

# Category and Stereotype Activation: Is Prejudice Inevitable?

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Three experiments tested the hypothesis that people high and low in prejudice respond similarly to direct stereotype activation but differently to category activation. Study 1 ( $N = 40$ ) showed that high- and low-prejudice people share the same knowledge of the stereotype of Black people. In Study 2, ( $N = 51$ ) high-prejudice participants formed a more negative and less positive impression of the target person after subliminal priming of the category Blacks than did participants in the no-prime condition. Low-prejudice people tended in the opposite direction. In Study 3 ( $N = 45$ ), both high- and low-prejudice people increased negative ratings when valenced stereotype content was also primed. These findings support a distinction between automatic stereotype activation resulting from direct priming and that consequent upon category activation, implying that the relations among categorization, stereotyping, and prejudice are more flexible than it is often assumed.

A man and a woman, both obviously Italian to judge from their looks and language, are engaged in an apparently confidential conversation that culminates with the man passing the woman an envelope.

Is it romantic love or a mafia-related exchange? Both interpretations are stereotypic, and two hypothetical observers would probably *know* both aspects of the stereotype. However, would both stereotypic interpretations immediately spring to mind once the category *Italian* is activated? It seems unlikely. Rather, an observer with mainly positive beliefs about Italian people would readily think of a romantic gesture, such as a love letter, and one with mainly negative views would just as easily infer an illicit transaction. That is, different aspects of the stereotype would be activated in the two observers.

The present research was concerned with the relation between categorization and stereotyping. In particular, it investigated the automaticity of stereotype activation upon categorization and the role played by people's prejudice level in the occurrence and pattern of such activation.

## The Inevitability of Prejudice Argument

A long tradition has conceived of stereotyping and prejudice as an automatic and inevitable consequence of categorization

(Allport, 1954; Hamilton, 1981; Tajfel, 1969), which, in turn, has been regarded as an adaptive and functional process (Brewer, 1988; Bruner, 1957; Fiske & Neuberg, 1990; Rosch, 1978). Specifically, people's memberships in fundamental categories such as age, gender, and race seem to be attended to automatically (e.g., Brewer, 1988; Bruner, 1957; Fiske & Neuberg, 1990). The associated stereotypes become activated upon perception of the category and influence judgments and behaviors (Hamilton & Sherman, 1994; Hamilton, Sherman, & Ruvoilo, 1990; Stangor & Ford, 1992; Stangor & Lange, 1994). Negative group stereotypes can be thought of as the cognitive component of prejudice (Brown, 1995). Thus, prejudice springs from normal cognitive processes and seems to be inevitable. As Billig (1985) summarized this view, "people will be prejudiced so long as they continue to think" (p. 81).

## Automatic Stereotype Activation

It is generally assumed that stereotypes are automatically activated upon perception of a category member (e.g., Allport, 1954; Deaux & Lewis, 1984; Fiske & Neuberg, 1990; also see Hilton & von Hippel, 1996; Stangor & Lange, 1994). Often stereotypes are seen as networks of linked attributes variously conceptualized. The representation of the social group results from the associative links between discrete nodes (e.g., Carlston, 1992; Fiske, 1982; Stephan & Stephan, 1993). The traits become associated with the group node (category) through frequency and consistency of activation (e.g., Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Higgins & King, 1981; Stephan & Stephan, 1993). When encountering a category member the group node is activated, and the excitation spreads from it to other connected nodes, the stereotypic characteristics. Are all characteristics *known* to be stereotypic automatically activated? Probably not, since within the representation some links may be stronger than others (Anderson, 1983; Collins & Loftus, 1975; Rumelhart, Hinton, & McClelland, 1986) if they are activated more often. The attributes corresponding to these links are the ones that will be activated automatically (e.g., Bargh, 1984; Posner & Snyder, 1975; Shiffrin & Schneider, 1977; Smith & Lerner, 1986; also see Stangor & Lange, 1994, for a

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discussion of the sources of associative strength). What links become stronger might vary systematically with a person variable such as prejudice level, as argued later.

The expression *automatic stereotype activation* has been applied to both the direct priming of stereotypic characteristics and the stereotypic responses resulting from priming the category (see Bargh, 1994; Greenwald & Banaji, 1995; von Hippel, Sekaquaptewa, & Vargas, 1995). To specify how stereotypes are elicited upon perception of a category member (or some other cue symbolic of the category), category and stereotype priming should be distinguished. The two modes of stereotype activation can also affect judgments differently. For example, Pratto and Bargh (1991) found that category and stereotype priming had distinct effects on impression formation. This is consistent with their model, in which categories are represented at a level distinct from the concrete attributes associated with them (Andersen & Klatzky, 1987). Neely (1977) and Fazio et al. (1986) proposed similar models in other domains. Ford, Stangor, and Duan (1994) also reported different effects for category and stereotype priming in impression formation, thus supporting the distinction between them.

### *Stereotype Priming*

Automatic stereotype activation is not a consequence of categorization when stereotypic characteristics—with or without category labels—are primed directly. Rather, it is a cause of stereotypic judgments. For example, Banaji, Hardin, and Rothman (1993) found that the applicability (Higgins, 1996) of the primed stereotypic concept to the associated gender category increased ratings of the male targets as aggressive and female targets as dependent.

In a highly influential study, Devine (1989, Experiment 2) primed subconsciously both the category *Blacks* and the stereotype content. High- and low-prejudice people did not differ in their subsequent impression of a target person. This was rated more extremely on the hostility- (and stereotype-) related scales than on the hostility-unrelated scales. Although this study has been quoted widely as demonstrating that high- and low-prejudice people automatically activate the stereotype in the same negative way, it does not actually do so. In fact, both category labels and stereotypic attributes were present in the prime. Thus, whether the strength of association between the category and the traits varies with prejudice level remains an unanswered question. Devine's results sometimes have been explained as being attributable to semantic priming. Many primes had clear negative connotations (e.g., "lazy," "nigger," "welfare," "busing," "ghetto") that could have directly cued hostility (see Greenwald & Banaji, 1995; Hamilton & Sherman, 1994). The absence of differences between high- and low-prejudice people can have another explanation. As with all knowledge, stereotypes are *available* in memory and can be primed, thus becoming accessible *temporarily* (Bargh, 1994; Higgins, 1989). The recent activation of available knowledge results in the well-documented assimilation effects on applicable constructs (e.g., Bargh & Pietromonaco, 1982; Erdley & D'Agostino, 1988; Higgins, Bargh, & Lombardi, 1985; Srull & Wyer, 1979, 1980). In Devine's (1989) study, the primed stereotype was applicable only to the hostility- (and stereotype-) related scales. Thus, the hostility ratings increased as an assimilation-type effect, which

is likely to occur for all participants. It therefore cannot be inferred that high- and low-prejudice people would *spontaneously* activate the cultural stereotype in this way as an automatic response to a group member (or a symbolic equivalent).

### *Category Priming*

Automatic stereotype activation is an effect of categorization when only the category is primed. Other research that has examined differences between high- and low-prejudice people in automatic processing typically has used category priming. This research makes the implicit assumption that the traits are differentially associated with the category in high- and low-prejudice people, but it presents an ambiguous picture as to how stereotype activation occurs. Gaertner and McGlaughlin (1983) found no differences in the attribution of positive and negative traits to the category *Blacks*. The same stereotype activation was present for both high- and low-prejudice people. Locke, MacLeod, and Walker (1994) used a Stroop-like paradigm to activate the category *Aborigines*. Only high-prejudice people demonstrated greater interference in naming the stereotype-related words (compared with the unrelated words). Low-prejudice respondents were unaffected by word stereotypicality, suggesting less responsiveness to category activation. No effect attributable to valence of the words was found. Since our own work was conducted, Wittenbrink, Judd, and Park (1997) reported two lexical decision studies in which ethnic category primes presented subliminally facilitated responses to "Black" negative and "White" positive stereotypic words. This effect was correlated with prejudice level. Thus, people higher in prejudice showed greater activation of positive in-group and negative out-group stereotypes. Fazio, Jackson, Dunton, and Williams (1995) observed that the automatic evaluation of the category *Blacks* varied from negative to positive, although not reliably with prejudice level.

Studies that have not involved prejudice level do not all show automatic stereotype activation upon categorization. Perdue and Gurtman (1990) and Perdue, Dovidio, Gurtman, and Tyler (1990) found that subliminal in-group primes facilitated responses on positive target words and out-group primes on negative words. However, *semantic* stereotype activation was not demonstrated directly in these studies because the target words were not stereotypical of the categories primed. Gilbert and Hixon (1991) showed that category activation may not result in stereotype activation. Participants under cognitive overload did not increase the number of stereotypic completions on a word fragment task when the assistant presenting the stimuli was Asian. However, they still categorized her correctly.

In summary, a model of automatic stereotype activation is still incomplete (see Bargh, 1994; Stangor & Lange, 1994). Stereotype activation resulting from categorization and its qualification by prejudice level need further investigation. The present studies sought to disentangle the effects of direct stereotype activation and category activation on an impression formation task. This is particularly important because Devine's (1989) study is the only one involving prejudice level directly related to person perception. Different patterns of stereotype activation may be possible for high- and low-prejudice people if category and stereotype priming are separated.

### Social Group Representations

To challenge the view of prejudice as inevitable, Devine (1989) distinguished between stereotype knowledge and endorsement (Ashmore & Del Boca, 1981). In her model, differential stereotype endorsement affects only controlled (Neely, 1977; Posner & Snyder, 1975) processes. High- and low-prejudice respondents listed different thoughts about Black people (Devine, 1989, Experiment 3). In contrast, common stereotype knowledge should determine an absence of difference between high- and low-prejudice people in automatic responses. As discussed, Devine (1989, Experiment 2) did not really prove this point because both category and stereotypic content were present in the prime. However, the conceptual argument is considered here. Even though low-prejudice people do not endorse the stereotype, stereotype knowledge is thought to be activated automatically because of its longer history of activation than personal beliefs (Higgins & King, 1981). Thus, low-prejudice people's response to a stimulus evocative of a stereotyped group is non-prejudiced only if the automatic prejudiced reaction can be inhibited. This conclusion still implies that prejudice is inevitable, at least at an automatic level.

In Devine's (1989) model, the divergent stereotypic associations described in our opening vignette are impossible. Smith (in press) noted that Devine's (1989) theory of the automatic activation of stereotype knowledge presents a conceptual problem. In associational models of stereotypes, the links between the group node and associated characteristics usually represent the perceiver's beliefs that the group possesses those attributes (also see Hilton & von Hippel, 1996; Stangor & Lange, 1994). If low- and high-prejudice people's automatic responses are the same, the links (i.e., the beliefs and hence their representations) do not differ. Thus, it is not clear how low-prejudice people's rejection of the negative stereotype is represented cognitively in such a model.

Research has shown that high- and low-prejudice people have available to them the full range of stereotypic attributes culturally associated with a given out-group but endorse different beliefs about it (Augoustinos, Innes, & Ahrens, 1994; Devine, 1989; Devine & Elliot, 1995). In particular, high-prejudice people endorse more the negative and low-prejudice people the positive stereotypic features (Augoustinos et al., 1994, Experiment 2; Devine & Elliot, 1995). Thus, their evaluations of the group differ, possibly strengthening the links with negative traits for high-prejudice people and positive traits for the low-prejudice within the network (see the model by Stephan & Stephan, 1993). Augoustinos et al. (1994, Experiment 2) provided some evidence that stronger associative links may correspond to such different beliefs within the representation. Low-prejudice people were not only more likely to endorse the positive descriptions of Aborigines, but also faster than high-prejudice individuals in doing so. High-prejudice participants endorsed the negative descriptions more and faster than low-prejudice respondents.

Thus, high- and low-prejudice people's representations of the social group may not necessarily differ in terms of *content* (at least for stereotype knowledge) but because stronger *links* may have developed for different characteristics. Some of the research reviewed earlier hints at differences in high- and low-prejudice people's representations of a social group due to associative strength (Locke et al., 1994; Wittenbrink et al., 1997).

As part of knowledge accepted as true (Devine, 1989), beliefs should be activated frequently to process incoming information. The stronger endorsed connections between the group and the frequently activated characteristics should be the ones activated automatically (Bargh, 1984; Higgins & King, 1981; Posner & Snyder, 1975; Stangor & Lange, 1994; Stephan & Stephan, 1993).

If low-prejudice people reject the negative stereotype and high-prejudice people endorse it, the category-negative attribute linkages should be stronger for high-prejudice people. Thus, only high-prejudice people should show automatic activation of the negative stereotypic components. Because low-prejudice people endorse the positive stereotypic features (Augoustinos et al., 1994; Devine & Elliot, 1995), they could traverse their category-positive attributes linkages more frequently, resulting in activation of the positive stereotypic components. This does not exclude another possibility. Because stereotypes of the out-group are mainly negative (e.g., Dovidio, Evans & Tyler, 1986), low-prejudice people's rejection of the stereotype could mean that all their category-trait pathways are weaker. This would result in less stereotype activation altogether, as some empirical data suggest (Locke et al., 1994).

### Overview and General Hypothesis

Our overall aim was to demonstrate that the links among categorization, stereotyping, and prejudice can be somewhat flexible. Accordingly, we hypothesized that if an out-group label or some symbolic equivalent are primed, the resultant stereotype activation and social judgments should diverge, being more negative for the high- and either less evidently stereotypic or more positive for the low-prejudice people. On the other hand, when some valenced stereotype content is primed directly, we predicted similar effects in both groups.

Study 1 assessed whether high- and low-prejudice people have the same knowledge of the cultural stereotype of an ethnic minority. In Study 2, the differential effects of *category* activation on high- and low-prejudice people were tested. Study 3 examined the effects of *stereotype* activation in a conceptual replication of Devine's (1989) priming experiment.

### Study 1: Stereotype Knowledge

To attribute differences between high- and low-prejudice people to differential endorsement of stereotypic features, one first has to show that knowledge of the cultural stereotype is common to all. Devine (1989, Experiment 1) and later Augoustinos et al. (1994, Experiment 1) asked participants to list the content of a cultural stereotype. Devine's data on the stereotype of Black people in the United States resulted in 15 categories, of which only 2 were positive characteristics. The proportions of high- and low-prejudice participants listing each category did not differ. The data of Augoustinos et al. on the stereotype of Aborigines in Australia resulted in 19 categories, of which only 2 were positive characteristics. The findings were mostly consistent with Devine's, and only 3 of the coding categories were mentioned in different proportions by high- and low-prejudice people. Results of the two studies suggest that knowledge of such cultural stereotypes often is shared widely and does not depend on prejudice level. A subsequent study by Devine and Elliot

(1995), using a modification of Katz and Braly's (1933) technique, confirmed these findings.

Consistent with these previous studies, we used a free-response task to ascertain the nature of the cultural stereotype of Black people in the United Kingdom and to explore possible differences between high- and low-prejudice people. Incidentally, we also present a new measure of prejudice suitable for use in a British context. Commonly used prejudice scales (e.g., the Modern Racism Scale of McConahay, Hardee, & Batts, 1981) contain items that are not appropriate in non-American samples.

### A New Measure of Prejudice

A new prejudice scale was developed from existing modern and subtle racism measures (e.g., Jacobson, 1985; McConahay et al., 1981; Pettigrew & Meertens, 1995), modified considerably to be suitable for the British context. It is presented in the Appendix. Because the scale consists of 15 items and the responses range from 1 (*strongly disagree*) to 7 (*strongly agree*), the scale range is 15–105, with a midpoint of 60. A high score indicates greater tolerance (i.e., a lower prejudice level).

Extensive pretesting for optimal item selection ensured that the scale had good internal reliability and construct validity. The observed reliabilities in each of the three studies are presented later. Here, we briefly report the results from an independent sample of White British students ( $N = 162$ ) who completed this measure and five other related scales under development for use in the United Kingdom (i.e., old-fashioned racism, aversive racism, national identification, threat to national identity, contact with ethnic minorities). Factor analysis of the prejudice measure revealed that it had a two-factor structure and that, with oblique rotation, these two factors were substantially correlated ( $r = .47$ ). Thus, combining all 15 items into a single scale seemed justified, a decision confirmed by the high internal reliability observed (Cronbach's  $\alpha = .85$ ). The overall mean in this sample was 75.14 ( $SD = 13.15$ ). As evidence for the scale's validity, we report substantial and theoretically meaningful correlations with each of the five other measures: old fashioned,  $r = -.76$ ; aversive,  $r = -.65$ ; identification,  $r = -.52$ ; threat,  $r = -.61$ ; and contact,  $r = .41$ . ( $p < .001$  in each case). Such a pattern of correlations is completely consistent with that reported by other researchers working with similar scales in other cultural contexts (McConahay, 1986; Pettigrew & Meertens, 1995).

### Method

Forty White British first-year psychology students took part in the study voluntarily and received course credit. In a class administration, the experimenter distributed the envelopes containing the booklets and orally gave the instructions for each task, instructions that also were repeated in the response booklets. All participants responded anonymously throughout. For the first task, participants were told that materials were needed to set up an experiment on stereotypes and were asked to list words and images evocative of West Indians that were often associated with this group. Participants were also told not to express their personal views but to list positive and negative things that would make most British people think of West Indians. Several blank lines followed in two columns: positive and negative. The second task was introduced as one designed to help researchers better understand stereotypes. Partici-

pants were asked to list the content of the cultural stereotype of West Indians. Again, they were told that the researchers were not interested in their personal views. Next, participants filled in the prejudice scale, on the basis of which they were later allocated to high- and low-prejudice groups through a median split.

### Results and Discussion

Because both tasks required thinking about the same ethnic category, it seemed more appropriate to code what respondents had listed across tasks. If the same concept was mentioned in different ways, it was ultimately coded only once in that category.

After examining the protocols, the experimenter, unaware of participants' prejudice level, proposed the coding categories. These were explained to two independent judges (also unaware of participants' prejudice level), further discussed, modified, and finally agreed upon. The judges then coded each individual response. Multiple responses in one category were counted only once. One respondent declared that she did not know the stereotype, did not list anything, and was therefore excluded from the analyses.

According to Scott's (1955) agreement coefficient (which corrects for chance agreement), the interjudge reliability was high (.84). Participants were divided into high- ( $n = 18$ ) and low-prejudice ( $n = 21$ ) groups at the median of the prejudice scale (Cronbach's  $\alpha = .92$ ;  $M$ s and  $SD$ s for the high- and low-prejudice groups were 57.61 and 11.36 and 81.48 and 9.55, respectively).

Of the 24 categories, only 2 revealed any reliable differences between high- and low-prejudice people: miscellaneous negative,  $\chi^2(1, N = 39) = 4.13, p < .05$ , and superstitious,  $\chi^2(4, N = 39) = 3.80, p < .05$ . In both cases, these categories were mentioned more frequently by high- than by low-prejudice people (see Table 1).

For the purposes of Studies 2 and 3, it is also worth noting the most consensual features of the Black British stereotype. Apart from the 3 neutral descriptive categories (i.e., physical description, culture, and religion), the attributes more frequently mentioned by both high- and low-prejudice people were as follows: musical, criminal, violent, athletic, lazy, colorful, relaxed, fun loving, and poor. As demonstrated later, these attributes guided our choice of dependent measures in the subsequent experiments.

A  $3 \times 2$  analysis of variance (ANOVA) was run on the totals of positive, negative, and neutral features listed by high- and low-prejudice participants. The only significant effect was a main effect for type of category,  $F(2, 74) = 10.90, p < .001$ . Both high- and low-prejudice participants listed more negative features than positive and more positive than neutral ( $M$ s = 4.1, 3.2, and 2.3, respectively). Respondents did not differ in the mean total number of categories they mentioned.

The results of Study 1 are generally consistent with those obtained in previous studies, showing that the ethnic stereotype is more negative than positive overall and, more important, that high- and low-prejudice people substantially share the same knowledge of such stereotypes (Augoustinos et al., 1994; Devine, 1989; Devine & Elliot, 1995). These findings also indicate

Table 1  
Proportion of High- and Low-Prejudice People  
Mentioning Each Coding Category

Category	High prejudice	Low prejudice
Musical	.83	.81
Athletic	.56	.48
Colorful	.44	.52
Fun loving	.33	.38
Loyal	.11	.19
Relaxed	.44	.33
Warm	.11	.19
Miscellaneous positive	.17	.29
Physical description	.72	.43
Culture	.78	.62
Religion	.39	.48
Miscellaneous neutral	.67	.52
Lazy	.39	.52
Violent	.61	.48
Criminal	.72	.76
Poor	.28	.43
Uneducated	.22	.14
Sexist	.17	.24
Rude	.39	.19
Unintegrated	.17	.38
Smelly	.17	.14
Persecuted	.28	.25
Superstitious*	.17	.00
Miscellaneous negative*	.56	.24

\*Chi-square significant at  $p < .05$ .

that ethnic stereotypes are as much a part of the British cultural fabric as they are in the United States and elsewhere.<sup>1</sup>

However, some findings in these data suggest that although overall knowledge of the stereotype is the same for high- and low-prejudice people, the representation of the group as such might not be. High-prejudice participants listed significantly more negative idiosyncratic features (miscellaneous negative), hinting at an overall more negative representation of the group. They also tended to mention more physical characteristics, such as skin color and shape of the nose or lips, suggesting an overall attention to perceptual differences between Black and White people that could be conducive to categorizing by ethnicity even when other categories are available (see Stangor, Linch, Duan, & Glass, 1992; see also Zarate & Smith, 1990). In summary, high- and low-prejudice people's representations of the group were substantially equivalent in terms of *content*. However, there were indications that the representations may differ in terms of the *linkages* among those contents. This issue was the main focus of Study 2.

### Study 2: Differences in Automatic Responses to Category Activation

If knowledge of the cultural stereotype of Black people is available to the same extent for high- and low-prejudice people, how easily is that knowledge, or part of it, activated? As discussed earlier, endorsement could lead to differential strength of association between stereotypic characteristics and group node in high- and low-prejudice people through frequency of activation. Thus, different stereotypic traits should be automatically activated in these two groups upon perception of a category

member (or its symbolic equivalent), resulting in divergent stereotypic judgments.

If it can be shown that high- and low-prejudice people differ in their automatic responses to category activation, this would suggest that they hold different representations because of their beliefs and despite their common stereotype knowledge.

A parafoveal subliminal priming procedure similar to that used by Bargh and Pietromonaco (1982) and Devine (1989) was employed to reveal the effects of preconscious automaticity, a kind that requires only a triggering stimulus (Bargh, 1989). In this case, the triggering stimuli were category labels and some category-evocative words, but not valenced stereotypic content. The use of such primes should prevent any effect due to purely semantic priming or recent priming of the cultural stereotype (e.g., Higgins et al., 1985). The subsequent judgments should reflect only a preconscious automatic operation (Bargh, 1994). Unlike most priming studies, in which the construct or concept is primed and then measured (but see Bargh, Raymond, Pryor, & Strack, 1995), here the category was primed and the differential activation of the associated stereotype assessed in the subsequent impression-formation task. With such a procedure, any effects are due to spreading activation. Thus, the differential strength of association between the category and traits in high- and low-prejudice people can be revealed in the form of divergent stereotypic judgments.

Other researchers have used a brief ambiguous paragraph for the impression formation task (Srull & Wyer, 1979). However, here the target person was described by behavioral sentences (Hamilton & Gifford, 1976) containing four stereotypic dimensions (two positive and two negative). Thus, the stimulus ambiguity was achieved with a "mixed" description (see Higgins, 1996) comprising evaluatively opposite constructs (Smith, 1989). This kind of description was designed to enable participants to use positive or negative stereotypic constructs differentially in their judgment as divergent automatic associations were predicted. Note that although the specific behaviors were clearly interpretable (each was carefully chosen to be representative of part of the stereotype), the combination of positive and negative dimensions rendered the overall description of the target person more genuinely ambiguous than proved possible with Srull and Wyer's (1979) type of task.<sup>2</sup> Thus, it should be more sensitive to differential stereotype activation.

Because stronger links are more strongly activated and influence judgments (see Stangor & Lange, 1994), high-prejudice participants in the prime condition should rate the target person

<sup>1</sup> As further evidence on this point, we note that Britain was the major colonial power in the 19th century and it was largely responsible for the establishment of the slave trade. Britain imported large numbers of Afro-Caribbean people after World War II to meet particular labor shortages. It subsequently enacted a whole sequence of immigration laws designed to restrict the entry of non-White people to the country, and it has had its own share of "race relations" incidents, including several race riots in the 1980s (e.g., Banton, 1983; Reicher, 1986).

<sup>2</sup> Pretesting showed that Srull and Wyer's (1979) "Donald" paragraph was perceived by our participants in unambiguously negative terms, thus obscuring differences between the prime and no-prime conditions and also not permitting an impression of the person in positive or negative ways.



more extremely on the negative stereotypic dimensions and less so on the positive dimensions. Low-prejudice people may tend to do the opposite.

### Method

**Participants.** Fifty-one university students took part in the study. They were White British nationals who had agreed to participate when approached by the experimenter on campus. They were paid £2.

**Design.** The design was a 2 (high vs. low prejudice)  $\times$  2 (prime vs. no-prime condition) between subjects. Participants were randomly assigned to the prime or the no-prime condition.

**Materials and procedure.** The experiment was conducted using a Macintosh Quadra 650 computer. The height of the computer was adjusted so that the center of the screen was at eye level. The eye-to-screen distance was maintained at 70–80 cm. Participants were tested individually.

**Priming task.** The priming phase, described as "Experiment 1," was composed of 100 trials grouped in four blocks. Participants had to respond to a series of scrambled letters, appearing at random locations and intervals on the screen, by pressing a key to indicate if the stimulus was at the left or right of the central fixation dot that preceded it. They were instructed not to lean forward, to look at the center of the screen to facilitate stimulus detection, and to be fast and accurate.

Within each block of trials, the stimulus was presented an equal number of times in four parafoveal positions (2–6° of the visual field). No word began farther away than 6.5 cm from the center of the screen or ended closer than 3.5 cm. In the prime condition, 13 words evocative of the category *Black people* were used. They were category labels themselves and neutral associates of the category, based on free responses in pretesting. The words used were as follows: Blacks, Afro-Caribbean, West Indians, colored, afro, dreadlocks, Rastafarian, reggae, ethnic, Brixton, Notting Hill,<sup>3</sup> rap, and culture. Each word appeared on the screen for 100 ms and was then masked by a 14-letter string (xqfbrzpmqwhgbx) that stayed on the screen for 100 ms. The intertrial interval varied from 2 to 6.5 s. The first trial of each new block had an intertrial interval of 7.5 s.

Similar parameters have been used repeatedly to ensure the subliminality of such parafoveal priming, confirmed by the results of the recognition and guess conditions (Bargh, Bond, Lombardi, & Tota, 1986; Bargh & Pietromonaco, 1982; Devine, 1989). In the current experiment, the central dot appeared on the screen for 1 s immediately before each presentation, whereas in previous studies the fixation point was visible on the screen at all times. By cuing participants' attention to the center of the screen right before the stimulus came up, it was less likely for the eye to wander around the screen and hence occasionally catch a glimpse of a particular word.

The procedure was the same in the no-prime condition, except that no real words were used as primes. Instead, the mask flashed up on the screen twice, creating the same subjective experience as in the prime condition (a double flashing, according to participants' reports in both conditions).

Neutral words unrelated to the category *Blacks* were used for the 10 practice trials. These were accommodation, methodology, fireplace, notebook, apple, success, orange, tree, stairs, and danger.

**Impression formation task and dependent measures.** Immediately after the priming task, the instructions on screen stated that we also were interested in the way people form impressions of others and introduced "Experiment 2." Eight behavioral sentences described a person whose ethnicity was not specified. The participants then rated this target person on a number of trait scales (randomly ordered for each participant). Of the eight sentences, two were descriptive of the construct *athletic* (e.g., "He plays football regularly"), two of the construct *fun loving* (e.g., "He goes to parties most weekends"), two of the construct *aggressive* (e.g., "He can easily get angry at people who disagree with him"),

and two of the construct *unreliable* (e.g., "He cannot be bothered to be on time for meetings and appointments"). These four constructs had been generated spontaneously in pretesting to describe Black people (see Study 1).<sup>4</sup> The selected sentences were chosen from a bigger pool of pretested sentences; they were descriptive of their respective constructs, but not too extremely. The final sentences were pretested further for the impression they conveyed when presented together to ensure that the balance among the four constructs was maintained. This meant that the overall image of the target person was ambiguous yet also contained different stereotypic features that might be accessed more or less easily by high- and low-prejudice participants.

Twenty-one rating scales followed the behavioral sentences. Four traits were descriptive of the dimension *athletic* (i.e., athletic, fit, sporty, and active), six represented the dimension *fun-loving* (i.e., outgoing, fun loving, flamboyant, lively, easy going, and relaxed), five were related to the dimension *unreliable* (i.e., unreliable, irresponsible, careless, disorganized, and lazy), and six were descriptive of the dimension *aggressive* (i.e., aggressive, hostile, dislikable, quarrelsome, quick tempered, and touchy). To demonstrate these constructs' internal coherence, an independent sample ( $N = 15$ ) of respondents was provided with the defining attribute of the construct (e.g., athletic) and asked to rate how much a person who had that attribute also possessed each of the other associated attributes (e.g., fit, sporty, and active) using scales ranging from 1 (*not at all*) to 7 (*extremely*). All individual traits were rated above 4.0 (the scale midpoint), and the composite ratings for each of the four constructs all were significantly greater than 4.0 ( $p < .001$  in each case). In the event, we elected to simplify the analysis by combining the four dimensions into two, one positive one negative. All scales ranged from *not at all* (1) to *extremely* (9). Participants therefore had a choice of two positive and two negative stereotypic dimensions on which to judge the target person.

The prejudice scale was presented as an "opinion survey," the last task in the study.<sup>5</sup> Anonymity of the answers and complete freedom to agree or disagree with each item were emphasized.

An extensive individual debriefing then took place. Any observations were recorded, particularly whether participants perceived any connection between the tasks (none did). Finally, the experimenter thanked, paid, and dismissed the respondents.

**Recognition condition.** Twelve additional participants were run in a recognition condition to check on the awareness of the content of the primes. After the priming task, the experimenter explained that words had been flashed on the screen and that in the next part of the experiment the participant should select one of three words after each trial. The experimenter reminded the participant to look at the center of the screen and not to lean forward; the computer was then made to proceed. A

<sup>3</sup> Brixton and Notting Hill are two well-known areas of London with high concentrations of Afro-Caribbean people.

<sup>4</sup> Our choice of constructs perhaps deserves some comment. We chose *athletic* and *fun loving* as the two positive constructs because pretesting had indicated that these were both unambiguously positive and could also be captured in behavioral sentences. *Musical* and *colorful*, although mentioned more frequently in Study 1, were less convenient in these respects. Similar considerations applied to *unreliable* (subsumed in the *lazy* category in Study 1). *Aggressive* was chosen rather than *criminal* to provide some comparability with previous work (e.g., Devine, 1989).

<sup>5</sup> For practical reasons, it was not possible to pretest participants in their level of prejudice. However, given that responses to prejudice measures like this presumably are rather stable, it seems unlikely that any of the preceding procedures could have affected the participants' prejudice scores. Moreover, such posttest measurement of prejudice level has been used successfully in several other comparable studies (e.g., Augoustinos et al., 1994; Devine & Elliot, 1995; Locke, MacLeod, & Walker, 1994; Wittenbrink et al., 1997).

computer-based administration of the prejudice scale followed the 33 recognition trials.

To ensure maximum sensitivity, the recognition test was designed as in Bargh and Pietromonaco (1982, Experiment 2): Instead of choosing the words at the end of the experiment, when the immediate awareness of some words could have worn off, participants had to indicate their choice after each trial when the word had just been presented. More powerfully still, the test was not administered after the impression formation task (see Bargh et al., 1986; Bargh & Pietromonaco, 1982, Experiment 1) but after the priming phase. Each priming word appeared three times in the 39 trials of the recognition test. This gave participants another opportunity to detect the target words because they were presented more than once. After each trial, the target word came up on the screen together with two other words. The distractors were matched in length as much as possible to the target words and were similar to these either in meaning or phonetically. Across the three repetitions, the relative positions of the words was varied. Following each choice, the computer proceeded with the next trial, which was presented after a random interval (2–6.5 s).

## Results

**Recognition test and self-reports.** The presentation of the primes appears to have been subliminal, as intended. Participants in the recognition condition did not score better than chance. The mean proportion correct was .35, which did not differ significantly from the chance value of .33,  $t(11) = 0.66$ , *ns*. In addition, only 1 participant in the prime condition reported being aware of (one or two) words. This individual was excluded from all subsequent analyses. Given that in total some 2,800 presentations were made, this is a low percentage indeed and indicates that cuing attention to the center of the screen immediately before each trial successfully prevented awareness of the primes.

**Prime and no-prime conditions.** Participants were divided at the median into high- ( $n = 25$ ) and low-prejudice ( $n = 25$ ) groups on the basis of their score on the prejudice scale ( $Mdn = 71.5$ ;  $M_s$  and  $SD_s$  for the high- and low-prejudice groups were 59.10 and 9.85 and 80.28 and 7.29, respectively;  $\alpha = .84$ ).

To simplify the analysis, the 10 scales making up the two positive constructs were combined into a single positive index with good internal reliability ( $\alpha = .76$ ). Similarly, the 11 scales tapping the negative constructs were combined into a single negative index, also with high reliability ( $\alpha = .82$ ). These two indexes were incorporated into the design as a within-subjects variable: 2 (high and low prejudice)  $\times$  2 (prime and no-prime condition)  $\times$  2 (positive and negative valence). Our hypothesis specified that high-prejudice people would form a more negative and less positive impression and that low-prejudice people would do the reverse in response to the prime. Therefore, the predicted effect of interest was a three-way interaction.

An ANOVA revealed several significant effects: a main effect for valence,  $F(1, 46) = 11.40$ ,  $p < .002$ , showing that the positive scales had higher ratings than the negative scales ( $M_s = 6.70$  and  $5.99$ , respectively) and a Prejudice  $\times$  Valence interaction,  $F(1, 46) = 4.01$ ,  $p < .051$ . All of these effects were qualified by the expected three-way interaction, Condition  $\times$  Prejudice  $\times$  Valence,  $F(1, 46) = 6.06$ ,  $p < .02$  (see Figure 1).

Analysis of the simple effects of priming revealed that the Condition  $\times$  Valence interaction was significant only for high-prejudice participants,  $F(1, 47) = 6.07$ ,  $p < .02$ . High-prejudice participants in the prime condition rated the target person more

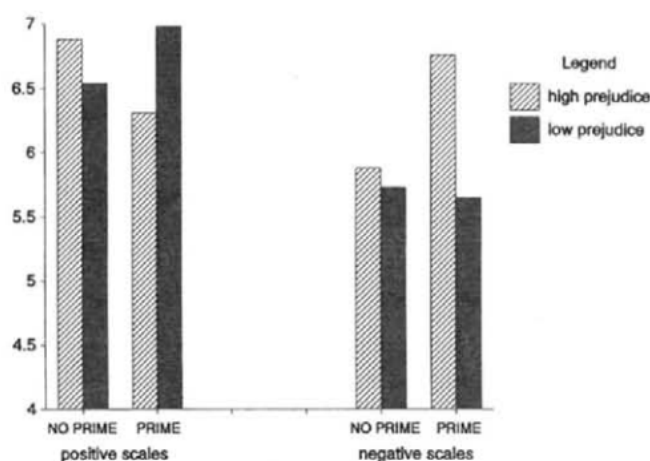


Figure 1. Differential effects of category activation in high- and low-prejudice participants.

extremely on the negative construct ( $M_s = 6.76$  vs.  $5.88$ ),  $t(46) = 3.43$ ,  $p < .005$  and less extremely on the positive construct ( $M_s = 6.31$  vs.  $6.88$ ),  $t(46) = 2.22$ ,  $p < .025$ . Low-prejudice participants increased their ratings on the positive scales ( $M_s = 6.98$  vs.  $6.54$ ),  $t(46) = 1.69$ ,  $p < .05$ , but showed no difference on the negative ones ( $M_s = 5.65$  vs.  $5.73$ ). Simple effects analysis also revealed that the Prejudice  $\times$  Valence interaction was significant in the prime condition,  $F(1, 47) = 10.26$ ,  $p < .002$ , but not in the no-prime condition,  $F(1, 47) = 0.18$ , *ns*. High- and low-prejudice participants did not differ in the absence of prime. When primed, however, high-prejudice participants rated the target person more negatively than did the low-prejudice ( $M_s = 6.76$  vs.  $5.65$ ),  $t(46) = 4.48$ ,  $p < .0005$ , and less positively than did low-prejudice participants ( $M_s = 6.31$  vs.  $6.98$ ),  $t(46) = 2.70$ ,  $p < .005$ . Note that the direction of the effect of the prime on the positive and negative stereotypic construct was exactly the opposite for high- and low-prejudice people.

## Discussion

As predicted, high- and low-prejudice people differed from each other in response to a subliminally presented prime. In particular, high-prejudice participants increased their ratings of the target person on the negative stereotypic dimensions and decreased them on the positive constructs. Low-prejudice participants appeared to be less affected by category activation altogether, although they tended in the opposite direction, showing activation of the positive stereotypic components. Thus, upon category activation the unintentional activation of the stereotype did not occur in an all-or-none fashion (Fiske & Dyer, 1985; Hayes-Roth, 1977) but selectively. One finding deserves some comment. High-prejudice participants' ratings on the positive scales were lower in the prime than in the no-prime condition. This finding, although not predicted, can be explained by considering that most associative models allow for the operation of both excitatory and inhibitory processes (e.g., Carlston, 1992; Stephan & Stephan, 1993). The excitation of the negative stereotypic dimensions might have inhibited the positive ones in these respondents.

By restricting the prime to category labels and neutral associates, semantic priming effects or recency effects were eliminated as explanations of the findings. The preconscious automatic activation of the stereotype proved different for high- and low-prejudice participants. Despite common stereotype knowledge, differential endorsement can make certain stereotypic features more accessible than others. This implies that the strength of association between positive or negative stereotypic traits and category varies in high- and low-prejudice people and therefore so does the resulting mental representation of the group. This pattern of results is completely consistent with the model outlined earlier. As predicted, there seem to be individual differences in the strength of association between the category and various characteristics, resulting, we speculate, from different histories of endorsement of prejudiced (and nonprejudiced) stereotypic beliefs.

### Study 3: A Conceptual Replication of Devine (1989)

The differential strength of association between stereotypic characteristics and the group node in high- and low-prejudice people could not be revealed by Devine (1989, Experiment 2) because category and stereotype activation were not distinguished. The results from Study 2 show that automatic category activation alone did elicit differential responses for high- and low-prejudice people. If the absence of differences between high- and low-prejudice people in Devine's study was due to semantic priming or to recency of activation of the available stereotype per se, then including some of the negative stereotype content in the priming stimuli should allow a conceptual replication. At the same time, the effects of category activation can be compared with those of stereotype activation.<sup>6</sup>

The priming stimuli were pretested so that they could be comparable to those used by Devine (1989): Fifty percent of the stereotype-related words she used were negative. In the current study, 6 of the 13 words were negative, and this was the only difference between Studies 3 and 2.

For reasons discussed earlier, in this experiment high- and low-prejudice people should not differ in their response to stereotype activation. Priming effects are observed if the primed structure is applicable to the following judgment (e.g., Higgins, 1989). Both the semantic (Erdley & D'Agostino, 1988; Higgins, Rholes, & Jones, 1977; Neely, 1977) and the evaluative content of the prime (e.g., Bargh, Chaiken, Govender, & Pratto, 1992; Bargh, Chaiken, Raymond, & Hymes 1996; Greenwald, Klinger, & Liu, 1989) can provide a match with the stimuli in the judgment task. Because the part of the stereotype that is activated by the prime is negative, the prime should be applicable to the negative, but not the positive, stereotypic features. Specifically, we predicted that ratings should increase on the directly applicable negative stereotypic traits in the prime compared with the no-prime condition, but not on the positive traits.

### Method

**Pretesting.** Fifty percent of the words in each replication used by Devine (1989) had negative connotations. To achieve a prime comparable to hers, the 24 words of Devine's replications were rated by five American judges for their negativity on a 7-point scale. A slightly larger pool of words ( $n = 30$ ) obtained in pretesting in the British context was rated by five British judges.

Results show that all the negative words used in Devine's (1989) experiment were rated negatively by the American judges ( $M = 4.50$ ) compared to the remaining stereotype-related words ( $M = 1.80$ ). All the negative British words were also rated negatively ( $M = 4.75$ ) compared to the remaining words ( $M = 2.78$ ). The six negative words selected for the current experiment received a mean rating of 5.05 and the remaining priming words 2.86. There was thus a good correspondence between the valence of the primes used in the two experiments.

**Participants.** Forty-five university students took part in the study. They were White British nationals who had agreed to participate when approached on campus by the experimenter. They were paid £2.

**Design.** The design was a 2 (high vs. low prejudice)  $\times$  2 (prime vs. no-prime condition) between subjects. Participants were randomly assigned to the prime or the no-prime condition.

**Materials and procedure.** All materials, parameters, and procedures were as described for Study 2. The only change was in the stimulus words for the prime condition. The experiment was designed with 13 priming words. Three were category labels (i.e., Blacks, West Indians, and Afro-Caribbean), six were negative (i.e., nigger, rude, dirty, crime, unemployed, and drugs), and the remaining four were evocative of the category (i.e., dreadlocks, reggae, Brixton, and ethnic). Apart from the negative words, the primes were the same as those used in Study 2.

**Guess condition.** As a check of the immediate awareness of the stimulus words, 8 additional participants were tested in a guess condition. After each presentation in the priming phase, they had to guess what the word was. As for the other conditions, the instructions were not to lean forward and to look at the center of the screen—where a central dot would appear—to facilitate detection, given the random location and timing of the words. Following Bargh and Pietromonaco (1982, Experiment 2) and Devine (1989), the guessing criterion was lowered to be more sensitive to immediate awareness. Participants were told to guess and prompted to do so if they could not come up with anything. The experimenter wrote down each guess.

### Results

**Guess condition.** The 8 participants in this condition reported during the task and the debriefing that they found it difficult, could just see scrambled letters (the mask), and did not know what the actual words were. However, 1 participant admitted not following instructions and looking off the center of the screen at times. This participant alone had a total of eight correct guesses.

Of the 800 trials, the total number of correct guesses was 16, or 2%. These figures are comparable to those obtained in previous research (e.g., Bargh & Pietromonaco, 1982; Devine, 1989), especially considering that the person who failed to follow instructions accounted for half of the total hits. Excluding this person lowered the hit rate to 1%. A consideration of the

<sup>6</sup> A conceptual rather than an exact replication of Devine (1989) was necessary for several reasons. First, use of our behavioral sentences impression formation task allowed direct comparability between Studies 2 and 3 and the effect of category or stereotype activation. Second, an exact replication would have been virtually impossible given the different cultural context. As already noted (see Footnote 2), the impression formation task Devine used was not appropriate for our participants. In addition, the dependent measures she used are not perceived in the same way in the British context. Among the hostility-unrelated scales she used, *conceited*, *narrow-minded*, *boring*, *dependable* (and *kind*) are part of the autostereotype of British people. They therefore cannot be considered neutral or contrasted with the "hostility-related" scales in this case.



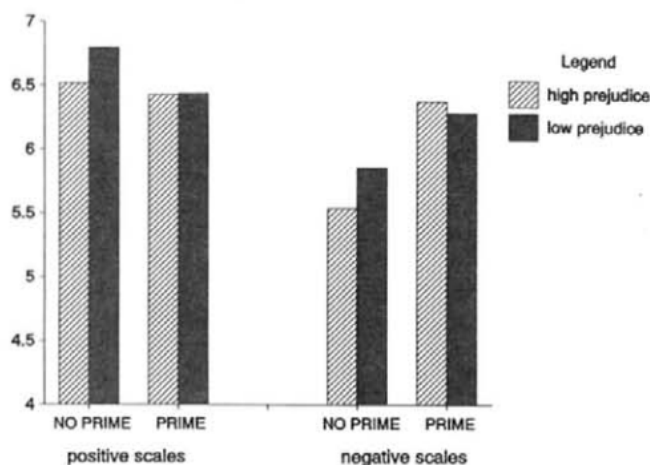


Figure 2. Priming effects on rating of target person.

remaining guesses revealed that they were not related to Black people or the stereotype associated with them.

**Prime and no-prime condition.** On the basis of the prejudice scale, participants were divided at the median into high-prejudice ( $n = 22$ ) and low-prejudice ( $n = 22$ ) groups ( $Mdn = 76.5$ ;  $M$ s and  $SD$ s for the high- and low-prejudice groups were 64.60 and 8.01 and 88.77 and 7.75, respectively;  $\alpha = .88$ ).<sup>7</sup>

Once again, the two positive and two negative constructs were grouped to simplify the interpretation of the results. The internal reliabilities of these two constructs again were acceptably high ( $\alpha$ s = .70 and .80 for the positive and negative scales, respectively). A 2 (high and low prejudice)  $\times$  2 (prime and no-prime condition)  $\times$  2 (valence) mixed ANOVA was run on the grouped positive and negative scales. No effects due to prejudice level were expected in this case because the negative prime should cancel the differences between high- and low-prejudice people. The predicted effect was thus a two-way interaction, Condition  $\times$  Valence.

The analysis revealed two significant effects: a main effect for valence,  $F(1, 40) = 7.73$ ,  $p < .008$ , indicating that, overall, ratings on the positive scales were slightly more extreme than on the negative scales ( $M$ s = 6.53 vs. 6.01), and the predicted Condition  $\times$  Valence interaction,  $F(1, 40) = 5.09$ ,  $p < .03$ . As can be seen from Figure 2, both high- and low-prejudice participants did not respond much to the positive scales comparing the prime and no-prime conditions ( $M$ s = 6.43 and 6.66, respectively),  $t(40) = 1.03$ ,  $ns$ , but both rated the target person more negatively in the prime than in the no-prime condition ( $M$ s = 6.33 and 5.70, respectively),  $t(40) = 2.86$ ,  $p < .005$ .

Although prejudice level did not enter in the significant interaction—the relevant three-way interaction was nonsignificant,  $F(1, 40) = 0.04$ ,  $p < .84$ —priming effects should be stronger for high-prejudice participants: The ease with which they activate the negative features (see Study 2) should combine with the effects of priming itself, making them more responsive than low-prejudice participants to the applicable negative traits. High-prejudice participants in fact significantly increased their ratings on the negative scales comparing the prime and no-prime conditions,  $t(40) = 2.62$ ,  $p < .01$ . The same comparison was

not significant in the low-prejudice group,  $t(40) = 1.30$ ,  $p < .1$ .

### Discussion

The results of Study 3 replicate those obtained by Devine (1989), suggesting that priming negative stereotypic dimensions is sufficient to blur the differences in automatic responses between high- and low-prejudice people. When the stereotype is activated directly, both high- and low-prejudice people increase their ratings on the applicable negative stereotypic traits. Because it is similar for the two groups, stereotype knowledge is available in memory and can be temporarily accessed through priming, leading to the expected assimilation effects (Bargh, 1994; Higgins, 1989). On closer inspection, however, these effects seemed to be a little stronger for high-prejudice participants. This is consistent with the assumption that endorsement has made the negative stereotypic traits more accessible for high-prejudice people. It is also consistent with Higgins's (1996) recent discussion of increased accessibility for specific linkages in various domains. Presumably, the greater activation effect in high-prejudice participants is caused by their having both a chronic and an immediately primed component of stereotype activation; low-prejudice participants have only the primed component. A similar result was obtained by Bargh et al. (1986) and Higgins and Brendl (1995).

Study 3 did not specifically rule out the possibility of semantic priming effects. These results (and those of Devine, 1989) would be the same, whether obtained because of direct semantic priming or because of a more general activation of negative stereotypic components. In either event, what is more important is that the effects of a category and stereotype prime are different. Stereotype knowledge seems to make high- and low-prejudice people indistinguishable only if it is primed directly.

### General Discussion

The general aim of the three studies was to assess the possible flexibility of the relations among categorization, stereotyping, and prejudice as opposed to the fixed pathway implicit in some traditional views (Allport, 1954; Hamilton, 1981; Tajfel, 1969). High- and low-prejudice people know the stereotype of Black people in much the same way and to the same extent (Study 1). Because of this, they do not differ in their automatic responses when some negative aspects of the stereotype are activated (primed; Study 3). However, and crucially, high- and low-prejudice people differ in their automatic responses when the category—and not the stereotype per se—is primed (Study 2). In discussing these results, four issues seem to be particularly important.

#### The Inevitability of Stereotype Activation

The first issue is the inevitability of stereotype activation upon perception of a category member. In the introduction, we identified two meanings of automatic stereotype activation in

<sup>7</sup> Because of missing responses on the prejudice scale, the prejudice score could not be computed for 1 participant, who was therefore excluded from analysis.

the literature. Stereotypes can be activated because they are directly primed or because the category is primed. The results of our studies show that category and stereotype activation have different effects on judgments, thus supporting the distinction between the two. In Study 2, high-prejudice participants responded to category activation by enhancing negative stereotypic trait ratings and attenuating the positive. This pattern was quite different for the low-prejudice participants, who showed less responsiveness to the prime and tended in the opposite direction. Only when some stereotypic associates of the category were also primed did these differences between high- and low-prejudice respondents disappear (Study 3). These findings strongly suggest that Devine's (1989) results (of no effect of prejudice level on automatic processes) were due to the presence of both the category and stereotypic associates in the prime. Because the stereotype was directly primed, no inferences can be drawn from that study about how stereotypes are activated upon perception of a category member. By contrast, our Study 2 directly addressed the question of what associations are evoked when encountering a category member. Although other evidence is beginning to accumulate that high- and low-prejudice people may differ in their automatic cognitive processes (Locke et al., 1994; Wittenbrink et al., 1997), differences in stereotype activation resulting from category priming have not been observed in a judgment task before (to our knowledge). The more realistic social judgment context perhaps permits more direct inferences about the consequences of categorization in real life than are warranted with reaction time studies.

Thus, automatic stereotype activation resulting from direct stereotype priming should be distinguished from that consequent upon categorization. Gilbert and Hixon (1991) showed that it is possible to separate empirically category activation from stereotype activation. They achieved this by manipulating a situational variable (the presence or absence of a cognitively distracting task); our results suggest that person variables (e.g., habitual level of prejudice) also may be important in predicting whether and how a stereotype becomes activated consequent on category activation.

Hilton and von Hippel (1996) noted the lack of empirical tests of different accounts of stereotyping. We believe that these data contribute to rectifying that lacuna since they clearly support a differential model of automatic stereotype activation rather than the all-or-none conception implied by some theories (e.g., Devine, 1989; Hayes-Roth, 1977; also see Fiske & Taylor, 1991).

### *Group Representations*

The second issue concerns whether not just knowing the stereotype, but believing it to be true, affects automatic processes. Our findings underline how stereotype knowledge and endorsement both affect the automatic level of processing, but in different ways. Such findings challenge Devine's (1989) suggestion that stereotype knowledge is activated automatically because it has a longer history of activation than personal beliefs. If this were so, no differences should have been found between high- and low-prejudice people in Study 2. The pattern obtained, instead, is best explained by the model outlined in the introduction, which rests on differential stereotype endorsement in high- and low-prejudice people. Stereotypic features believed to be

true of the group (endorsed) are presumably the ones activated most often. These endorsed characteristics become more strongly associated with the category (group node) and thus can be activated automatically. Stereotype endorsement then affects judgments when the category is primed. Stereotype knowledge affects judgments when it is primed directly. Because it is available in both groups, stereotype knowledge can be primed, thus eliciting similar assimilation-type effects in high- and low-prejudice people (Study 3).

The studies show that high- and low-prejudice people have different representations of the group. These representations do not differ in content (Study 1) but in the strength with which the positive and negative attributes are associated with the category label (Study 2). As hypothesized, the activation spreads preferentially to the negative traits for high-prejudice people. At the same time, the lower ratings (compared with the no-prime condition) on the positive stereotypic traits suggest an automatic inhibition of them. Low-prejudice people respond in the opposite direction, demonstrating a significant increase in the positive ratings. These findings can be accommodated easily by current models which incorporate both excitatory and inhibitory mechanisms (Carlston, 1992; Rumelhart & McClelland, 1986; Stephan & Stephan, 1993). The excitation of some nodes results in the inhibition of others. Activation of a category, then, does not make the activation of the associated stereotype inevitable in an all-or-none manner.

An issue for future research is to test further the selective activation observed here. For low-prejudice people in particular, the cultural stereotype could be less central in their representation of the group.

### *Comparability of This Research Context and That of Devine (1989)*

It is worth briefly considering the different social contexts in which this research and that of Devine (1989) were carried out. To be sure, ethnic relations and the associated intergroup stereotypes between Black and White people in Britain in the 1990s are not identical to those between White and Black people in the United States in the 1980s. Is it possible that these contextual differences can explain the pattern of findings of Studies 2 and 3? We believe not.

Such an argument might first contend that negative stereotypes about Black people are not as prevalent in Britain as they have been in the United States. The data from Study 1 and the most cursory historical analysis (see Footnote 1) clearly belie such an assumption. There is every reason to suppose that negative stereotypic images of Black people are as embedded in the British culture as they seem to be in the United States. Second, our measure of prejudice was different from that used by Devine (1989). However, it was based on well-established measures, it had excellent reliability, and it correlated sensibly with theoretically related measures. Presumably, the problem cannot lie there. Finally, we fail to see how such an argument (based on cultural differences) can explain the similarity of results between Study 3 and Devine's (1989) Experiment 2. If negative stereotypes are not as salient in Britain, why was it possible to prime them so easily (and approximately equally for high- and low-prejudice people) in Study 3? The equivalence of these results with those of Devine seems to argue that, whatever the cultural differences,

it is possible to replicate her findings provided that both categorical and stereotypical material are primed directly. Only when the latter are removed (as in Study 2) does one observe the predicted divergence between high- and low-prejudice people.

### *The Inhibition of Prejudiced Responses*

The fourth issue relates to the inhibition of prejudiced responses. Devine (1989) explained the absence of differences between high- and low-prejudice people at an automatic level, arguing that prejudice is like a habit that has to be broken.<sup>8</sup> It requires conscious control, an inhibition of an automatic prejudiced response on the part of low-prejudice people. However, such an interpretation is not easy to reconcile with a functional analysis of stereotypes, which has become of central importance in recent years (e.g., Fiske, 1993; Macrae, Stangor, & Milne, 1994; Snyder & Miene, 1994; Stangor & Lange, 1994). If stereotypes really are functional to save cognitive resources, they should not operate so as to require conscious inhibition of an automatic prejudiced response. Such a process would be taxing for the cognitive system (e.g., Gilbert & Hixon, 1991; Macrae, Milne, & Bodenhausen, 1994).

In fact, our findings contradict the hypothesis of a conscious inhibition of prejudiced responses. Instead of inhibiting an activated stereotype, low-prejudice people may not even access parts of it. Such activation may happen selectively and more strongly for high- than for low-prejudice people (e.g., our Study 2; Locke et al., 1994). The data even provide evidence of activation of positive stereotypic components. Others, too, have discussed data inconsistent with the conscious inhibition of an automatic prejudiced response (Fazio et al., 1995; Gilbert & Hixon, 1991). Moreover, high- and low-prejudice people seem to have different beliefs and stereotypic expectancies (weaker for the low-prejudice people) about the behavior of Black people (Vargas & von Hippel, 1993; von Hippel et al., 1995). These findings confirm that low- and high-prejudice people have different representations of the target group. The resulting qualitative differences in automatic processes can be accommodated by an emerging view of stereotypes as theories of how other groups are and act (e.g., von Hippel et al., 1995).

Faced with a member of the stereotyped group or a symbolic equivalent, people seem to react automatically *according to the representation they have in mind*. Thus, conscious inhibition of a prejudiced reaction does not take place; the differences between high- and low-prejudice people appear at an automatic level, supporting the idea of a flexible link between categorization and stereotyping.

A modification of Devine's (1989) model is therefore suggested: It is endorsement, not knowledge, that is likely to shape the representation in memory, strengthening the links between the category label and certain stereotypic features instead of others. Prejudice does not resemble a habit that has to be broken but one that is, for some people, already broken.

<sup>8</sup> Devine herself has also modified her position somewhat from her earlier 1989 article (see Devine & Monteith, 1993). Some low-prejudice people may be further along the process and have effectively broken the prejudice habit.

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## Appendix

### Prejudice Scale

1. It makes sense for minority groups to live in their own neighbourhoods because they share more and get along better than when mixing with Whites. (reversed item)
2. I consider our society to be unfair to Black people.
3. It should be made easier to acquire British citizenship.
4. The number of Black Members of Parliament (MPs) is too low, and political parties should take active steps to increase it.
5. Minority groups are more likely to make progress in the future by being patient and not pushing so hard for change. (reversed item)
6. Given the present high level of unemployment, foreigners should go back to their countries. (reversed item)
7. The rights of immigrants should be *restricted* (1), *left as they are* (4), *extended* (7).
8. If many Black persons moved to my neighbourhood in a short period of time, thus changing its ethnic composition, it would not bother me.
9. If people move to another country, they should be allowed to maintain their own traditions.
10. Once minority groups start getting jobs because of their colour, the result is bound to be fewer jobs for Whites. (reversed item)
11. Those immigrants who do not have immigration documents should be sent back to their countries. (reversed item)

12. Some Black people living here who receive support from the state could get along without it if they tried. (reversed item)
13. Suppose that a child of yours had children with a person of very different colour and physical characteristics than your own. If your grandchildren did not physically resemble the people on your side of the family, you would be *very bothered* (1), *not bothered at all* (7).
14. It is unfair to the people of one country if the immigrants take jobs and resources. (reversed item)
15. I would not be concerned if most of my peers at the university were Black.

*Note.* Items 3, 7, 11, 12, and 13 are from "Subtle and Blatant Prejudice in Western Europe," by T. F. Pettigrew and R. W. Meertens, 1995, *European Journal of Social Psychology*, 25, pp. 62–63. Copyright 1995 by John Wiley & Sons, Ltd. Reprinted and adapted by permission. Items 5, 8, and 10 are from "Resistance to Affirmative Action: Self-Interest or Racism?" by C. K. Jacobson, 1985, *Journal of Conflict Resolution*, 29, pp. 312, 314. Copyright 1995 by Sage Publications. Reprinted and adapted by permission.

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