict an individual's occupational and social status. Many tests have been developed, the most famous of which is the IQ test.

Now, researchers believe they have developed a test that will predict status and success even better than the IQ test does. The test is extremely simple, and, on the face of it, unrelated to success of any kind. It is a test of perceptual style. To give you a sense of what perceptual style means, take the following simple test. Just read the sentence in the following triangle.

I love
to go to
Paris in the
the
springtime.

As you were reading the sentence, did you notice any errors? It turns out that there are some people who do not notice the extra "the" in the sentence, and there are others who do notice it. What is interesting is that people who do not notice the extra word in this test behave quite consistently across a wide variety of other similar tests. That is, they almost never notice any words, letters, or symbols that are inconsistent with their preconceptions. Other people show a quite different style on such problems, consistently noticing anything unusual. What's more, even though this test of perceptual

style is quite simple, it reveals a great deal about a person: It predicts their choice of major in college, their level of occupational attainment, their salary 10 years after college, and their scores on the Myers-Briggs Inventory and the MSCEIT test of emotional intelligence. All that, from a brief and seemingly meaningless test of error-detection!

Psychologists are turning to tests of perceptual style in increasing numbers. The most popular is still the error-detection test, but tests of figure vs. group perceptual style are also being used, with considerable success. The simplicity of these tests, combined with their predictive power, means we are likely to be seeing much more of them in the years to come.

Appendix F: Experiment 2 (Chapter IV) - Additional Statistical Analysis of Main Effects and Interactions

Simple contrasts for three-way interaction between experimental condition, group status and stereotype dimension:

To analyse this interaction, simple contrasts were performed comparing high status and low status mean ratings at each level of stereotype object (in-group, out-group) and across each level of stereotype dimension compared to the first category of stereotype dimension (high competence). The first contrast revealed a non-significant difference between the responses of participants assigned to a high status group and participants assigned to a low status group when comparing in-group mean ratings to out-group mean ratings on the high competence scale compared to the low competence scale, $F(1, 165) = .151, p = .699$. The second contrast revealed a significant difference between high and low status when comparing in-group mean ratings to out-group mean ratings on the high competence scale compared to the high morality/warmth scale, $F(1, 165) = 369.130, p < .001, \eta^2 = .870$. The final contrast revealed a significant difference between high and low status when comparing in-group mean ratings to out-group mean ratings on the high competence scale compared to the low morality/warmth scale, $F(1, 165) = 367.708, p < .001, \eta^2 = .870$.

Other main effects and interactions:

The main effect of status failed to reach statistical significance, $F(1, 55) = .007, p = .934$. The main effect of stereotype dimension (high competence, low competence, high morality/warmth, low morality/warmth) failed to reach statistical significance, $F(3, 165) = 2.812, p = .062$. There was a significant two-way interaction between status and stereotype dimension, $F(3, 165) = 16.524, p < .001, \eta^2 = .231$. To break down this interaction, contrasts were performed comparing each level of stereotype dimension to the first level of stereotype dimension (high competence) across status (high status and low status). The first contrast revealed a non-significant difference

between high and low status when comparing high competence mean ratings to low competence mean ratings, $F(1, 165) = 3.909$, $p = .053$. The second contrast revealed a significant difference between high and low status when comparing high competence mean ratings to high morality/warmth mean ratings, $F(1, 165) = 27.344$, $p < .001$, $\eta^2 = .332$. The final contrast revealed a significant difference between high and low status when comparing high competence mean ratings to low morality/warmth mean ratings, $F(1, 165) = 32.966$, $p < .001$, $\eta^2 = .375$. As Table 1.0 illustrates mean ratings of participants assigned to the high status group were slightly higher for high morality/warmth compared to high competence and slightly higher for low morality/warmth compared to high competence. While mean ratings of participants assigned to the low status group were slightly higher for high competence compared to high morality/warmth and slightly higher for high competence compared to low morality/warmth.

Table: 1.0 Mean Ratings for all Stereotype Dimensions by Group Status

Stereotype Dimension	Group Status	
	High Status	Low Status
High Competence	3.31 (0.28)	3.58 (0.33)
Low Competence	3.43 (0.21)	3.58 (0.42)
High Morality/Warmth	3.47 (0.40)	3.33 (0.40)
Low Morality/Warmth	3.52 (0.39)	3.28 (0.46)
<i>n</i>	30	32

Note. Judgements were made on a 5 point-scale: High Competence and High Morality/Warmth Scale: 1 = strongly disagree, 5 = strongly agree. Low Competence and Low Morality/Warmth Scale: 1 = strongly agree, 5 = strongly disagree. Standard deviations appear in parentheses below means.

Appendix G: Experiment 3 (Chapter V) - Additional Statistical Analysis of Main Effects and Interactions

Simple contrasts for three-way interaction between prime, group status and stereotype dimension:

To break down this interaction further, simple contrasts were performed comparing high status and low status mean ratings at each level of prime (FIGURE, GROUND and NEUTRAL) and across each level of stereotype dimension compared to the first category of stereotype dimension (high competence). The first contrast revealed a significant difference between high and low status when comparing the FIGURE prime mean response times to the GROUND prime mean response times on the high competence scale compared to the low competence scale, $F(1, 134) = 18.192, p < .001, \eta^2 = .120$. The second contrast revealed a significant difference between high and low status when comparing the FIGURE prime mean response times to the GROUND prime mean response times on the high competence scale compared to the high morality/warmth scale, $F(1, 134) = 16.746, p .001, \eta^2 = .111$. The third contrast revealed a significant difference between high and low status when comparing the FIGURE prime mean response times to the GROUND prime mean response times on the high competence scale compared to the low morality/warmth scale, $F(1, 134) = 45.789, p .001, \eta^2 = .255$.

The fourth contrast revealed a non-significant difference between high and low status when comparing the FIGURE prime mean response times to the NEUTRAL prime mean response times on the high competence scale compared to the low competence scale, $F(1, 134) = 2.122, p = .148$. The fifth contrast revealed a significant difference between high and low status when comparing the FIGURE prime mean response times to the NEUTRAL prime mean response times on the high competence scale compared to the high morality/warmth scale, $F(1, 134) = 36.458, p .001, \eta^2 = .214$. The sixth contrast revealed a significant difference between high and low status when comparing the FIGURE prime mean response times to the NEUTRAL prime mean response times on the high competence scale compared to the low morality/warmth scale, $F(1, 134) = 25.282, p .001, \eta^2 = .159$.

Further simple contrasts were performed to compare the GROUND prime to the NEUTRAL prime by making GROUND (as opposed to FIGURE) the first category for the factor prime. The first contrast revealed a significant difference between high and low status when comparing the GROUND prime mean response times to the NEUTRAL prime mean response times on the high competence scale compared to the low competence scale, $F(1, 134) = 25.282, p < .001, \eta^2 = .159$. The second contrast revealed a significant difference between high and low status when comparing the GROUND prime mean response times to the NEUTRAL prime mean response times on the high competence scale compared to the high morality/warmth scale, $F(1, 134) = 33.861, p .001, \eta^2 = .202$. The third contrast revealed a significant difference between high and low status when comparing the GROUND prime mean response times to the NEUTRAL prime mean response times on the high competence scale compared to the low morality/warmth scale, $F(1, 134) = 105.729, p .001, \eta^2 = .441$.

There was a significant main effect of prime (FIGURE, GROUND, NEUTRAL), $F(2, 268) = 9.545, p < .001, \eta^2 = .066$. Pairwise comparisons revealed that mean response times were slightly lower for the FIGURE prime ($M = 935.95, SE = 3.96$) compared to the GROUND ($M = 956.34, SE = 5.18$), $p < .001$ prime and compared to the NEUTRAL prime ($M = 953.06, SE = 4.49$), $p < .01$. There was a significant main effect of group status, $F(1, 134) = 71743.10, p < .001, \eta^2 = .360$. Pairwise comparisons revealed that mean response times were slightly lower for the high status group ($M = 917.69, SE = 5.01$) compared to the low status group ($M = 979.214, SE = 4.93$), $p < .001$. There was a significant main effect of stereotype dimension (High Competence, Low Competence, High Morality/Warmth, Low Morality/Warmth), $F(2, 268) = 9.545, p < .001, \eta^2 = .066$. Pairwise comparisons revealed that mean response times were higher for the low competence dimension ($M = 1103.88, SE = 4.90$) compared to the high competence dimension ($M = 842.28, SE = 3.50$), high morality/warmth ($M = 852.10, SE = 4.75$) and low morality/warmth ($M = 956.34, SE = 5.85$), $p < .001$.

There was a significant two-way interaction between group status and prime, $F(2, 268) = 48.34, p < .001, \eta^2 = .265$. To break down this interaction,

contrasts were performed comparing each level of prime to the first level of prime (FIGURE) across group status (high status and low status). The first contrast revealed a significant difference between high and low status when comparing mean response times following the FIGURE prime to mean response times following the GROUND prime, $F(1, 134) = 17.323, p < .001, \eta^2 = .114$. The second contrast revealed a significant difference between high and low status when comparing mean response times following the FIGURE prime to mean response times following the neutral prime, $F(1, 134) = 30.133, p < .001, \eta^2 = .184$. As Table 2.0 shows high status group members mean response times were lower for the FIGURE and GROUND prime compared to low status group members mean response times. There was no difference in the mean response times for high and low status group members for the neutral prime.

Table 2.0: Mean Response Times by Group Status and Prime

<i>Group</i>	<i>Prime</i>		
	FIGURE	GROUND	Neutral (XXXXXX)
High Status Group	902.56 (80.74)	902.34 (84.19)	948.16 (82.71)
Low Status Group	969.33 (91.40)	1010.34 (110.29)	957.97 (91.78)

Note. Means are in milliseconds. Standard deviations appear in parentheses below means.

There was a significant two-way interaction between group status and stereotype dimension, $F(3, 804) = 41.203, p < .001, \eta^2 = .235$. To break down this interaction, contrasts were performed comparing each level of stereotype dimension to the first level of stereotype dimension (High Competence) across group status (high status and low status). The first contrast revealed a significant difference between high and low status when comparing mean response times for the high competence dimension compared to the low status dimension, $F(1, 134) = 40.014, p < .001, \eta^2 = .230$. The second contrast revealed a significant difference between high and low status when comparing mean response times for the high competence dimension compared

to the high morality/warmth dimension, $F(1, 134) = 146.646, p < .001, \eta^2 = .523$. The final contrast revealed a non-significant difference between high and low status when comparing mean response times for the high competence dimension compared to the low morality/warmth dimension, $F(1, 134) = 3.489, p = .064$. As Table 2.1 shows there was no difference in the mean response times of members of the high status and low status groups for the high competence dimension or low morality/warmth dimensions. However, mean response times of members of the high status group were lower than mean response times of members of the low status group for the low competence and high morality/warmth dimensions.

Table 2.1: Mean Response Times by Group Status and Stereotype Dimension

<i>Stereotype Dimension</i>	<i>Group Status</i>	
	High Status Group	Low Status Group
High Competence	835.09 (66.53)	849.47 (77.95)
Low Competence	1067.12 (70.98)	1140.64 (104.99)
High Morality/Warmth	789.97 (71.05)	914.23 (99.62)
Low Morality/Warmth	978.57 (94.95)	1012.52 (108.99)

Note. Means are in milliseconds. Standard deviations appear in parentheses below means.

Finally, there was a significant two-way interaction between prime and stereotype dimension, $F(6, 804) = 395.600, p < .001, \eta^2 = .747$. To break down this interaction, contrasts were performed comparing each level of prime to the first level of prime (FIGURE) compared to each level of stereotype dimension to the first level of stereotype dimension (high competence). The first contrast revealed a significant difference when comparing mean response times for the high competence dimension compared

to mean response times for the low competence dimension when comparing the FIGURE prime to the GROUND prime, $F(1, 134) = 1614.922, p < .001, \eta^2 = .923$. The second contrast revealed a significant difference when comparing mean response times for the high competence dimension compared to mean response times for the high morality/warmth dimension when comparing the FIGURE prime to the GROUND prime, $F(1, 134) = 380.416, p < .001, \eta^2 = .740$. The third contrast revealed a significant difference when comparing mean response times for the high competence dimension compared to mean response times for the low morality/warmth dimension when comparing the FIGURE prime to the GROUND prime, $F(1, 134) = 335.773, p < .001, \eta^2 = .715$. The fourth contrast revealed a significant difference when comparing mean response times for the high competence dimension compared to mean response times for the low competence dimension when comparing the FIGURE prime to the neutral prime, $F(1, 134) = 2465.971, p < .001, \eta^2 = .948$. The fifth contrast revealed a significant difference when comparing mean response times for the high competence dimension compared to mean response times for the high morality/warmth dimension when comparing the FIGURE prime to the neutral prime, $F(1, 134) = 251.891, p < .001, \eta^2 = .653$. The third contrast revealed a significant difference when comparing mean response times for the high competence dimension compared to mean response times for the low morality/warmth dimension when comparing the FIGURE prime to the neutral prime, $F(1, 134) = 609.048, p < .001, \eta^2 = .820$. As Table 2.3 shows for the high competence dimension mean response times were lower following the FIGURE prime compared to the GROUND prime and the neutral prime. For the low competence dimension mean response times were higher following the FIGURE prime compared to the GROUND prime and the neutral prime. For the high morality/warmth dimension mean response times were lower following the FIGURE prime and the GROUND prime compared to the neutral prime. For the low morality/warmth dimension mean response times were slightly higher following the FIGURE prime and the GROUND prime compared to the neutral prime.

Table 2.3: Mean Response Times by Prime and Stereotype Dimension

<i>Stereotype</i>	<i>Prime</i>		
<i>Dimension</i>	FIGURE	GROUND	Neutral (XXXXXX)
High Competence	629.22 (63.29)	961.27 (91.55)	936.35 (66.32)
Low Competence	1292.12 (97.35)	1027.74 (102.79)	991.78 (78.55)
High Morality/Warmth	815.52 (109.06)	823.10 (103.56)	917.67 (83.46)
Low Morality/Warmth	1006.92 (111.63)	1013.25 (132.03)	966.47 (93.73)

Note. Means are in milliseconds. Standard deviations are in parantheses below means.

Appendix H: Experiment 5: Participants' qualitative responses for dependent measure 1

Control Condition:

No Change in Damorin's Status Justifications	
He is An Orinthian, who have high social status.	
Because he is a member of the 'Orinthians' who are a group with high social status.	
because once high social status is obtained it is generally kept	
It says he belongs to the orinthians, who have high social status.	
member of the higher staus group	
We are imagining that Damorin is an Orinthian, the high social status group, so it is more probable, but not sure, that he has this social status.	
Because he belongs to the Orinthians and you said they have high social status.	
Damorin is an Orinthian, and Orinthians have high social status.	
Damorin is a member of the Orinthians and the story says they have high social status.	
Damorin is an orinthian	
he belongs to a high-status group	
Since Damorin is a member of the Orinthians and they have high social status, the odds (actual odds, not test odds where the exception is put in) that he / she has high social status is far greater than the odds that he / she is an Ackmains pretending to be and Orinthian	
I think he has a high social status because he is part of the Orinthians.	
Being a member of the Orinthians, a group with high social status, Damorin should also have a high social status.	
He is from the Orinthians, which was described as the high social status group.	

Transplant Condition:

Change in Damorin's Status Response Justifications
He will appear the same to his friends and Orinthian society, the change in his personality to that of Dolack will now be seen, maybe as eccentric, but also as high.
He will look like high social status still (Body mass index, clothing, haircut etc) though when he starts to talk it will become apparent he is actually low status (accent, level of education, way of speaking and acting etc)
He now has a low social status because he basically just switched positions with Dolack.
Social status is often based on reputation and physical features
He has a new brain, there for he is a new person.
I'm thinking of it as a Metropolis kind of scenario whereby other people are unaware of the brain swap. So Damorin, now in Dolack's body is thought by others to be of low social status. Because of this, he will likely be ignored if he were to protest otherwise.
Damorin now has Dolack's brain, which would have knowledge suited for the lower class.
The way you think determines where you stand in life.
Damorin, being in the body of Dolack, takes on the status of the physical body he inhabits.
social status is about perception
They switched the brain
Beuase they put a brain of an Ackmian in Damorin.
Damorin is now going to experience low social status thus making part of the group.
If Damorin has the brain of Dolack, his mind, beliefs, opinions, and mannerisms are that of a member of a low social staus.

No Change in Damorin's Status Response Justifications
He was born into his high social status. Just because his brain has changed doesn't mean he is a different person.
the brain is not the essence of a person, Damorin still has the same soul and therefore is still an Orinthian.
Status is something conferred on others, not something we necessarily choose to have, regardless of which 'brain' we possess. Thus continued physical association with the Orinthians will make others think Damorin still has a high social status. Intrinsically, however, Damorin may not feel an affiliation with the Orinthians and may not continue his association.
Social status is a web-relationship feature, does not depend (within limits) on the behaviour of the single person but more on the acknowledgement of the status from others. A lord is whoever is considered a lord.
Because he belongs to the group Orinthians, who, according to this paragraph have high social status.
He still has high social status because to the Orinthians he is still known as Damorin not Dolack even though Damorin might think he is low social status and might view things differently because the brains were switched.
If Damorin's brain was put into Dolack's body, he would still have a high social status. Just because his brain switched, doesn't mean it changes how he acts with people.
The Orinthians have a high social status and if a damorin is part of them, and the Dolack is put inside them then they have high status.
Damorin's brain contains all his personal information, including his cognitive processes (such as thinking, memory, intelligence). So even though Damorin's brain is now inside a body that "belongs" to a low social status, his BEHAVIOR will remain the same (high-social-status group behavior).
Damorin is a member of the group Orinthians. Orinthians are a group who have high social status
Even though he doesn't have the same brain, he still is associated with the group with the high social status.

Adoption Condition:

Change in Damorin's Status Response Justifications
His status is determined by his current social group. Therefore, he has low status.
Everyone thinks he's Ackmian, so they treat him accordingly.
He is raised by the low-status group, and people don't know of his true origin.
because you said the Ackmians have low social status, so, according to what you said, Damorin was brought up by Ackmians, and Ackmians have low social status.
Assuming he was raised in the group with the lower social status and no one ever realised he was switched at birth, he'd of known no other life. So he'd grown up and lived as any other Ackmian would have.
He was raised with low status therefore he is low status too
I believe that low social status is more often associated with factors that relate to the environment that a person is raised in, rather than genes. Darmorin may experience such factors as less wealth/poverty and social disadvantage (eg limited access to jobs, education, health services, good food and internet communication). Behaviors and culture will be learned from experiences within the Ackmians environmental context; so music, sporting and cultural preferences associated with Orinthians would be limited. Forever entrenching him as being labelled an Ackmian. He will eat like an Ackmian, play like an Ackmian and speak like an Ackmian. Damorin should really get t
because social status is something you are born with in most cases. If there is a reason for Ackmians having lower social statuses than Orinthians like they are only 3 feet tall and can't learn to speak a language, then I Damorin was probably taken care of and put back into a group of Orinthians. Another thing would be if some group, government or social, recognized that Damorin was not actually Ackminian and thought it was blasphemous, and stuck him in a group of Ackmians.
Because he was switched at birth and brought up by the Ackmians (the low social class), he will continue to have a low social status because of his family upbringing.
Upbringing is all social.
I believe environment plays a critical role in social status

Appendix I: Experiment 6: Participants' qualitative responses for dependent measure 1

Soul Exchange Condition:

Change in Damorin's Status Response Justifications
because Damorin now has the soul of someone from the lower class and will begin to act in a way that is similar to the lower class and then people might think Damorin belongs in the lower class.
Damorin's soul exchanged was someone of lower social status
Because social status' are based on which group your physical body belongs to, and Damorin is now in the body of a Ackmian.
because it is Dolack's soul in Damorin's body so Damorin associates with the low social status
Damorin's soul is in the body of someone already categorized as having low social status.
Since they switched souls Damorin is no longer the person but is now Dolack with a different name.
Social status is a concept defined by the society in which the individual lives, and, as such, if Damorin's soul switched with the lower status Dolack, the society would perceive Damorin as a low social status individual.
Because his soul is in the body of the lower class person. you cannot take mortal possessions with you when your soul leaves your body.
Because Damorin would act differently, Orinthians would view him differently.
his soul was exchanged, therefore he is not the same person
As the group that wields higher social status it's likely the Orinthians would look down on Damorin or consider Damorin a threat.
Damorin isn't in the same body and is now in the body of a lower status citizen.
As the group that wields higher social status it's likely the Orinthians would look down on Damorin or consider Damorin a threat.

Soul Exchange Condition:

No Change in Damorin's Status Response Justifications
Damorian was born an Orinthian, I don't think having his soul switched would make his social status change.
Society has still labeled Damorin as an Orinthian, and therefore has high social status in their eyes.
Damorin continues high social status, as Damorin's origination is absolute Orinthian. Damorin's purpose has already been established as part of the Orinthians genetic makeup. Another soul cannot change this value.
Because Damorin is still part of the Orinthians.
Damorin has been brought up with high status morals and belief just because Damorin has swapped bodies doesnt mean this has changed
Having a soul is only a theory. Unless you meant mind or personality and you can't place one personality into another.
Because other people might not know that Damorin has Dolack's soul.
The soul exchange makes no difference and Damorin is still a member of the high status group.
Damorin is still an Orinthian so nothing has changed.

Personality Exchange Condition:

The change in Damorin's personality would be noticed by the other members of the group, and therefore Damorin would be outcasted.
Low status because when the personality is switched Damorin has Dolack's personality which was influenced by the low status.
Because normally your status predicts how you act in your normal day to day.
Now that Damorin has Dolack's personality Damprin views things as a low classman, and would not be able to aassociatw himself with the upperclassman. He would fall into a state of disrepair. His personality is a poor man, so he shall become a poor man.

Change in Damorin's Status Response Justifications
If Damorin is placed in the low social status group, then it is likely that the high social status group will conform to believe Damorin is of low social status.
Personality has a profound influence on an individuals drive to succeed, social skills, and relationship skills, all of which play a role in where you will fall in social rank.
People of high social status are that way because of their personality. They know how to conduct themselves with others. Status goes with the personality.
Damorin has Dolcak's personality which would have developed around people with a low social status, so Damorin will not have much self-worth.
Damorin himself might still believe that he is high social status, but in fact others treat him as a low-social-status person. Social status is about how others perceive particular group, how we think about ourselves is the result of this

Personality Exchange Condition:

No Change in Damorin's Status Response Justifications
I think Damorin would still have high social status regardless of personality. Damorin might be more passive but would still feel dominant compared to members of the other group.
Damorin is a member of the group "Orinthians" whom traditionally have high social status.
The body of Damorin will still be perceived as a member of the high social class.
I say high status because that is what Damorin's status was originally.
Simply switching Damorin's personality didn't change Damorin's environment and being used to a high social status,
i don't think the exchange would affect social status.
Only the personalities have been changed. That doesn't mean that Damorin is going to be poor just because their personalities have been switched.
Others think Damorin is an Orinthian, so they treat Damorin like a high status person.
Damorin has the same body and social status isn't dependent on personality.
Because I do not believe status determines the personality of a person.
Social status is external and internal changes do not remove Damorin's applied status.
Damorin is a member of the Orinthians group.
Damorin already identifies with the Orinthians so will still feel and think superior.
Damorin is still a part of the Orinthians.
Damorin is a member of the Orinthians and Orinthians have high status. Therefore, Damorin has high status.