

An Investigation of Status-Related Attentional Biases

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Abstract

An Investigation of Status-Related Attentional Biases

Caroline Fitzpatrick

Three studies investigated whether individuals display an attentional bias towards symbols that denote high status. Undergraduate students in each study learned the symbol of a high and a low status group. In Studies 1 and 2, participants learned about a high and a low status group belonging to a remote culture. In Study 3, status was instantiated by gender. Participants in each study were presented one symbol at a time over 60 consecutive trials. Each participant indicated whether the symbol identified the high status or the low status group. In both Studies 1 and 2, participants showed a tendency to respond faster to the high relative to the low status symbol. Finally in Study 3, there was no significant difference in reaction time when status was instantiated by gender. The present studies lend partial support to the hypothesis that individuals display a status-related attentional bias.

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Introduction

Social status has been defined as a “differentiation on the basis of prestige and deference” (Mayer & Buckley, 1970, p.46). Individuals may pay attention to high status others in a variety of contexts. During boardroom meetings, comments made by the company’s CEO may receive more attention than comments made by others. School aged children will typically pay more attention to popular classmates than unpopular classmates. People generally direct their attention to high status others because status is important in everyday life. Status influences our perceptions of others, plays a role in how individuals think about relationships, and determines how people behave towards others.

Status and Social Perception

Once gained, information about status may serve to guide the impressions people form of others. For example, research has shown that higher status individuals are perceived differently: they are viewed as more competent (Berger & Zelditch, 1985), are admired, and may even be emulated (Raven & Kruglanski, 1970). In addition, people tend to perceive high status individuals as more agentic, or masculine (i.e., forceful, dominant, and independent) than low status individuals. Lower status individuals, in comparison, are perceived as more communal or feminine (i.e., warm, nurturing, and understanding; Conway, Pizzamiglio, & Mount, 1996; Conway & Vartanian, 2000).

Similarly, S.T. Fiske and Glick (1999) have shown that higher status individuals may be perceived as more competent. Participants in their study rated social groups in terms of competence and warmth. The results indicated that members of higher status groups (e.g., rich people) are viewed as more competent and less warm than members of

lower status groups (e.g., house cleaners).

Status can shape social perception. Dépret and S.T. Fiske (1999) have shown that individuals develop relatively accurate and detailed impressions of individuals who are their superiors. By obtaining accurate and detailed knowledge of superiors, individuals are better able to form valid representations of these targets. In contrast, when forming impressions of subordinates, people tend to act as “cognitive misers,” using stereotypes to guide their impressions (Dépret & S.T. Fiske, 1999). As such, people may pay more attention to their superiors. In the words of Dépret and S.T. Fiske (1999, p.462), “we do better to pay attention to those who hold the purse strings.”

Status and Cognitive Representations

In addition to guiding our impressions of others, status has been shown to play a role in how people think about or cognitively represent relationships (A.P. Fiske, 1992; Haslam, 1994a; Haslam, 1994b; Millar & Rogers, 1987; Wish, Deutsch, & Kaplan, 1976). For example, research has shown that equality or status is one of a discrete number of dimensions individuals use to represent their social relationships (Millar & Rogers, 1987; Wish et al., 1976). Individuals have been shown to think about their relationships as being between partners of equal or unequal status. For example, when asked to rate how similar pairs of relationships are, people rate relationships between co-workers as more similar to relationships between classmates than to boss-worker relationships. These similarity judgments are believed to reflect the fact that boss-worker relationships are less equal than relationships between classmates or relationships between co-workers (Wish et al., 1976).

More recently, research has suggested that individuals place their relationships with others in categories (A.P. Fiske, 1992; Haslam, 1994a). These categories are believed to correspond to A.P. Fiske's (1992) *relational models*. According to Fiske, individuals categorize their relationships with others based on the way they distribute resources in a given relationship. For example, one of Fiske's categories involves relationships between individuals of unequal status and is named *authority ranking*. In authority ranking relationships, resources are distributed according to status differences. The other categories described in his work include a) *communal sharing*, which involves relationships in which resources are shared based on need, such as is the case between family members, b) *equality matching*, which can be exemplified by relationships in which resources are shared equally regardless of need, such as is the case between friends, and c) *market pricing*, for which resources are exchanged for other resources of equal value, such as is the case with individuals engaged in a business transaction. Fiske notes that in everyday life any particular relationship consists of a blend of these models. Parent-child relationships generally involve communal sharing. However, children sometimes perform chores for their parents in exchange for money as is the case in market pricing. As well, children are at times asked to obey the orders of their parents, as is the case in authority ranking.

According to Bugental (2000), individuals have a specialized brain mechanism or "module" for processing hierarchical relationships which involve status differences. In addition, individuals may also possess specialised mechanisms for other relationships involving attachment, coalition formation, mating, and reciprocity or exchange (Bugental, 2000). She argues that these specialized mechanisms are partly the result of

human evolutionary history, given the fundamental importance of these relationships (Bugental, 2000). As such, individuals may be predisposed to developing a sensitivity for status. In support of this suggestion, there is evidence that individuals display sensitivity to status in the first years of life. Children between the ages of 11 and 16 months model the behavior of more dominant peers more often than the behaviors of less dominant peers (Russon & Waite, 1991). Other research has shown that children in late infancy seem to recognize dominance directed utterances. That is, children regularly display inhibitory behaviour when faced with short, stern, vocalizations from adults (Fernald, 1993). In addition, children appear to display inhibitory behaviors even when such utterances were expressed in an unfamiliar language (Fernald, 1993).

Status and Social Behavior

People may also pay attention to status because it is beneficial and self-serving to do so. High status individuals may influence the outcomes of others by extending or withholding rewards and punishments. For example, a boss may extend a raise to an employee who impresses him with his work. In contrast, a boss may withhold pay from an employee who is absent. High status individuals may also influence people's experience of punishments. For example, a child who challenges a popular classmate may be ridiculed and ostracized. As well, employees who have ingratiated themselves with their boss may thereby avoid criticism.

From an evolutionary perspective, it is also plausible that individuals' behaviors are influenced by status. According to Kenrick, Maner, Butner, Li and Becker (2002), status-seeking is a fundamental goal pursued by humans. Other fundamental goals include self-

protection, coalition formation, mate selection, relationship maintenance, and the care of offspring. Humans are believed to have evolved the tendency to pursue these goals because of their adaptive benefit. Status-seeking is believed to have provided a benefit because individuals with higher status had privileged access to resources in competitive situations. Those with higher status also generally had extended social alliances, which may also have provided these individuals with increased access to resources (Cummins, 2005). The pursuit and maintenance of status may have thus represented a valid survival strategy especially in times of resource scarcity, when one's status might have been an important determinant of one's access to resources. In terms of natural selection, the genes of individuals who lived longer were more likely to be passed on and thus remain in the gene pool.

In terms of survival strategies, individuals typically learn to display deference, or inhibit challenging behaviour vis a vis high status others. Such a strategy would have been beneficial, as it could have helped individuals avoid violent confrontations with higher status others. Challenging a higher status other could also result in social rejection. According to Gilbert and McGuire (1998), individuals who behaved inappropriately towards high status others may have suffered from a loss of status in the form of social rejection. In early societies, social rejection carried especially grave consequences, especially if it led to exclusion, as single individuals stood little chance of survival.

In sum, social status plays an important role in influencing people's perceptions of others, people's cognitive representations of relationships, as well as people's actual patterns of relationships. As well, evolutionary psychologists have noted the importance

of status in terms of survival, group life, and mating, and have argued for a human predisposition for processing social information in terms of a hierarchical interpersonal relationship (amongst other basic types of relationships). These various considerations suggest that people pay preferential attention to high status others.

The hypothesis addressed in the present research was that young adults exhibit an attentional bias towards high relative to low status status symbols even in the absence of any functional gain. This hypothesis is advanced in light of the fundamental of importance status from infancy onward. By young adulthood individuals have likely had innumerable interactions with others in which status differences have played a role. This extensive experience may lead individuals to develop a general orientation to high status. This general orientation to high status could influence people's information processing in a consistent and stable manner, regardless of the importance of a particular status difference to an individual in a specific context. For example, an individual viewing a documentary about an unfamiliar culture would, in the absence of any deliberate choice or conscious awareness, pay greater attention to the portrayal of higher status individuals in that culture. This type of cognitive orientation to high status could rest on a predisposition that would have developed as a result of human evolutionary history (Bugental, 2000; A. P. Fiske, 1992). The present hypothesis can be formulated in terms of Bugental's theory of social algorithms: a person observing a status difference in his or her environment would automatically activate a module for processing hierarchical relationships. Such a module would then facilitate the processing of information relevant to high status individuals.

The present hypothesis is novel in that previous research on the influence of status on social perception and social behaviour has focussed on contexts in which there was a clear functional value in paying attention to higher status individuals. For example, Depret & Fiske (1999) have focused on how an individual will pay attention to someone who holds actual power over them. The present studies were conducted to determine if individuals give priority to high status in their environment even when there is no functional value in doing so.

Present Studies

In Study 1, I sought to determine whether individuals are sensitive to cues that denote high status in their environment. In order to measure people's sensitivity to status, I employed a procedure that measured the attention individuals paid to a high status symbol and a low status symbol. Reaction time latency was used as a measure of attention. Reaction time latencies, which are the time an individual takes to make a response, are commonly used to measure attention (Fazio, 1990). Shorter reaction times to a stimulus reflect greater accessibility of the cognitive representation of that stimulus. The hypothesis in Study 1 was that individuals are faster at identifying a symbol that denotes high status than a symbol that denotes low status. In Study 2, I was interested in replicating the findings of Study 1 with the inclusion of methodological improvements. In Study 3, I was interested in whether gender cues could be used to elicit a status-related attentional bias. The basis for this hypothesis is that women are generally perceived as having a lower status than men in society (Ridgeway & Bourg, 2004). The status implications of gender have been repeatedly demonstrated with undergraduate students.

For example, in recent research in Ontario, male and female undergraduates gave higher respect ratings to male versus female targets of equivalent qualification (Jackson, Esses & Burris, 2001). Male and female undergraduates in the same research were also more likely to recommend the hiring of male targets, as opposed to female targets.

Study 1

Method

Participants

Participants were 33 undergraduate students at Concordia University (11 men and 22 women) with ages ranging from 18 to 34 years ($M = 22.7$). Participants were recruited from classrooms and signs posted on the university campus. Participants who were approached in classrooms were told that their help was needed for a psychology project. They were told that they would be compensated monetarily for their help in the amount of 10 \$. The signs posted read "Volunteers needed for paid research." The sign also indicated that volunteers would be compensated with 10 \$. The responses of two participants were outliers and were excluded from the analyses. The final sample consisted of 31 participants.

Procedure

One participant was present at each experimental session. See Appendix A for instructions. The participants first listened to a voice recording of a description of a fictitious culture composed of a high status and a low status group: the *Ngwani* and the *Gunada*. This was a modified version of a description used to assess the role of status on social perception in prior research (Conway, Di Fazio, & Mayman, 1999; Conway,

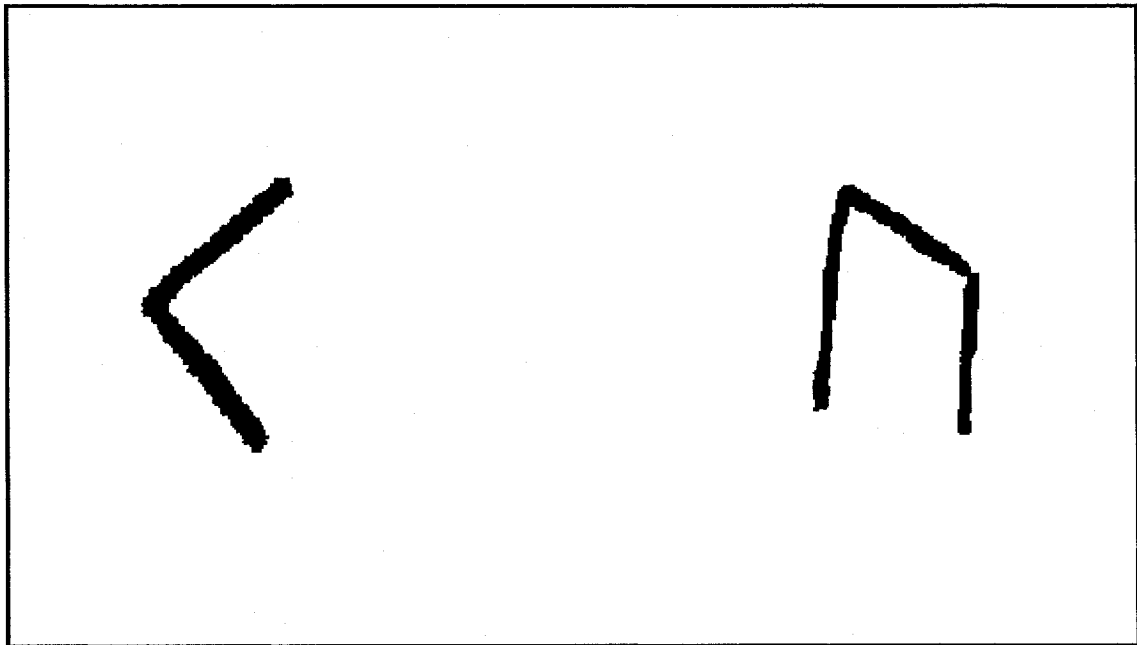
Irannejad, & Giannopoulos, 2005; Conway et al., 1996; Conway & Vartanian, 2000; Conway, Wood, Dugas, & Pushkar, 2003). In this description, status is not confounded with age, gender, occupation, or social roles. The groups are described as spending most of their time in shared activities such as hunting and farming. Furthermore, the status difference is presented explicitly and is ascribed, rather than achieved. Differences between the groups reflecting status include personal ornamentation, dress, and better access to resources (see Appendix B). There was no discussion of intergroup conflict, nor was there mention of the following points: personality characteristics, style of social behavior, goods for which access served as grounds for power, exchange of goods between groups, or status-related use of force, manipulation, or influence (Zelditch, 1992). Each participant listened to the recorded description twice in order to ensure familiarity with the material.

For the purpose of the present study, the description of the culture was modified to include the information that each group identified itself with a distinctive symbol. Four modifications were made to the description. The sentence: "*The community is composed of two distinct groups; the Gunada and the Ngwani,*" was extended to include the stem "*who each identify themselves with a separate symbol.*" Modifications were made to the following sentences as well: "*the Gunada huts, which bear the symbol of the Gunada above the entrance, are on the outer peripheral edge of the village. Conversely, the huts of the Ngwani are marked with the symbols of the Ngwani, and are clustered around a larger hut in the center of the village.*" In the first sentence, the stem "*which bears the symbol of the Gunada*" was added while the stem "*are marked with the symbol of the Ngwani*" was added to the second sentence. Finally the stem "*bear the distinctive symbols*"

of the village member's group" was added to the following sentence referring to clothing:
"These bands bear the distinctive symbols of the village member's group, and are delicately woven from fine fiber threads with interesting geometric designs."

The symbols were created for the purpose of the study and were arbitrary and neutral. One of the symbols resembled a *less than* sign (<) and the other resembled an inverted *u* (see Figure 1). While listening to the recording, participants were given a sheet on which were printed the names *Ngwani* and *Gunada*, as well as their respective symbols.

Figure 1: Symbols used to represent the high and low status groups.



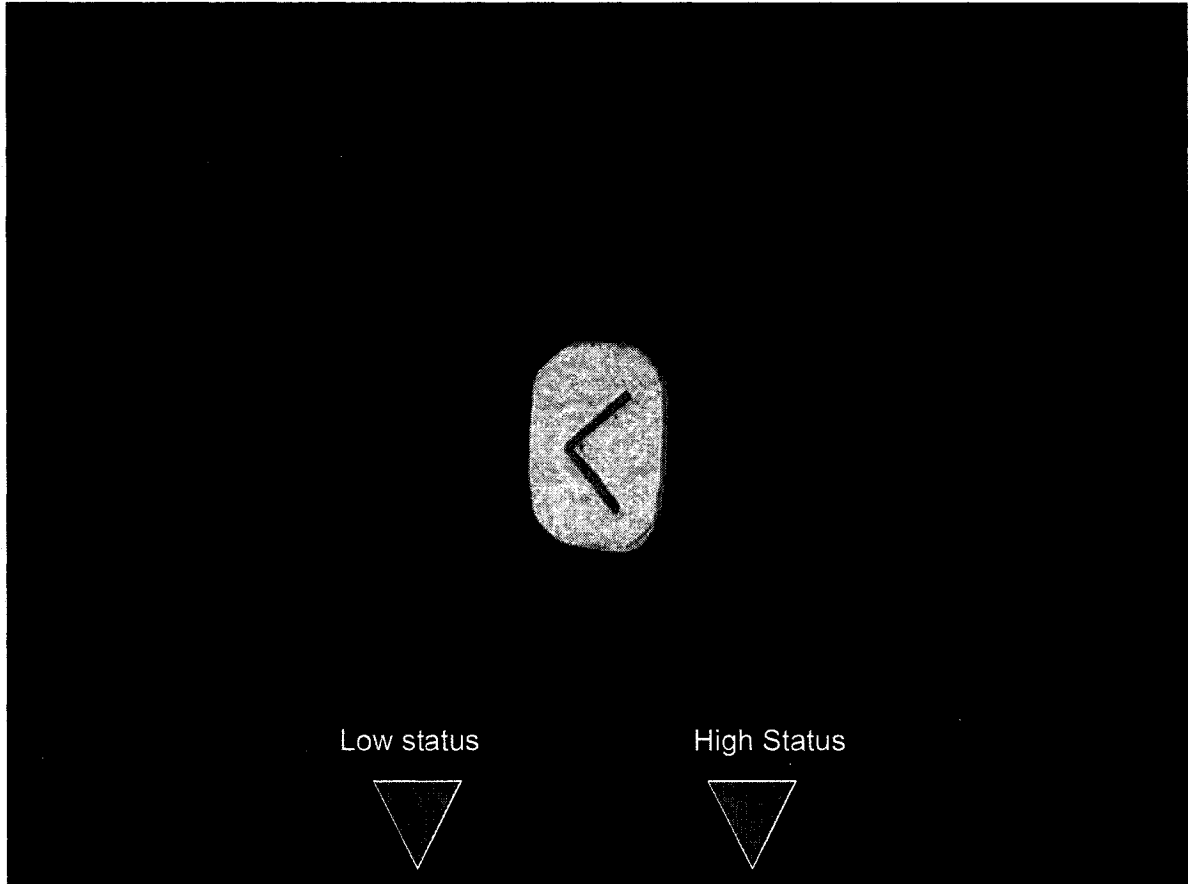
After participants listened to the description, they completed a practice task on a desktop computer to familiarize themselves with the computer procedure. The task was

programmed using *DirectRT* computer (Jarvis, 2006). During the practice participants were presented stimuli unrelated to the description of the culture. They were presented one item of contemporary clothing (eg., scarf, t-shirt, winter boots, shorts) on each trial of a two-alternative forced choice task (Luck & Vecera, 2002). They were asked to identify as quickly and as accurately as possible whether a presented clothing item was typically worn in the summer or the winter. Participants provided their answers by pressing either the “summer key” (*F* key) or the “winter key” (*J* key), which were the same keys that were subsequently used in the symbol identification task.

Following the practice, participants completed the experimental task on the desktop computer. During this part of the study, participants were again instructed to place their index fingers above two marked keys (*F* and *J*) on the keyboard. They were reminded of the status, name, and symbol of each group before beginning the task. In a two-alternative forced choice task, programmed with *DirectRT* software, participants were presented one symbol at a time over 60 consecutive trials. See Figure 2 for the computer screen display. Participants were asked to identify as “quickly and as accurately as possible” whether a presented symbol identified the high status group or the low status group. A symbol remained on the screen until participants pressed either the “high status” or the “low status” key. The time elapsed between the presentation of a symbol on the computer screen and a key press was recorded in milliseconds. The inter-trial interval was set at 1000 milliseconds. The computer program also recorded whether responses were correct or incorrect. Participants were told to respond quickly and accurately since “in real life we are often required to make judgment calls quickly and accurately.” For every four consecutive trials, two high status and two low status symbols were presented

in a random order. Order was randomized on a subject-by-subject basis.

Figure 2: Computer screen display for Study 1.



For the purpose of counterbalancing, participants received one of eight different pairings of group name, symbol, and key. Names were assigned to status in a counterbalanced manner. For this purpose, two versions of the recording were created. The same description was presented in both versions with the following exceptions. In one version, the name of the high status group was *Ngwani* and the name of the low status group was *Gunada*. In the other version, the assignment of name to status group was inversed. Symbols were also assigned to status in a counterbalanced manner.

Finally, half of the participants identified the high status group using the *F* key and the low status group by using the *J* key. The other half of the participants identified the high status group using the *J* key, and the low status group using the *F* key.

Questionnaires

Following the computer task, participants completed questionnaires. Participants completed a questionnaire in which they reported their perceptions of the members of the high status and low status groups in terms of communality and agency.¹ Participants were presented a list of characteristics, each of which was followed by a 7-point Likert scale. Groups were rated in a counterbalanced order on each characteristic from *never or almost never true* (1) to *always or almost always true* (7). Participants rated the members of each group in terms of communality and agency using a subset of feminine and masculine characteristics from the BSRI-SF (Bem, 1981). The feminine terms were *compassionate, gentle, sensitive to the needs of others, sympathetic, tender, and warm*. The masculine terms were *aggressive, assertive, dominant, forceful, has leadership abilities, and strong personality*. Filler terms were also presented. The presented masculine and feminine characteristics were those with the highest loading on the femininity and agency factors, respectively (Bem, 1981).

Finally, participants completed manipulation checks to determine whether they perceived the high status group as having more power than the low status group.

Responses were made as to "How much power does the typical _____ have to

¹ Participants filled out the Bem Sex Role Inventory (BSRI-SF; Bem, 1981) in all three studies and the Social Dominance Scale (SDS; Pratto, Sidanius, Stallworth, & Bertram, 1994) in Studies 1 and 2. No significant effects emerged, so they not mentioned further.

influence others?” and “How much power does the typical _____ have to choose and pursue their own activities and interests?” (blanks were filled in with the name *Gunada* or *Ngwani*). Responses were made on a scale ranging from *none at all* (1) to *a great deal* (7). As a final manipulation check, participants were asked to indicate which group holds higher status by circling the appropriate group name.

Results

Manipulation Check

In line with prior research (e.g., Conway et al., 1999; Conway et al., 2005; Conway et al., 1996; Conway & Vartanian, 2000; Conway et al., 2003) participants perceived members of the high status group ($M = 5.03$) as having significantly more power to influence others than the low status group members ($M = 3.52$, $t(1, 30) = 2.66$, $p < .05$). In addition participants also saw the high status individuals as having more power to choose and pursue their own activities and interests than low status group members ($M = 5.61$ vs. $M = 3.16$, $t(1, 30) = 8.08$, $p < .001$). Lastly, all of the participants correctly identified which group held higher status.

Reaction Times

Outliers

A mean was computed for each participant's reaction times to the high status symbol and another mean was calculated for each participant's reaction times to the low status symbol. The mean reaction times of one participant for the high status symbol was an outlier relative to the sample mean reaction time for the high status symbol ($M = 1046.00$ vs. $M = 568.60$, $SD = 159.30$). Consequently, the data provided by this

participant was excluded from the analyses. The data from a second participant was also excluded from the analyses because their mean reaction time to the low status symbol was an outlier relative to the sample mean reaction time for the low status symbol ($M = 993.37$ vs. $M = 555.97$, $SD = 115.97$).

Status Differences

Only correct responses were considered in the reaction time analyses. There were 60 trials (approximately 2% of responses were incorrect). Reaction times were considered for the first 30 trials and the second 30 trials, separately. For the first 30 trials, one mean was calculated for participants' response times to the high status symbol and another mean was calculated for participants' response times to the low status symbol. Parallel means were calculated for the second 30 trials. Preliminary analyses were conducted with participant gender as a between-subject factor. No significant effects involving gender emerged. Consequently, analyses were conducted for male and female participants combined.

For the analyses of participants' reaction time data, a reciprocal was calculated for each trial. As such, a reaction time of x became $1/x$. This procedure has been suggested by Radcliff (1993) as a powerful method for minimizing the impact outlier responses on reaction time data. Reaction times were analyzed in a Status (low vs. high) X Block (first 30 trials, second 30 trials) within-subject analysis of variance (ANOVA). See Table 1. Although a status main effect was expected, this effect failed to reach significance $F(1,30) = 1.92$, *ns*. Analyses revealed a block main effect $F(1,30) = 63.01$, $p < .001$, which was qualified by a trend for a Status X Block interaction $F(1,30) = 4.04$, $p = .053$.

See Figure 3 for the plot of the reaction times and Table 2 for raw means. Paired samples t-tests revealed that there was no status effect for reaction times in the first block, $t < 1$, (if anything, participants were faster at identifying the low relative to the high status symbol) whereas participants were faster at recognizing the high -relative to the low-status symbol for the second block of trials, $t(1,30) = 2.59, p < .05$.

Table 1: Analysis of Variance of the Reciprocals of Reaction Times in Study 1.

Source	<i>df</i>	<i>F</i>	<i>p</i>
Within Subjects			
Status (S)	1	1.92	.176
Block (B)	1	63.01	.0001**
Interaction (SXB)	1	4.04	.053
Error	30	(1.02E-008)	

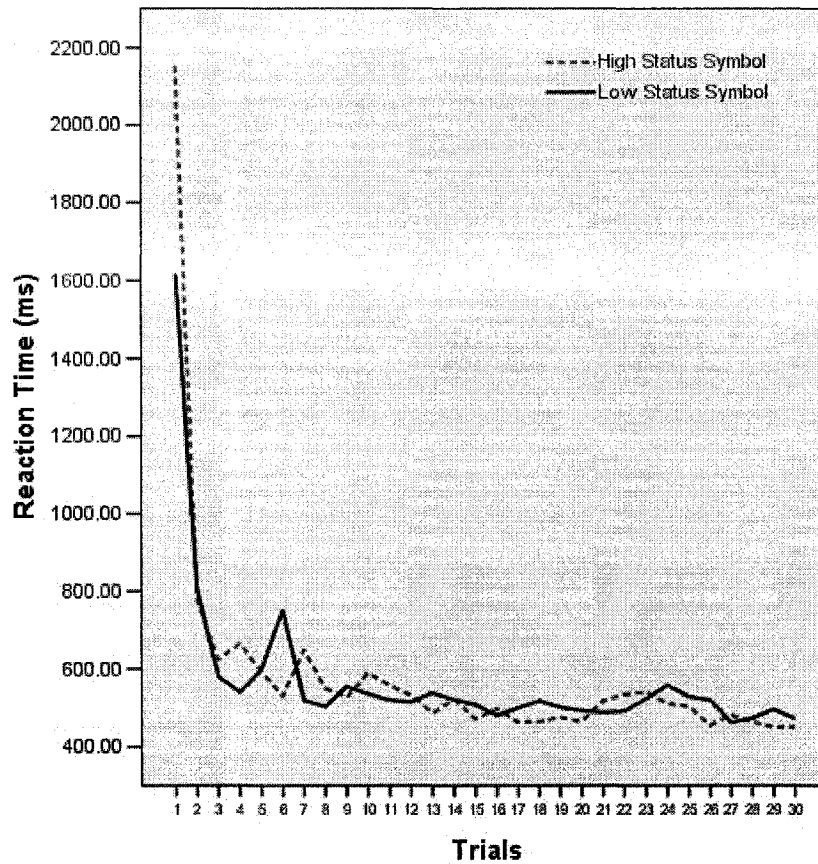
Note. Reaction times were converted to reciprocals so that a reaction time of $x=1/x$. The value enclosed in the parentheses represents the mean standard error.

** $p < .01$

Table 2: Raw Mean Reaction Times for the High and Low Status Symbols in Study 1.

Measure	Low Status		High Status	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Trials 1-14	653.81	180.42	693.53	354.47
Trials 15-30	500.66	87.77	484.15	72.86

Figure 3: Mean reaction times in milliseconds for the high and the low status symbols in Study 1.



In sum, the block main effect reflected the fact that participants responded faster over time. The marginally significant interaction reflected the fact that participants were especially fast at responding to the high status symbol, relative to the low status symbol over time.

As suggested by Radcliff (1993), analyses were also conducted using other methods for reducing the impact of outliers. One approach was to establish a cut-off and to remove all reaction times that exceeded that cut-off. One cut-off was set as to eliminate 10% of the reaction time data; a second approach was to use a 15 % cut-off. A third approach was to remove on a participant-by-participant basis all values that exceeded that

participants' overall mean reaction time plus 2 standard deviations. Finally, a fourth approach was to conduct the analyses using participants' median reaction times. As such, for this approach, a median was computed for participants' responses to the low status symbol, and another median was calculated for participants' responses to the high status symbol. For all these approaches, the significant status difference in reaction time was observed for the second block of trials. However, for none of these approaches did the Status X Block interaction reach statistical significance.

Speed Accuracy Trade-Off

For each participant, a correlation was computed between their overall mean reaction time, their mean reaction time to the low status symbol, their mean reaction time to the high status symbol, number of errors committed, the number of errors committed on the high status symbol, and the number of errors committed on the low status symbol. See Table 3 for correlations. Participants who responded faster overall did not commit more errors overall. Participants who responded faster to the low status symbol committed more errors overall $r(31) = -.39, p < .05$. In contrast, participants who responded faster to the high status symbol did not commit more errors overall. Finally, participants who responded faster overall, committed more errors on the high status symbol $r(31) = -.40, p < .05$.

Table 3: Correlations Between Reaction Times and Error Rates for Study 1.

	1	2	3	4	5	6
Participants ($n = 31$)						
1. Overall RT	–	.90**	.72**	-.32	-.40*	-.14
2. High RT		–	.35	-.19	-.35	.01
3. Low RT			–	-.39*	-.31	-.32
4. Total Error				–	.73**	.84**
5. Errors High					–	.24
6. Errors Low						–

Note. Overall RT = overall reaction time for a participant; High RT = participants' mean reaction time to the high status symbol; Low RT = participants' mean reaction time to the low status symbol; Total errors = sum of errors committed by a participant; Errors High = sum of errors committed by a participant on the high status symbol; Errors Low = sum of errors committed by a participant on the low status symbol.

* $p < .05$, ** $p < .001$

Perceptions of High and Low Status Individuals

A mean agency and communality score was calculated for each participant's perceptions of both the high and the low status members. Paired samples t-tests were used to compare participants' mean ratings, in terms of agency and communality, of the members of the high and low status groups. The present study replicated earlier findings. The participants perceived the members of the high status group as significantly more agentic than the members of the low status group ($M = 5.10$ vs. $M = 3.01$, $t(1,30) = 9.24$, $p < .001$). A second paired samples t-test revealed that participants perceived the members of the low status group as significantly more communal than the members of the high status group ($M = 4.74$ vs. $M = 4.15$, $t(30) = -3.38$, $p < .01$).

Discussion

Overall, the reaction time data showed a typical pattern. Responses were slower and more variable in the beginning, and faster and less variable over time. As expected, participants responded faster to the high status symbol relative to the low status symbol. This was only apparent in the second half of the trials, however. Furthermore, participants completed the task effectively as error rates were low. At the same time, there was a speed accuracy trade off in that participants who responded faster to the low status symbol committed more errors overall. As well, participants who responded faster overall also made more errors on the high status, but not the low status, symbol.

One concern that can be raised regarding the present study is the absence of a status difference in reaction times for the first half of the trials. This was likely due to the fact that there was more variability in the initial trials. It is reasonable to assume that participants were getting accustomed to the task during the first half of the trials, given the novelty of the task performed. Another concern of the present study relates to the employed methodology. During the segment of the experiment in which participants identified a symbol, labels were present on the computer screen. The labels “High Status” and “Low Status”, as noted in Figure 1, served as markers to help participants identify which key to press. It may be the case that these words acted as visual anchors for participants. The word “High” and the word “Low” possess different visual features. As such, it may have been the case that the visual features of the word “High”, drew people’s attention more efficiently than the visual features of the word “Low”. Such a difference may have operated in the peripheral attention of participants and may have influenced reaction times. Study 2 was conducted to address this methodological issue. The

hypothesis in Study 2, as in Study 1, was that individuals are faster at identifying high relative to low status symbols.

Study 2

Method

Participants

Participants were 32 undergraduate students from Concordia University (17 men and 15 women). Age range was from 19 to 29 years ($M = 21.41$). Participants were recruited in classrooms and by posting signs across campus as in Study 1. They were offered \$10 for their participation.

Procedure

The procedure was the same as in Study 1 except for certain methodological improvements. For one, no labels were present on the screen while participants performed the two-alternative forced choice task See Figure 4. This is a change from Study 1 in which the labels “Low Status” and “High Status” identified the low and high status keys, respectively. In order to assure that participants were familiar with the keys before beginning the task, a practice session was added. During this session, participants learned which key to use for identifying either the low or the high status symbol. In addition, a cue card identifying the symbols and their status was placed in front of the keyboard, outside participants’ peripheral vision (see Figure 5). Finally, a different keyboard was used. The keyboard employed in Study 2 increased accuracy by reducing the time taken to record a participant’s response. As such, this keyboard is designed so that a key press is recorded within 1 millisecond. Standard keyboards such as the one employed in Study 1 are designed to alert the computer every 5 to 25 milliseconds that a

response has been made. The keyboard used in Study 2 has a similar appearance to standard keyboards and was purchased from Empirisoft, which also provides *DirectRt* software (Jarvis, 2006). As in Study 1, group name, symbol, status and keys were fully counterbalanced. In other respects, the trials were identical to Study 1. By error the inter trial interval was set to 0 milliseconds, as opposed to 1000 milliseconds in Study 1. .

Figure 4: Computer screen display in Study 2.

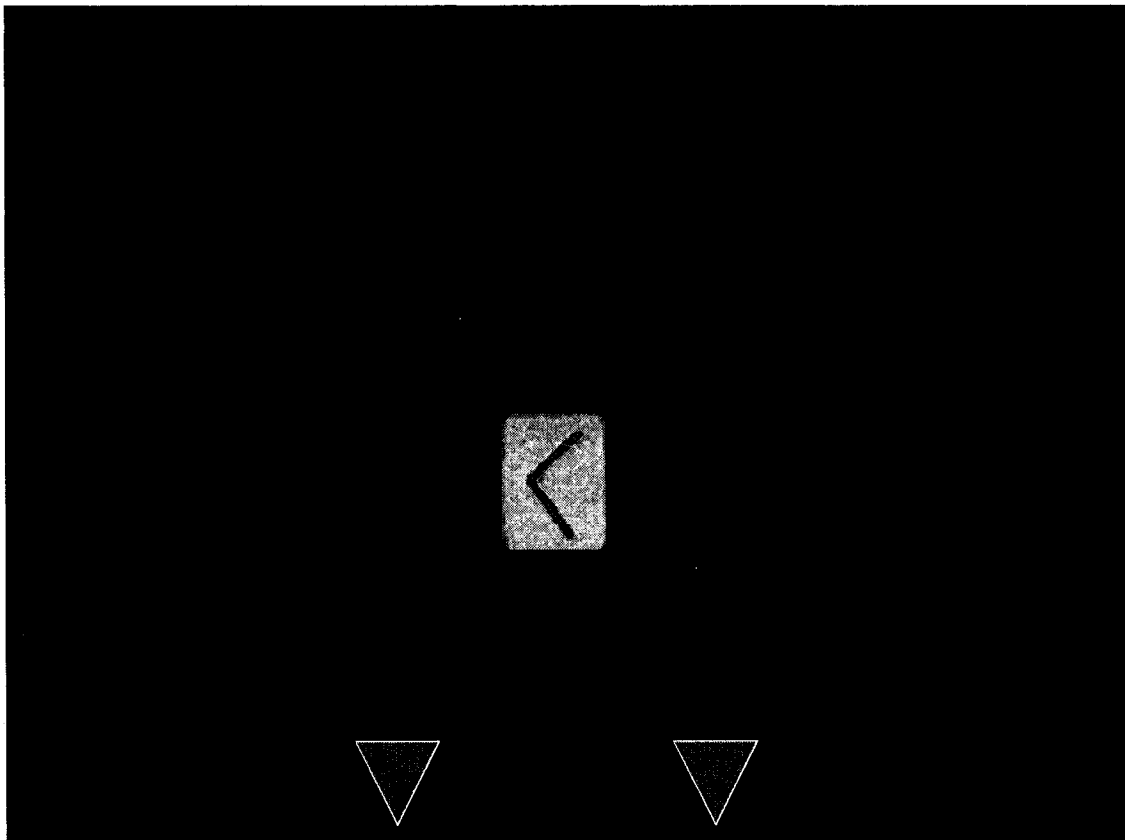
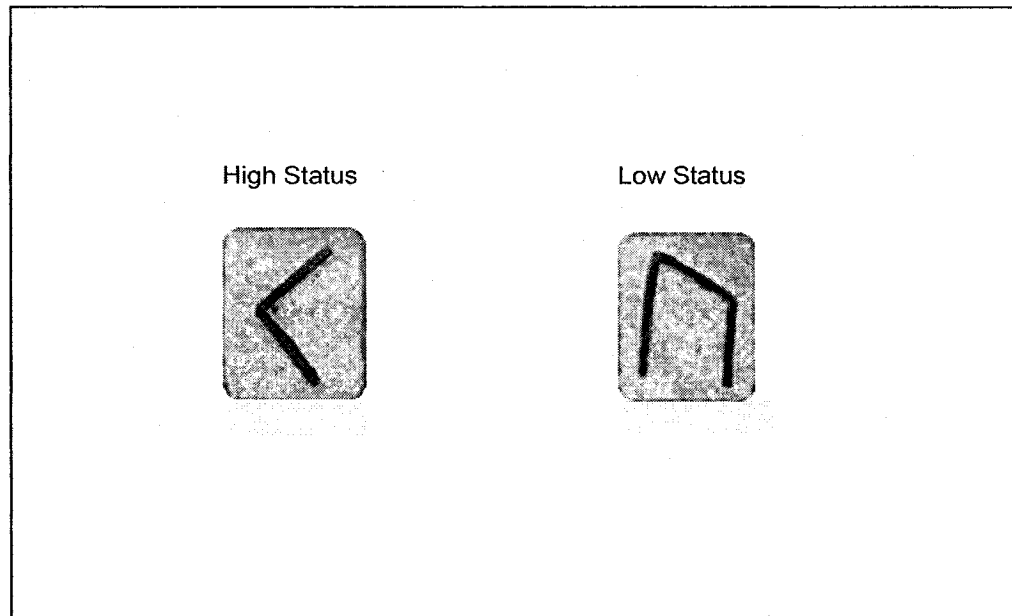


Figure 5: Cue card identifying the symbols and their status in Study 2



Results

Manipulation Check

As in Study 1, participants perceived members of the high status group ($M = 5.84$) as having significantly more power to influence others than the low status group members ($M = 2.97$, $t(1, 31) = 6.72$, $p < .001$). In addition participants also saw the high status individuals as having more power to choose and pursue their own activities and interests than low status group members ($M = 5.69$ vs. $M = 3.97$, $t(1, 31) = 4.36$, $p < .001$). Lastly, all of the participants correctly identified which group held higher status.

Reaction Times

Outliers

No participants were outliers in terms of mean reaction times.

Status Differences

As in Study 1 only correct responses were considered in the reaction time analyses (approximately 1% of responses were incorrect). Analyses were conducted as in Study 1. For the first 30 trials, one mean was calculated for each participant's response times to the high status symbol, and another mean was calculated for each participant's response times to the low status symbol. As well, parallel means were calculated for the second 30 trials.

As in Study 1, a reciprocal transformation was applied. As such, a reaction time of x was changed to $1/x$. As in Study 1, participant gender was initially entered as a between-subjects factor. No significant effects involving gender emerged, as such analyses were conducted for male and female participants combined. Reaction times were analyzed in a Status (low vs. high) X Block (first 30 trials, second 30 trials) ANOVA. See Table 4. The status main effect failed to reach significance, $F(1,31) = .03$, *ns*. As in Study 1, there was a significant block main effect $F(1,31) = 42.16$, $p < .001$, which was qualified by a trend for a Status X Block interaction $F(1,31) = 3.48$, $p = .072$. See Figure 6 for the plot of reaction times and Table 5 for raw means. Paired samples *t*-test were conducted to compare mean reaction times. The marginally significant Status X Block interaction was due to participants tending to be faster for identifying the high- relative to low status symbol for the second half of the trials $t(31) = 1.33$, $p = .192$. For the first half of the trials, there was no difference between participants' responses to the high and the low status symbols, $t(31) = .676$, $p = .502$.

As in Study 1, analyses were also conducted using other methods for reducing the impact of outliers. Using a 10% and a 15% cutt-off, no significant effects were observed. With an analysis of the medians, results were similar to those obtained when analyzing the reciprocals.

Table 4: Analysis of Variance of the Reciprocals of Reaction Times in Study 2.

Source	<i>df</i>	<i>F</i>	<i>p</i>
Within Subjects			
Status (S)	1	0.03	.180
Block (B)	1	42.16	.001**
Interaction (SXB)	1	3.48	.072
Error	31	(8.1E-009)	

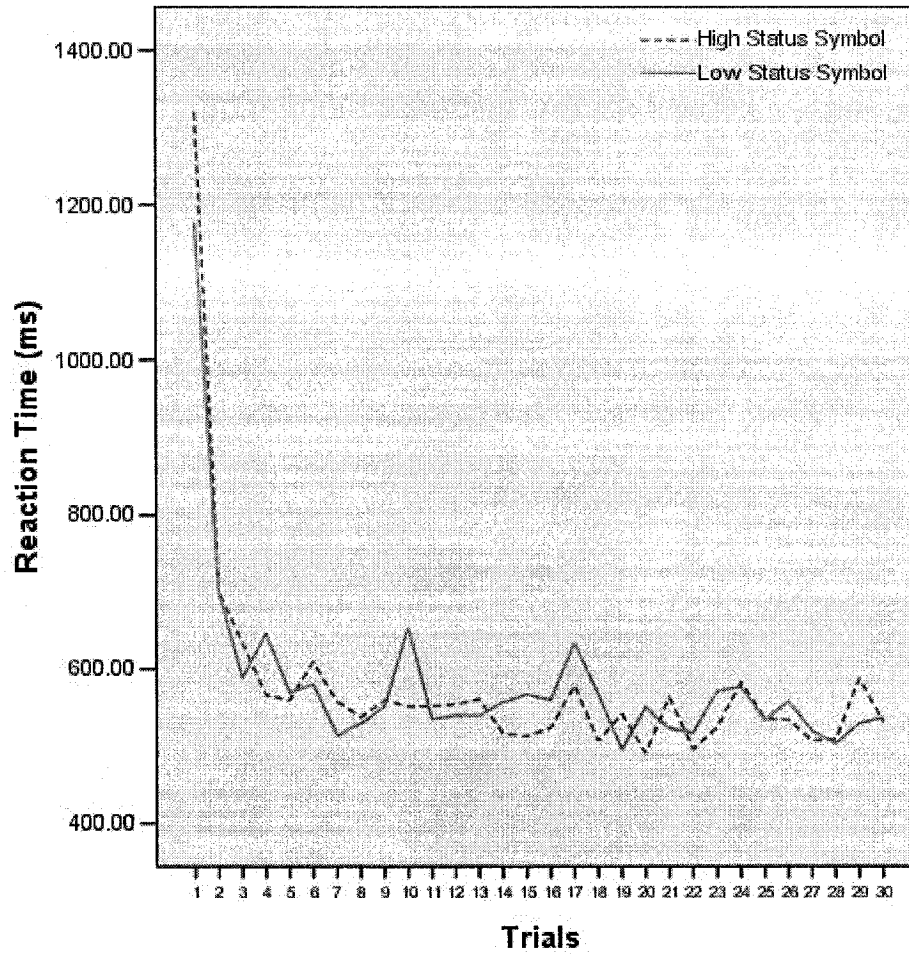
Note. Reaction times were converted to reciprocals so that a reaction time of $x=1/x$. The value enclosed in the parentheses represents the mean standard error.

** $p < .01$

Table 5: Raw Mean Reaction Times for the High and Low Status Symbol in Study 2.

Measure	Low Status		High Status	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Trial 1-14	618.49	147.38	627.67	129.08
Trial 15-30	545.01	110.03	532.62	100.75

Figure 6: Mean reaction times in milliseconds for the high and the low status symbols in Study 2.



Speed Accuracy Trade Off

Correlations were conducted between reaction times and error rates, as in Study 1.

As in Study 1, participants who responded faster overall did not commit more errors overall.

Table 6: Correlations Between Reaction Times and Error Rates for Study 2.

	1	2	3	4	5	6
Participants ($n = 32$)						
1. Overall RT	–	.93**	.95**	-.27	-.04	-.32
2. High RT		–	.77**	-.21	.003	-.27
3. Low RT			–	-.30	-.07	-.34
4. Total Error				–	.69**	.94**
5. Errors High					–	.39*
6. Errors Low						–

Note. Overall RT = overall reaction time for a participant; High RT = participants' mean reaction time to the high status symbol; Low RT = participants' mean reaction time to the low status symbol; Total errors = sum of errors committed by a participant; Errors High = sum of errors committed by a participant on the high status symbol; Errors Low = sum of errors committed by a participant on the low status symbol.

* $p < .05$, ** $p < .001$

Perceptions of High and Low Status Individuals

Replicating the findings of Study 1, participants perceived the members of the high status group as more agentic than the members of the low status group ($M = 4.93$ vs. $M = 3.46$, $t(1, 31) = -2.17$, $p < .05$). Also replicating past findings, participants perceived the members of the low status group as significantly more communal than the members of the high status group ($M = 4.71$ vs. $M = 4.26$, $t(31) = -4.68$, $p < .01$).

Discussion

As in Study 1, the reaction time data showed a typical pattern. Responses were slower and more variable in the beginning, and faster and less variable over time. As was also the case in Study 1, participants completed the task effectively as error rates were low. In the present study, participants tended to respond faster to the high-relative to the low status symbol, though the status effect was not statistically significant. This trend was only apparent in the second half of the trials. There was no status difference in reaction times for the first half of the trials. As in Study 1, it may be the case that participants were getting accustomed to the task during the first half of the trials. If anything, the fact that the results in Study 2 were somewhat weaker could be attributed to methodological differences. In particular, the inter-trial interval was set to 0 ms in Study 2, as opposed to 1000 ms in Study 1. As such, perhaps the rapidity of the trials fatigued the participants.

In Studies 1 and 2, participants responded to groups with which they had no experience in everyday life. For Study 3, I was interested in whether using real life status groups may also elicit a status-related attentional bias. In society, women are generally perceived as holding a lower status than men (Jackson et al., 2001; Ridgeway & Bourg, 2004). As such, the hypothesis in Study 3 was that individuals will be faster at identifying a symbol that identifies the category “men” than a symbol that identifies the category “women.”

Study 3

Method

Participants

Participants were 32 undergraduate students at Concordia University (16 men, 16 women) with ages ranging from 18 to 38 years ($M = 22.6$). Participants were recruited at a booth located on the university campus, as in Studies 1 and 2. Participants were also offered 10\$ for their time, as in the previous studies.

Procedure

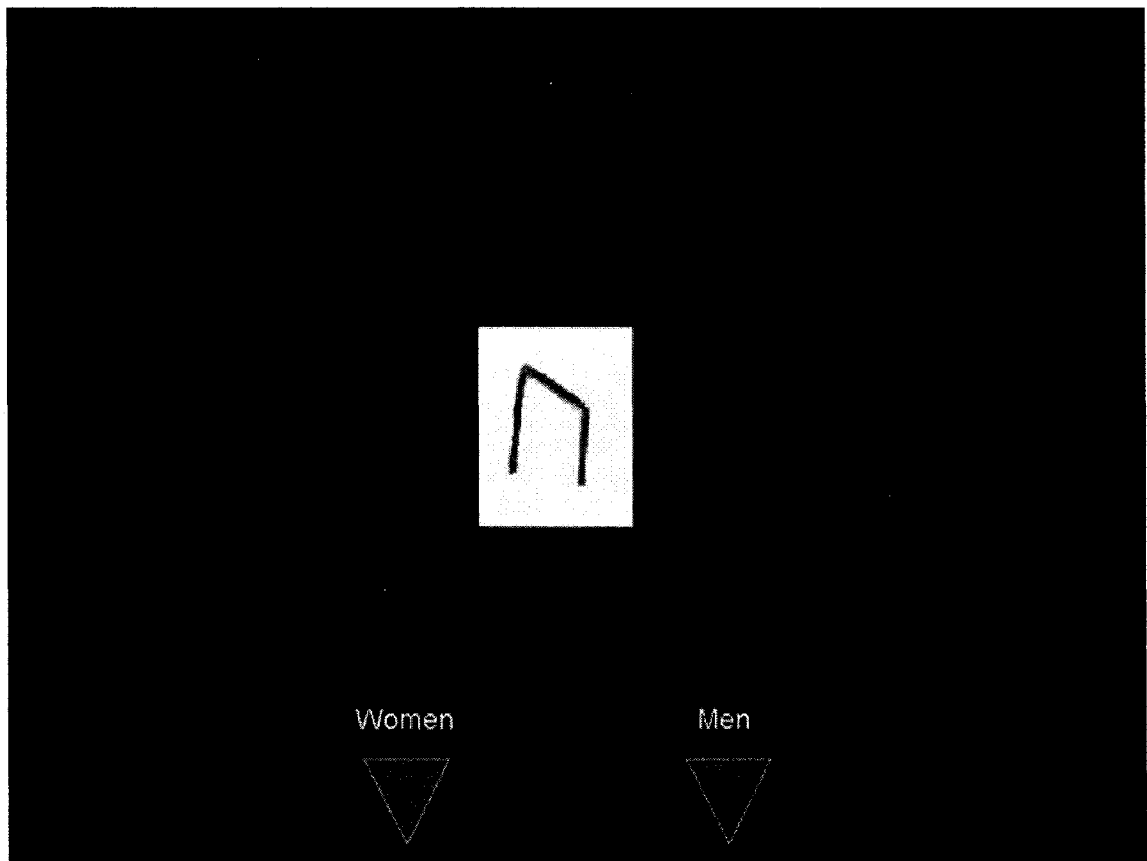
One participant was present at each experimental session. See appendix E for instructions. The experimenter told participants that the study concerned people's ability to learn the meaning of new symbols. Participants were also told that they would be asked to learn to associate symbols to categories of people. Finally participants were told that they would be asked to learn a symbol for the category "men" and a symbol for the category "women."

Participants learned a symbol for the category "men" and a symbol for the category "women" before the experimental trials. As such, the experimenter presented two cards to the participants. Participants viewed a card on which was printed the symbol for the category "men" and a card on which was printed the symbol for the category "women." These were the same symbols used in Studies 1 and 2. See Figure 1. The experimenter presented participants one card at a time and informed the participant whether the symbol on the card represented the category "men" or the category "women." After identifying the symbols, the experimenter then presented the cards again

and asked participants to verbally identify whether the symbol on a card represented the category “men” or the category “women.” The experimenter repeatedly presented the cards until the participant could correctly identify both symbols. On average participants were presented the pair of cards three times.

After learning the symbols, participants completed the experimental task. As in Studies 1 and 2, participants first completed a practice on the computer. Subsequently, they completed the experimental task. Participants were presented one symbol at a time in a two-alternative forced choice task. See Figure 7 for computer display. Participants were asked to identify as quickly and as accurately as possible whether a presented symbol represented the category “men” or the category “women.” Keys, gender group and symbols were completely counterbalanced. The trials were presented in the same sequence as in Studies 1 and 2. As in Study 1, the inter-trial interval was 1000 milliseconds.

Figure 7: Computer screen display in Study 3.



Results & Discussion

Reaction Times

Outliers

As in Study 2, there were no participants who were outliers in terms of their mean reaction times.

Category Differences

As in Studies 1 and 2, only correct responses were considered in the reaction time analysis (approximately 1% of responses were false). Analyses were conducted as in Studies 1 and 2. For the first half of the trials, one mean was calculated for each

participant's mean reaction time to the male symbol and another mean was calculated for each participant's mean reaction time to the female symbol. As well, parallel means were calculated for the second half of trials.

As in Studies 1 and 2, a reciprocal was computed for each reaction time trial. As in Study 1 and 2 participant gender was entered as a between-subjects factor for the preliminary analysis. No significant effects involving gender emerged, therefore the analyses were conducted for male and female participants combined. Reaction times were calculated in a Category ("men" vs."women") X Block (first 30 trials, second 30 trials) ANOVA. See Table 7. The category main effect was not significant $F(1,32) = 1.44, ns$. As in Studies 1 and 2, there was a significant block effect $F(1,32) = 40.15, p < .001$. There was no significant Category X Block interaction, $F(1,32) = 1.78, ns$. See Figure 8 for the plot of the reaction times and Table 8 for the raw means. The significant block effect indicated that participants' reaction times became faster over time. The absence of a gender effect or Category X Block effect indicated that participants were not especially fast at identifying the symbol for the category "men" relative to the symbol to of the category "women."

As in Studies 1 and 2, participants' responses were slower and more variable in the beginning, and became faster and less variable over time. Contrary to my expectation, participants did not respond faster to symbol of the category "men" relative to the symbol of the category "women."

Table 7 : Repeated Measures Analysis of Variance for Study 3.

Source	<i>df</i>	<i>F</i>	<i>p</i>
Within Subjects			
Status (S)	1	1.44	.239
Block (B)	1	40.15	.0001**
Interaction (SXB)	1	1.78	.192
Error	31	(6.9E-008)	

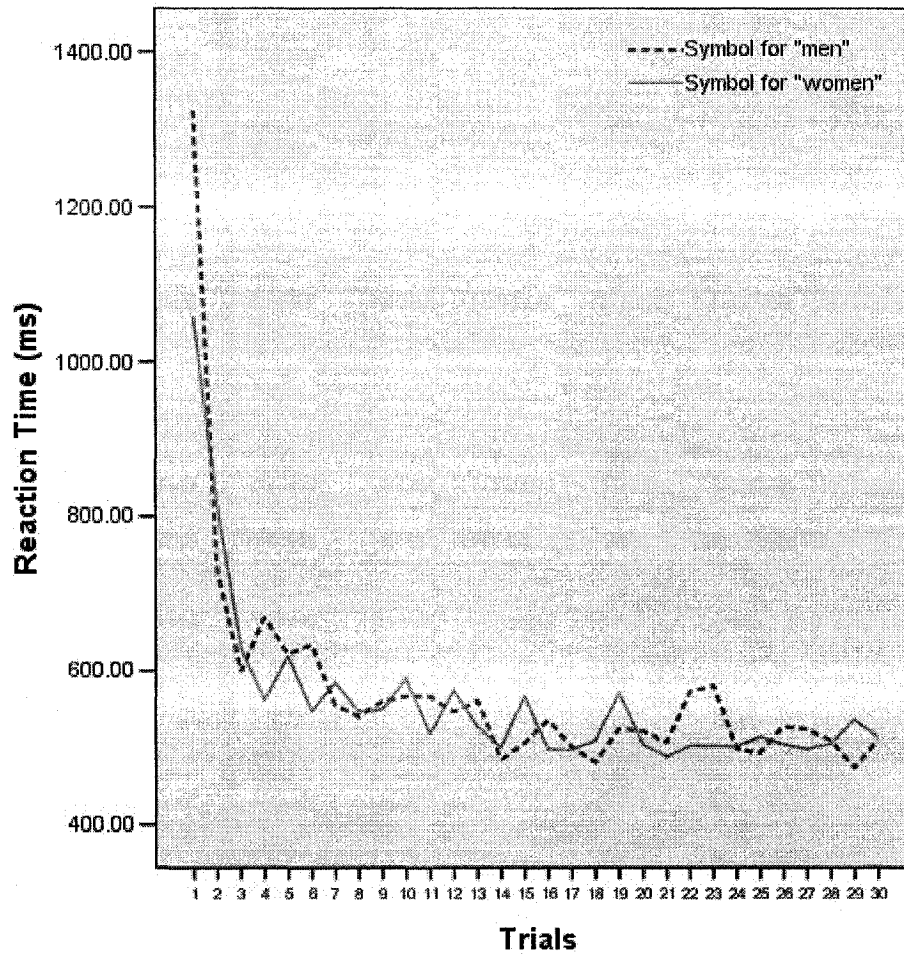
Note. Reaction times were converted to reciprocals so that a reaction time of $x=1/x$. The value enclosed in the parentheses represents the mean standard error.

** $p < .01$

Table 8: Raw Mean Reaction Times for the “men” and “women” in Study 3.

Measure	Category Women		Category Men	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Trials 1-14	613.56	215.81	636.59	173.34
Trials 15-30	511.99	119.53	516.06	99.20

Figure 8: Mean reaction times in milliseconds for the symbols for the categories “men” and “women” for the whole sample in Study 3.



Speed Accuracy Trade Off

Correlations were conducted as in Studies 1 and 2 between mean reaction times and error rates. As in the previous studies, participants who responded faster overall did not commit more errors overall.

Table 9: Correlations between error rates and mean reaction times for Study 3.

	1	2	3	4	5	6
Participants (<i>n</i> = 32)						
1. Overall RT	–	.95**	.96**	-.31	-.20	-.31
2. Men RT		–	.82**	-.32	-.23	-.28
3. Women RT			–	-.28	-.15	-.30
4. Total Errors				–	.83**	.79**
5. Errors Men					–	.32
6. Errors Women						–

Note. Overall RT = overall reaction time for a participant; Men RT = participants' mean reaction time to the symbol for the category "men;" Women RT = participants' mean reaction time to the symbol for the category "women;" Total errors = sum of errors committed by a participant; Errors Men = sum of errors committed by a participant on the symbol for the category "men;" Errors Women = sum of errors committed by a participant on the symbol for the category "women."

***p* < .001

General Discussion

In Study 1, participants displayed a small, yet consistent difference in their reaction time to a high- relative to a low-status symbol. Furthermore, participants grew faster at identifying the high status symbol over time. In Study 2, the same pattern appeared though it was marginally significant. In Study 3, this effect was not observed when gender was used to instantiate status. As such, the present project provides partial evidence that individuals display a status related attentional bias.

In line with past research, participants in Studies 1 and 2 perceived high-relative to low-status individuals as more agentic and less communal (Conway et al., 1999;

Conway et al., 2005; Conway et al., 1996; Conway & Vartanian, 2000; Conway et al., 2003). This finding lends ecological validity to the present studies since individuals formed impressions of the status groups that correspond to the way people generally perceive high and low status groups in everyday life.

The hypothesis was not supported in Study 3. Participants did not show a bias in responses to the symbol for the category “men” relative to the symbol of the category “women.” One possibility is that individuals in this study did not use gender as a status cue. Prior research has shown that individuals use gender as a status cue when they are involved in task-oriented groups (Berger & Zelditch, 1985; Wagner & Berger, 2002). For future research, one possibility would be to lead individuals to expect an interaction with a man or a woman in a task-oriented group prior to being exposed to the symbols that represent “men” and “women.” Another possibility is that individuals are not accustomed to the symbols used in Study 3 to think about gender categories. There are preexisting symbols for men (circle with an arrow shooting out) and women (circle with a cross attached at the bottom). It may be the case that individuals are accustomed to using the preexisting symbols to represent gender. As a result, participants may not have linked the symbols presented in Study 3 to gender groups. However, the importance of the preexisting symbols in popular culture is unknown. As such, it is unclear how much importance these preexisting symbols may have had for the participants in Study 3. In addition, in Studies 1 and 2, individuals were asked to form an impression of the members of the high and the low status groups. It is possible that individuals use status-related information in contexts of social perception. In Study 3, participants were not asked to form an impression of the gender groups. As such, it is possible that participants

in Study 3 did not give the same importance to status information such as gender in the absence of the requirement for engaging in social perception. Indeed, as noted earlier, individuals may pay attention to status cues when they are engaged in task-oriented groups. In these groups, individuals may be involved in social perception as they evaluate others' strengths and weaknesses. Finally, it is also possible that the sample size in Study 3 was too small, and thus did not provide sufficient statistical power for detecting an effect.

The findings of Studies 1 and 2 suggest that individuals display status-related attentional biases. This could be the case for several reasons. For one, evolutionary history could have led individuals to develop a sensitivity to status. In addition, people generally learn to pay attention to high status others in many areas of their lives such as work, and social settings. As well, individuals likely pay attention to status as it is a basic dimension or category individuals use to understand relationships. Individuals may also use status cues to inform their impressions of others. As a result, it is possible that people develop a generalized sensitivity to high status cues.

Future research should address whether some individuals are more likely to show status-related attentional biases. Research has shown that individuals with distinct profiles can show distinct attentional biases. For example, research has shown that depressed individuals and individuals at risk for the experience of depression are faster at identifying sad words than non-depressed individuals (Wenzlaff, Meier, & Salas, 2002). This is believed to be the case because sad words are more accessible to depressed individuals and individuals at risk for depression. As well, heavy social drinkers, when compared to non-heavy social drinkers demonstrated a similar bias for alcohol-related

words (Townshend & Duka, 2001). Similarly, smokers have been shown to have an attentional bias for smoking-related words, when compared to non-smokers (Waters & Feyerabend, 2000). These examples illustrate that people may preferentially process important or relevant information. Furthermore, it may be the case that status cues are of particular relevance for certain individuals.

In the present studies, I examined whether individual self-reported differences in terms of agency and social dominance (Studies 1 and 2) were related to participant's tendency to display a status-related attentional bias (see Footnote 1, p.14). As reported above, agency and social dominance were unrelated to participant's tendency to display a status related attentional bias (see Footnote 1). In future studies, it may be helpful to consider individual differences in terms of people's power motivation. In a review of the literature McClelland, Koestner, and Weinberger (1989) have shown that individuals' motivation for power as measured by the Thematic Apperception Test (TAT) is a good predictor of behaviour. In their study, participants viewed pictures of adult targets in work settings. Participants were asked to identify which target was the boss. The results indicated that individuals with a high motivation for power, as measured by the TAT, were especially good at recognizing status relationships between adults. As such, it may be the case that individuals with a high motivation for power are especially sensitive to high status cues, and would therefore be especially likely to display a status-related attentional bias.

Another question that could be raised is whether certain individuals are more likely to turn their attention away from status cues. For example, depressed individuals often view themselves as inferior, or of lower status (Sloman, Gilbert & Hasey, 2003).

Depressed individuals are also less inclined to pursue social status (Sloman et al., 2003). As a result, it is possible that high status cues are less relevant to depressed individuals. In turn, these individuals could be less likely to demonstrate a status-related attentional bias.

As well, cultural differences might also be important. For example, relationships that correspond to Fiske's *authority ranking* category are more common in collectivist than individualistic cultures (Triandis, 1994). In addition, individuals from collectivist cultures have been shown to give more importance to status differences than individuals from individualistic cultures (Triandis, 1994). As such, members of collectivist cultures could be especially sensitive to status cues.

In addition, future research should also address status-related attentional biases in terms of situational factors. For example, in situations of competition, status information might become more salient and thus more cognitively available. As a result, status-related attentional biases could become magnified under this circumstance.

The present studies were an initial attempt to examine whether individuals display a status-related attentional bias under stringent conditions. That is, there was no functional value of status, status was arbitrary and the symbols employed were also arbitrary. Under these stringent conditions, a trend for a status-related attentional bias was observed in Study 1 and Study 2. In Study 3, when status was instantiated in terms of gender no evidence was found for the existence of a status-related attentional bias. Future research may address individual differences as well as situational factors that may encourage this type of bias. Studying the nature of status-related attentional biases is important as status is relevant in a wide range of social contexts. It is also relevant to a

fundamental form of social relationships, those involving status and hierarchies.

References

- Bem, S. L. (1981). *Bem Sex-Role Inventory: Professional Manual*. Palo Alto, CA: Consulting Psychologists Press.
- Berger, J., & Zelditch, M. (1985). *Status, rewards, and influence: How expectations organize behavior*. San Francisco: Jossey-Bass.
- Bugental, D. B. (2000). Acquisition of the algorithms of social life: A domain-based approach. *Psychological Bulletin*, *126*, 187-219.
- Conway, M., Di Fazio, R., & Mayman, S. (1999). Judging others' emotions as a function of the others' status. *Social Psychology Quarterly*, *62*, 291-305.
- Conway, M., Irannejad, S., & Giannopoulos, C. (2005). Status-based expectancies for aggression, with regard to gender differences in aggression in social psychological research. *Aggressive Behavior*, *31*, 381-398.
- Conway, M., Pizzamiglio, M. T., & Mount, L. (1996). Status, communality, and agency: Implications for stereotypes of gender and other groups. *Journal of Personality and Social Psychology*, *71*, 25-38.
- Conway, M., & Vartanian, L. R. (2000). A status account of gender stereotypes: Beyond communality and agency. *Sex Roles*, *43*, 181-199.
- Conway, M., Wood, W., Dugas, M., & Pushkar, D. (2003). Are women perceived as engaging in more maladaptive worry than men? A status interpretation. *Sex Roles*, *49*, 1-10.
- Cummins, D. (2005). Dominance, status, and social hierarchies. In D. M. Buss (Ed.), *The handbook of evolutionary psychology*. (pp. 676-697). John Wiley & Sons, Inc.

- Dépret, E., & Fiske, S. T. (1999). Perceiving the powerful: Intriguing individuals versus threatening groups. *Journal of Experimental Social Psychology, 35*, 461-480.
- Fazio, R. H. (1990). A practical guide to the use of response latency in social psychological research. In C. Hendrick, & M. S. Clark (Eds.), *Research methods in personality and social psychology*. (pp. 74-97). Thousand Oaks, CA: Sage Publications, Inc.
- Fernald, A. (1993). Approval and disapproval: Infant responsiveness to vocal affect in familiar and unfamiliar languages. *Child Development, 64*, 657-674.
- Fiske, A. P. (1992). The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review, 99*, 689-723.
- Fiske, S. T., & Glick, P. (1999). (Dis)respecting versus (Dis)liking: Status and interdependence predict ambivalent stereotypes of competence and warmth. *Journal of Social Issues, 55*, 473-489.
- Gilbert, P., & McGuire, M. T. (1998). Shame, status, and social roles: Psychobiology and evolution. In P. Gilbert, & B. Andrews (Eds.), *Shame: Interpersonal behavior, psychopathology, and culture*. (pp. 99-125). Oxford University Press.
- Haslam, N. (1994a). Categories of social relationship. *Cognition, 53*, 59-90.
- Haslam, N. (1994b). Mental representation of social relationships: Dimensions, laws, or categories? *Journal of Personality and Social Psychology, 67*, 575-584.
- Jackson, M. L., Esses, V. M., & Burriss, C. T. (2001). Contemporary sexism and discrimination: The importance of respect for men and women. *Personality and Social Psychology Bulletin, 27*, 48-61.
- Jarvis, B. G. (2006). DirectRT Research Software, Version 2006 [Computer Program].

New York, NY (www.empirisoft.com): Empirisoft.

- Kenrick, D. T., Maner, J. K., Butner, J., Li, N. P., & Becker, D. V. (2002). Dynamical evolutionary psychology: Mapping the domains of the new interactionist paradigm. *Personality and Social Psychology Review*, 6, 347-356.
- Luck, S. J., & Vecera, S. P. (2002). Attention. In S. Yantis (Ed.), *Stevens' handbook of experimental psychology* (3rd edition., Vol. 1: Sensation and Perception, pp.235-286). New York: John Wiley & Sons.
- Mayer, K. B., & Buckley, W. (1970). *Class and society* (3 ed.). New York: Random House.
- McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ? *Psychological Review*. 96, 690-702.
- Millar, F. E., & Rogers, L. E. (1987). Relational dimensions of interpersonal dynamics. In M. E. Roloff, & G. R. Miller (Eds.), *Interpersonal processes: New directions in communication research*. (pp. 117-139). Sage Publications, Inc.
- Pratto, F., Sidanius, J., Stallworth, L. M., & Bertram, F.M. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology*, 67, 741-763.
- Sloman, L., Gilbert, P., & Hasey, G. (2003) Evolved mechanisms in depression: The role and interaction of attachment and social rank in depression. *Journal of Affective Disorders*, 74, 107-121.
- Ratcliff, R. (1993). Methods for dealing with reaction time outliers. *Psychological Bulletin*, 114, 510-532.
- Raven, B. H., & Kruglanski A. W. (1970). Conflict and Power, in P. Swingle (Ed), *The*

- Structure of Conflict*, New York: Academic Press.
- Ridgeway, C. L., & Bourg, C. (2004). Gender as status: An expectation states theory approach. In A. H. Eagly, A. E. Beall & R. J. Sternberg (Eds.), *The psychology of gender (2nd ed.)*. (pp. 217-241). Guilford Press.
- Russon, A. E., & Waite, B. E. (1991). Patterns of dominance and imitation in an infant peer group. *Ethology & Sociobiology*, *12*, 55-73.
- Townshend, J. M., & Duka, T. (2001). Attentional bias associated with alcohol cues: Differences between heavy and occasional social drinkers. *Psychopharmacology*, *157*, 67-74.
- Triandis, H. C. (1994) *Culture and Social Behavior*. New York: McGraw Hill.
- Wagner, D. G., & Berger, J. (2002). Expectations States Theory: An evolving research program. Berger, J. & Zelditch, M. (eds.), *New Directions in Contemporary Psychology*. Oxford : Rowman & Littlefield Publishers inc.
- Waters, A. J., & Feyerabend, C. (2000). Determinants and effects of attentional bias in smokers. *Psychology of Addictive Behaviors*, *14*, 111-120.
- Wenzlaff, R. M., Meier, J., & Salas, D. M. (2002). Thought suppression and memory biases during and after depressive moods. *Cognition & Emotion*, *16*, 403-422.
- Wish, M., Deutsch, M., & Kaplan, S. J. (1976). Perceived dimensions of interpersonal relations. *Journal of Personality and Social Psychology*, *33*, 409-420.
- Zelditch, M. (1992). Interpersonal Power. In E. Borgatta & M. Borgatta (Eds.), *Encyclopedia of sociology* (Vol.2, pp.994-1001). New York: Macmillan.

Appendix A

Procedure Instructions

-Greet the participant, hook up coat etc...

-On table, CD player, pens, blank sheets of paper.

“To make sure everyone gets the same instructions I will read them out with you”

-Hand participant instructions

“We are interested in the impressions people form of new social groups, groups they have never encountered before. In this case, the new group is a culture living in a remote corner of the world. In particular, we are interested in the initial impressions people form based on preliminary information. For example, anthropologists visit remote cultures and often form an impression of the members of these cultures after only a few hours contact with the culture, and limited interaction with individuals themselves. We want to know what your impression would be if you came into contact with one of these cultures and had a limited amount of information at your disposal. This is not a memory test and there are no right or wrong answers. We are interested in your impressions.”

I will ask you to listen to the recorded description of one of these cultures. The passage will detail the life of the Ngwani and Gunada who form a society living in North-western Amazonia. The passage is drawn from Cultures around the World by David Murdock.

After listening to the recording, I will ask you some questions related to the

general impressions that you formed about the two groups described in the recording. In one part, I will ask you to sit in front of the computer and provide your answers on the computer. In another part, I will ask you to fill out a questionnaire.

After this, I will ask you to answer some last questions about the two groups described in the recording.

Do you have any questions?

At this point, I would like you to read over the consent form and sign it if you wish”

Before the Recording

“As I said, you will begin by listening to a recording. The recording is in a CD already in the machine. Please listen to the passage twice and feel free to take notes. The passage has been recorded twice so you won’t need to press repeat. We would like you to listen to the passage twice so that you can get a good impression of the culture.

We would like everyone to have exactly the same amount of information so please listen to the passages in their entirety without stopping or pausing.

-Hand the participant the cue card

“These are the names and symbols of the groups. The volume has been preset but you may adjust it if you like. Do you have any questions before we begin?”

“Ok let’s start, I will return after the recording”

-Turn on recording

After recording

“This next part is on the computer. As I explained before, we are interested in how people learn and form impressions about new social groups. Canada is a multicultural society in which learning about new social groups is increasingly important for day to day life. We are interested in whether forming an impression affects all sorts of learning about new and unfamiliar social groups.

As you can see on the sheet of paper you have the names and the symbols of the groups. We are interested in how well you can associate the symbol and the name. On the computer, you will be presented one symbol at a time and you will be asked to identify whether it is the symbol of the high status or the low status group. We are asking people to do this as accurately and quickly as possible because real life often requires us to make judgment calls quickly and accurately.

Since accuracy and speed are important, it is helpful to begin with some practice on the computer. This will allow you to get used to the computer set up.”

-Take seat at the computer

“Since accuracy and speed are important, we are asking people to place their

hands on the keyboard like this (*model position*) and to place their index fingers (*show index*) on the marked keys (*point out marked keys*). So, we would like for you to place your hands like this during the practice and later on when we ask you to make judgments based on the recordings.

So to go to the next screen, you just press the spacebar. You can place your hands anyway you like during the instructions. Take your time because once you move forward, you cannot move back to a previous screen.”

You will receive a similar set of instructions to prepare you to make responses regarding the recording. You will also be reminded of the symbols of the groups and their names a little later on.

If you happen to press a key that you didn't mean to press, don't worry about it, just keep going.”

“If you have any questions, come and get me”

Pass the keyboard over

During The break

“At this time we would like you to take a break. Please have a seat over here. (*Participant sits away from the computer*) During this time I will ask you to fill out this questionnaire. This questionnaire deals with general knowledge and impressions you formed during the recording. There are no right or wrong answers. We are interested in your impression

After break questionnaire

“Now it is time for you to complete the computer exercise. Could you please have a seat back in front of the computer? It is the same exercise as the one you were involved with before the break. Once again, we are interested in accuracy and speed.”

Make sure participant places their hands properly.

“When you are done come and get me”

After 2nd part computer

You have completed the computer exercises. Could you please once again have a seat at this desk? I have two final questionnaires for you.

Hand participant questionnaire.

This questionnaire refers to information presented earlier in the recording. For this questionnaire, we are interested once again in information learned about the two social groups. There are no right or wrong answers. We are interested in your impressions.

Here is the final questionnaire, it will help us better understand you impressions.

Provide debriefing explanation, give money, obtain receipt & Thank participant!

Participant Instructions

We are interested in the impressions people form of new social groups, groups they have never encountered before. In this case, the new group is a culture living in a remote corner of the world. In particular, we are interested in the initial impressions people form based on preliminary information. For example, anthropologists visit remote cultures and often form an impression of the members of these cultures after only a few hours contact with the culture, and limited interaction with individuals themselves. We want to know what your impression would be if you came into contact with one of these cultures and had a limited amount of information at your disposal. This is not a memory test and there are no right or wrong answers. We are interested in your impressions.

You will be asked to listen to the recorded description of one of these cultures. The passage will detail the life of the Ngwani and Gunada who form a society living in Northwestern Amazonia. The passage is drawn from Cultures around the World by David Murdock.

After listening to the recording, you will be asked to answer some questions related to the general impressions that you formed about the two groups described in the recording. In one part, you will be asked to sit in front of the computer and provide your answers on the computer. In another part, you will be asked to fill out a questionnaire.

Following this, you will be asked to answer some last questions about the two groups described in the recording.

Appendix B

Lost Tribe Description

The community lives in the remoter region of the Amazon jungle, just beyond the borders of Brazil. Here the flooded lowlands begin to rise slowly towards the Andes, although the altitude is still only a few hundred feet above sea level. Torrential rains occur frequently in the early morning and mid-afternoon, but despite the dampness the heat is not excessive. Fresh breezes, frequent thunderstorms, and heavy evaporations maintain the temperature at an average 28 degree C.

The members of the community work neither metal, stone, nor leather. Many tools, utensils, and containers are fashioned from animal teeth, wood, fiber, leaves and the shells of wild fruits and nuts. The community engages in some commerce with the local government and traders, exchanging woven baskets and other handcrafts that they make themselves for pottery, fabric, clothing, metal pots, and leather goods made by others.

In terms of the housing, community members live in huts that are simple structures built of wood and thatched leaves. The huts are built away from the river with a number of pathways leading from the river to the village. The members of the village obtain food from hunting, fishing, and collecting various wild fruits and plants. They depend largely on hunting for their meat foods, securing large game such as deer and tapirs with light spears of cane, their tips dipped in poison. The poison does not make the meat dangerous to eat. For smaller game, such as birds and monkeys, a blowgun is used, the tip of the dart filled with a poison taken from the curare plant. In addition to hunting,

the community members also catch fish using a variety of methods. They also collect wild fruits and nuts, eggs from nests, and catch frogs, snakes, and lizards when larger game is hard to find. In addition, there are a number of small plantations in the jungle where the village members cultivate maize, yams, sweet potatoes, peanuts, peppers, pineapples and tobacco.

The community is composed of two distinct groups; the Ngwani and the Gunada, who each identifies itself with a symbol. Folklore tells of how the gods fashioned the first man and woman from twigs and clay. The gods were so pleased with their work that they decided to make a whole people. Although both groups are from the same racial stock and are almost identical in physical characteristics, tradition holds that the Ngwani are the direct descendents of the first man and woman. The Ngwani hold a higher *status* in the society. According to common belief, the Gunada are not direct descendents of the first family; this seems to be tied to the fact that the Gunada hold a lower *status* than the Ngwani. The difference in status is evident upon entering the village; the Gunada huts, which bear the symbol of the Gunada above the entrance, are on the outer peripheral edge of the village. Conversely, the huts of the Ngwani are marked with the symbols of the Ngwani, and are clustered around a larger hut in the center of the village. This larger hut is used for gatherings of the community. Another noticeable difference is that the leaves used in the roofs of the Ngwani huts are from a different tree that gives the roofs of their huts a characteristic deep green color; this color contrasts with the pale green of the roofs of the Gunada huts.

Clothing is functional; men wear a simple loincloth around their waist which they seem to wear continuously. Women wear simple dresses of light fabric. In addition to the

clothing, both men and women wear many ornaments. The Ngwani wear more ornaments than the Gunada. Tight bands are worn on the upper arms of the men and on the ankles and upper calves of the women. These bands bear the symbol of the village member's group, and are delicately woven from fine fiber threads with interesting geometric designs. The designs on the bands of the Ngwani are more complex and are woven with threads dipped in red and black dyes. In contrast, the simpler designs worn by the Gunada are woven with threads dipped in white and black dyes. Necklaces are made with shells, teeth, bone discs and colored seeds. Traditionally, the Ngwani wear a line of deep red dye across their foreheads.

The activities in the community are shared. Much of the time is spent in search and preparation of food. After bathing in the river at dawn, the village members disperse to hunt and fish and go to work in the fields. The Ngwani are seen as holding the land for gods even though both the Ngwani and Gunada work side by side in the fields. Usually another bath is taken in the river at sundown and then the members of the community gather in the communal hut for the principal meal of the day. As part of their privileges, the Ngwani are entitled to the best of the hunt and the best of the crop; however, great care is taken to ensure that everyone has enough to eat.

The tribe's religious beliefs centers around a number of gods, including both celestial and terrestrial gods. They also believe that all objects, both animate and inanimate, possess a spirit, which can either be good or evil. According to the belief of the community, the Ngwani are seen as being in closer contact with the spirits. The members of the community also have a strong belief in magic.

Many of the traditional ways of life are transmitted through songs and dances.

Some songs are quite lengthy and tell the history of the people. Many dances seem to re-enact important community events. The hunt is a central theme in many of the dances.

Because the Ngwani hold a higher *status* and the Gunada a lower one, intermarriage and sexual contact between the two groups is strictly forbidden. Other types of social interaction are allowed. The members of the groups interact on a daily basis in farming, gathering, and hunting, and preparing food. Marriages are monogamous, but adultery is not unknown. Chastity is expected of the unmarried. The prevalent family unit is the nuclear family, but the extended family has a lot of influence.

The tribe is led by a council that is composed of elders of both the Ngwani and the Gunada. This council is responsible for taking decisions which affect the whole village.

Appendix C

Instructions

The following characteristics can be used to describe people. We would like you to think about the Gunada. How well do you think each of these characteristics describes them? In other words, how true of the Gunada is each of these characteristics? Please indicate your answer by circling the appropriate number on the scale, which follows each item. If you are not sure, please give us your best guess.

Aggressive

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Compassionate

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Conceited

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Sympathetic

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Forceful

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Dominant

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Has leadership abilities

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Sensitive to the needs of others

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Assertive

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Jealous

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Strong personality

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Truthful

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Tender

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Moody

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Gentle

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Conscientious

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Reliable

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Warm

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Now, we would like you to think about the other group in this society, that is, the Ngwani. How well do you think each of the following characteristics describes them? In other words, how true of the Ngwani is each of these characteristics? Please circle the appropriate number on the scale, which follows each item. If you are not sure, please give us your best guess.

Aggressive

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Compassionate

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Conceited

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Sympathetic

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Forceful

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Dominant

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Has leadership abilities

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Sensitive to the needs of others

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Assertive

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Jealous

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Strong personality

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Truthful

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Tender

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Moody

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Gentle

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Conscientious

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Reliable

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Warm

1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Appendix D

We are interested in how the following questions pertain to the typical Ngwani and the typical Gunada. For each question, please indicate your answer by circling the number on the scale which best represents your response. If you are not sure, please give us your best guess.

1. How much power does the typical **Gunada** have to influence others?

1	2	3	4	5	6	7
none at all	very little	Some		quite a bit	a lot	a great deal

2. How much power does the typical **Ngwani** have to influence others?

1	2	3	4	5	6	7
none at all	very little	Some		quite a bit	a lot	a great deal

3. How much power does the typical **Gunada** have to choose and pursue their own activities and interests?

1	2	3	4	5	6	7
none at all	very little	Some		quite a bit	a lot	a great deal

4. How much power does the typical **Ngwani** have to choose and pursue their own activities and interests?

1	2	3	4	5	6	7
none at all	very little	Some		quite a bit	a lot	a great deal

5. Which group holds higher status (please circle only one group)?

Ngwani

Gunada

Appendix E

Experimenter Instructions

-Greet the participant, hook up coat etc...

“To make sure everyone gets the same instructions I will read them out with you”

-Hand participant instructions

“We are interested in people’s ability to learn the meaning of different symbols. In life, individuals are often asked to use symbols to represent objects in their environment. Traffic lights or dollar signs are examples of easily recognized symbols. People are generally faster, and more accurate at recognizing a symbol than a word. For example, people identify the dollar sign more easily than the word *dollar*. We are interested in whether people are as fast and accurate at identifying symbols when they are used to represent categories of people, such as men and women.”

“In this study, you will be presented symbols. While sitting at the computer, you will be asked to make judgments about the presented symbols.”

“In another part, I will ask you to fill questionnaires.”

“Do you have any questions?”

“At this point, I would like you to read over the consent form and sign it if you wish.”

Participant sings the consent

“As I explained before, we are interested in how people learn symbols. Learning new symbols is important for day to day life. It is also a useful tool of communication given that we live in a multicultural society and that symbols transcend language barriers. Today we are interested in how easily individuals can associate symbols to people. To examine this we are starting with the basic groups of men and women because they exist in all cultures. On the computer, you will be presented one symbol at a time and you will be asked to identify whether it is the symbol of the group “men” or the group “women”. We are asking people to do this as accurately and quickly as possible because real life often requires us to make judgment calls quickly and accurately.”

“Since accuracy and speed are important, it is helpful to begin with some practice on the computer. This will allow you to get used to the computer set up.”

“After the practice, you will be presented the symbols for men and women. You will make judgments regarding the presented the symbols.”

“To make your job easier on the computer, I will make sure you are familiar with the symbols before starting.”

Show symbols on individual pieces of paper

“This is the symbol that represents the category Men.”

“This is the symbol that represents the category Women.”

“Once again, this is the symbol that represents the category men,
and this is the symbol that represents the category women”

“Now I would like for you to tell me what category each symbol identifies”

Present symbols with feedback until correct responses are given.

“You may now have a seat at the computer”

Take seat at the computer

“Since accuracy and speed are important, we are asking people to place their hands on the keyboard like this (*model position*) and to place their index fingers (*show index*) on the marked keys (*point out marked keys*). So, we would like for you to place your hands like this during the practice and later on when we ask you to make judgments based on the recordings.

“To go to the next screen you just press the spacebar.”

“You can place your hands anyway you like during the instruction”

“Take your time during the instructions, because once you move forward, you cannot move back to a previous screen.”

“You will receive a similar set of instructions to prepare you to make judgments about the symbols”

“You will also be reminded of the symbols and the categories they represent a little later on.”

“If you happen to press a key that you didn’t mean to press, don’t worry about it, just keep going”

“I will let you do the practice, and the portion on the symbols. When you are done, come and get me.”

Pass the keyboard over

At the break:

“At this time we would like you to take a break. Please have a seat over here.

(Participant sits away from the computer) During this time I will ask you to fill out this

questionnaire. There are no right or wrong answers.

After break questionnaire

“Now it is time for you to complete the final computer exercise. Could you please have a seat back in front of the computer? It is the same exercise as the one you were engaged with before the break. Once again, we are interested in accuracy and speed.”

Make sure participant places their hands properly.

“When you are done come and get me”

After 2nd part computer

“You have completed the computer exercises. Could you please once again have a seat at this desk? I have some final questions for you.”

Hand participant questionnaire.

After participant has filled out this questionnaire, provide debriefing, give money, and &

Thank participant!

Participant Instructions

We are interested in people's ability to learn the meaning of different symbols. In life, individuals are often asked to use symbols to represent objects in their environment. Traffic lights or dollar signs are examples of easily recognized symbols. People are generally faster, and more accurate at recognizing a symbol than a word. For example, people identify the dollar sign more easily than the word *dollar*. We are interested in whether people are as fast and accurate at identifying symbols when they are used to represent categories of people, such as men and women.

In this study, you will be presented symbols. While sitting at the computer, you will be asked to make judgments about the presented symbols.

In another part, I will ask you to fill out a questionnaire.