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Stereotyping Based on Apparently Individuating Information: Trait and Global Components of Sex Stereotypes under Attention Overload

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Although considerable research has shown that stereotypes are used to form impressions of others, other research shows that the effects of stereotypes can be attenuated or even eliminated by presentation of certain types of individuating information. Such information is usually in the form of traits or behaviors that imply traits. We hypothesized that sex stereotypic impressions can exist at both a specific trait level and a more global (stereotype fit) level, and that the degree of correspondence between the two components depends on the amount of attention paid to the target information. Subjects formed impressions of either a male or a female target who performed either several male-typed behaviors or several female-typed behaviors and several sex-neutral behaviors. The speed of presentation of the information was manipulated to create two levels of attentional processing load. Measures of sex stereotyping at both the trait and global levels

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were made. Subjects in both attention conditions appeared to stereotype the target based on his or her behaviors rather than on his or her sex, as their ratings of traits which were sex-typed but irrevelant to the behaviors were influenced by the sex-type of the behavior much more than by target sex. Whereas trait-level measures were responsive only to the behavioral information, the global-level measures were influenced both by target sex and by the sex-type of the behaviors. As predicted, the degree of correspondence between the two components depended on the amount of attention available for processing. When subjects had more time to attend to the information, their global and trait-level impressions were relatively independent. When subjects had little time to attend to the information, their trait impressions were driven mainly by their global impressions. Thus it appears that impressions are more likely to be stereotypic when people do not have time to integrate more individuating information, even when they make correct inferences from that information. The implications of these findings for the measurement of impressions and for stereotyping in naturalistic settings are discussed.

INTRODUCTION

Under what conditions do people stereotype others? It is widely assumed that one's impressions of other people consist, at least in part, of attributes associated with the social categories to which they belong (e.g., Ashmore & DelBoca, 1981; Hamilton, 1979). However, it has also been argued that such stereotyping of individuals does not occur as long as there is some stereotype-relevant individuating information available about the person in addition to that concerning his or her membership in specific social groups. Locksley, Borgida, Brekke, and Hepburn (1980; see also Locksley, Hepburn, & Ortiz, 1982), for example, found that judgments of male and female target persons along sex-typed trait dimensions reflected sex stereotypes only when no information other than target sex was available. When the target was described as performing a behavior relevant to the sex-typed trait dimension (e.g., assertiveness), trait judgments were in line with the behavioral evidence regardless of target sex.

Although Locksley et al.'s (1980, 1982) interpretation of their results as underuse of base rates has been criticized (Rasinski, Crocker, & Hastie, 1985; for other discussions see Brown, 1986; Deaux & Lewis, 1984; Fiske & Neuberg, 1989; Grant & Holmes, 1981, 1982; Kreuger & Rothbart, 1988), several other studies have found that judgments of targets along trait dimensions are more influenced by trait and behavioral information about the target than by stereotypic beliefs. Heilman (1984) demonstrated that providing case information about targets reduced the use of sex stereotypes in subjects' assessments of female job applicants. Ashmore (1981) reported several experiments in which subjects' sex-typed trait ratings of a target person were found to be influenced by trait descriptions but not by target sex. Eagly and Wood (1982) and Deaux and Lewis (1984) found that providing subjects with job titles (e.g., district manager)

or role behaviors (e.g., takes care of children) had the greatest influence on trait ratings of the target person, overwhelming the effect of target sex.

Global versus Trait-Level Components of Impressions

What accounts for the apparent lack of influence of stereotypes on trait ratings of the target in these studies? One possibility is that social perception of individuals who belong to stereotyped groups consists of separate responses to individuating and stereotypic information, even though the information is about the same person. Recently, both Wyer and Martin (1986) and Brewer (1988) have proposed that a given person is represented in memory separately in terms of his or her social category memberships and also in terms of his or her individuating features, such as personality traits, social roles, and behaviors. Fiske and her colleagues (Fiske, 1982; Fiske & Neuberg, 1989; Fiske & Pavelchak, 1986) have proposed a model of impression formation in which social perceivers may form an impression of a person anywhere on a continuum from category based (stereotypic) to individuated (attribute based). The model states further that where the impression lies along this continuum depends on degree of interest the perceiver has in the target and consequent attention to additional target-specific attributes.

Different Sets of Environmental Features May Activate the Two Components

Our own reading of the literature suggests that different sources of information are interpreted at the trait level and with regard to global stereotypes. Specifically, physical cues and other categorizing features such as names activate global stereotypes, and diagnostic behaviors activate trait constructs. The first type of inference, the importance of physical cues (such as appearance or the racial or gender associations of names) in the activation of stereotypes, has been noted by many investigators (Ashmore & DelBoca, 1981; Bodenhausen & Wyer, 1985; Brewer, Dull, & Lui, 1981; Deaux & Lewis, 1983, 1984; Hamilton, 1979; Heilman, 1984; Langer, Taylor, Fiske, & Chanowitz, 1976; McArthur & Friedman, 1980; Rothbart, 1981; Taylor, Fiske, Etcoff, & Ruderman, 1978). For example, Deaux and Lewis (1984, Experiment 3) showed that information about a target's physical characteristics had a strong effect on subjects' probability estimates of other sex-typed characteristics (e.g., occupation, traits). Also, Bodenhausen and Wyer (1985) demonstrated strong effects of ethnic stereotypes on the recommended punishments for a target's crime, if the type of crime fit the stereotype of the target's social group (e.g., embezzlement by an upper-class white; assault and battery by a lower-class Hispanic), as indicated by the target's name and hometown. And Fiske, Neuberg, Beattie and Milberg (1987) showed that target information that could be easily categorized in terms of occupation or traits elicited impres-

sions in line with subjects' evaluations of those categories; thus information about target attributes other than easily decoded physical features may trigger category-based impression formation.

The second type of inference is evidenced in research indicating that perceivers easily infer traits from behaviors if the behaviors are clearly diagnostic of the traits (see reviews by Higgins & Bargh, 1987; Wyer & Gordon, 1984). For example, Winter and Uleman (1984) had subjects read a series of behavior sentences (e.g., "The accountant took the orphans to the circus") with instructions to memorize the sentences. Of the several types of cues subsequently provided to subjects to aid in their recall of the sentences, the cues indicating the trait dimension which characterized the behaviors (e.g., "generous") best facilitated recall of the behaviors. Apparently, the behaviors had been encoded in terms of the trait dimensions to which they corresponded. In a different paradigm, Srull and Wyer (1979) primed or activated trait constructs by presenting trait-relevant behaviors in what was allegedly a sentence-construction task. The trait constructs made accessible in this way influenced the interpretation of ambiguous trait-related information in a subsequent impression formation task. Therefore, just as characteristics of the target's name or physical appearance trigger global stereotypes (e.g., based on ethnicity or sex), clearly diagnostic behaviors activate their corresponding trait constructs.

On these grounds, we hypothesized that different kinds of information help form different components of impressions by activating relevant concepts either of social groups or trait categories. Easily discriminable physical or nominal cues serve to directly activate the group stereotype, leading to, for example, sex-typed beliefs and behavioral expectancies in domains beyond those relevant to the behavioral or trait information available to the perceiver. The target's stereotype-relevant behaviors or trait description, on the other hand, serve to drive trait-level impressions of the target. The model is intended as a summary of the considerable body of stereotype research discussed thus far, specifically the two common conclusions drawn by the investigators from their studies: (1) that stereotypic beliefs may be held about a target even though the subject has accurately perceived counter-stereotypic behavior by that target, and (2) that different environmental cues activate the group stereotype and the trait components. However, one of the least understood but most important issues in impression formation is the *relative* influences of the different information sources and whether the different information is integrated into a single, coherent, overall impression.

Stereotypes as Heuristics: The Role of Attentional Capacity

It has long been maintained that a contributing factor in the formation and use of stereotypes is that they, as cognitive categories, are useful in simplifying the task of understanding and predicting the behavior of in-

dividuals (e.g., Allport, 1935; Hamilton, 1979; Fiske & Taylor, 1984). That is, the already-stored stereotypic knowledge can be applied to individuals without the necessity of gathering, integrating, and drawing inferences from information about each unique person. Bodenhausen and Wyer (1985; see also Bodenhausen & Lichtenstein, 1987) have proposed, in this spirit, a *heuristic* model of stereotyping, in which the stereotype is more likely to be used when the decision or other processing task is more cognitively demanding. In fact, many investigators of stereotyping (Bodenhausen & Wyer, 1985; Brewer et al., 1981; Deaux & Lewis, 1984; Fiske & Neuberg, 1989; McArthur, 1981; Rothbart, 1981) have argued that stereotyping is almost always likely to occur to some extent because salient, distinctive personal features such as sex, age, and race are the most easily perceived type of information about another person and cue the group stereotype.

Use of individuating information, on the other hand, is not nearly so easy. It requires access to person-specific knowledge, attention to it, the goal of interpretation, and effort to interpret it. The application of attention to person-specific information, then, is key in understanding the relative influence of individuating and group-membership influences on impression formation. Several other researchers have demonstrated that people have difficulty relying on trait information and behaviors to form impressions under information overload. Rothbart, Fulero, Jensen, Howard, and Birrell (1978) presented trait information about a fictitious group to subjects, and varied the amount of information (16 versus 64 trait presentations) presented to subjects. Rothbart et al. (1978) found that subjects organized their impressions around the individual group members in the low memory load condition, but around the group as a whole in the high memory load condition. In other words, the group judgment was the only basis for subsequent judgments of a specific group member under the overload conditions. Bargh and Thein (1985) found that under conditions of information overload, with attentional resources scarce, subjects were unable to clearly distinguish in their impressions a target person who performed twice as many honest as dishonest behaviors from a target who performed twice as many dishonest as honest behaviors—even though the subjects could make this discrimination easily under nonoverload conditions. Thus, when attentional capacity is in short supply, subjects appear to have difficulty integrating the trait and behavioral information in order to form an accurate impression.

The present experiment was designed to test the role of attention in impression formation. Sex of target was obvious, and the amount of attention available to subjects was varied between subjects as they were presented with sex-typed trait-relevant information. We expected that subjects in high and low attention conditions would show effects of group membership (stereotypes) on global (i.e., stereotypic fit) impression mea-

sures, and that they would accurately perceive (i.e., rate on trait-level measures) the trait information implied by target behaviors. Integrating the various traits implied, and integrating them with the sometimes "contradictory" expectations based on target sex, is a more difficult task. Therefore, we expected that subjects in the low attention condition would be less able to assimilate the multidimensional trait information, and so would base their impressions more on their global stereotypes.

A preliminary study was conducted to test our prediction that the global and trait components of impressions are integrated to a different extent under different levels of attention. In that study, subjects were asked to form an impression of a male or female target person who performed behaviors described in single sentences, some of which were either male or female sex typed. We manipulated attentional capacity by varying the amount of time available to consider the behavioral information; each behavior sentence was presented to subjects on a slide for either 10 s (in the nonoverload condition) or 1.5 s (in the information overload condition). In addition, some subjects first read a trait description of the target which was male or female typed in order to induce an initial expectancy about the target; other subjects read no trait description. The target sex (male; female), behavior type (male; female), and trait description (male; female; none) were completely crossed in the design. After presentation of the target information, subjects were asked to recall the behavioral information, list several traits that they believed described the target, rate the target on several behavior-relevant sex-typed positive and negative trait scales, and rate how masculine or feminine the target was. In this way, we attempted to measure impressions both at the behavior-relevant trait level (via free description and trait scales) and the more global sex-typed level (with the masculine–feminine rating).

The impressions results showed, as expected, that both trait-level measures were responsive only to the behavior type and not to target sex. The trait descriptions influenced impressions in a parallel but much less powerful way than behavior type. Taken by itself, this result replicates the findings of Locksley et al. (1980). However, the global measure was influenced principally by target sex. The behavioral stimuli (i.e., what the target purportedly did) influenced the global measure to a much lesser extent, and not at all under the attention overload conditions. Thus it appears that trait and global components can exist separately in memory and are responsive to different types of information.

The preliminary study also provided us with some information about the role of memory in this impression formation procedure. Results of prior pilot testing led us to expect that all subjects, including those in the overload condition, would be able to form their impressions on-line, during information acquisition. To enable us to show that the impression results were based on stored impressions about the target, rather than on

what information the subject could later recall about the target (see Carlston & Skowronski, 1986), we administered a surprise free recall test before any of the impression measures were taken in the preliminary study. We used the number of sex-typed behaviors recalled as a mediating variable in our analyses of the influence of target information on impressions, but it did not significantly change any of the effects. In other words, the amount of stereotype-relevant information recalled did not mediate the effects of attention, target sex, sex-typed behaviors, and trait description on trait judgments or global judgments even though the recall measure was taken just prior to the other measures (see Bargh & Thein, 1985). Thus, it appears subjects' impressions were formed on line and then used as a basis for the subsequent impression measurements instead of being based on those behaviors accessible in memory at the time of the ratings.

These results, though consistent with our hypotheses about the two components and attention, are somewhat limited. First, although the behavior-exemplified traits (e.g., rational, sentimental) were rated by pretest subjects to be sex typed, they may not be the most prototypical, definitive, or accessible trait dimensions for sex stereotypes because they were developed from studies of sex differences in common personality traits, not from studies of the content of sex stereotypes. For this reason, the results may not speak as strongly to sex stereotyping *per se* as they should. Also, the global masculine–feminine rating, made on a bipolar scale, may have seemed to subjects to be an assessment of the target's sex identity, rather than of sex role or sex typedness. In the present experiment, we corrected these deficiencies. Our hypothesis remained that all subjects would be able to accurately interpret trait and group-membership information about the target, but that under attentional overload subjects would base their impressions more on their sex stereotypes and less on the trait and behavioral evidence than when not under overload.

METHOD

Design

The design included three between-subjects factors: target sex, behavior type (male or female typed), and attentional load. No initial trait description was given because it proved much less influential on impressions that did stimulus behaviors in the preliminary study (see also Bargh & Thein, 1985; Higgins & Bargh, 1987). In addition, we recorded each subjects' sex to check whether men and women differed in the obtained effects, though we did not expect they would. Approximately equal numbers of men and women experienced each experimental condition. We collected several measures of subjects' impressions of the target with the intention of measuring degree of sex stereotyping. Some of these measures were at the trait level, and two (job suitability and the PAQ; see below) were intended to assess the global level of stereotypic impressions. The trait-level measures were assessed first on sex-stereotyped dimensions for which no behavior was directly relevant, followed by behavior-relevant trait dimensions. In this manner we could assess whether subjects went "beyond the information given" in their trait-level impressions as well as at the global level.

TABLE 1
STIMULUS BEHAVIORS AND CORRESPONDING TRAITS (IN PARENTHESES)

Male-typed behaviors:
1. Started his/her own business with his/her life savings (*independent*)
2. Planned to be promoted two levels in the next year (*ambitious*)
3. Fixed the stereo turntable when it wouldn't work (*mechanical aptitude*)
4. Spoke up against the majority at the group meeting (*assertive*)

Female-typed behaviors:
1. Thought of an unusual way to celebrate her/his father's birthday (*creative*)
2. Helped her/his new office mate move into the office (*helpful*)
3. Gave his/her secretary the day off to go to a friend's wedding (*understanding*)
4. Played the piano to relax (*enjoys art and music*)

Sex-neutral behaviors:
1. Watched the comedy special on television
2. Walked to the grocery store
3. Rented an apartment near the park
4. Rode the elevator to the third floor
5. Stopped to watch the juggler in the park
6. Mailed the letter on the way to work
7. Ordered a hamburger for lunch
8. Bought the morning newspaper

Note. The target's name (David or Karen) was the first word of each sentence.

Subjects

Subjects were 78 male and female students enrolled in the introductory psychology course at New York University who volunteered to participate in return for partial course credit.

Stimulus Materials

In developing the behavior stimuli, we relied on research about personality traits that correspond to sex type: Spence, Helmreich, and Stapp's (1974) Personal Attributes Questionnaire (PAQ) and Bem's (1974) Sex Role Inventory. For those traits that at least three out of four independent studies found to correspond to male or female sex type (Bem, 1974; Futoran & Wyer, 1986; Ruble, 1983; Spence et al., 1974) we generated behaviors that exemplified the traits. We then asked 19 subjects drawn from the same pool as our experimental subjects to rate how likely it was that a person (whose sex was not specified) who did each behavior possessed the corresponding personality trait. Ratings were made on a 0 (not at all likely) to 6 (extremely likely) scale, and behaviors were accepted as stimulus materials if their mean ratings were at the "likely" end of the scale (range: 4.68 to 5.47) and if the male and female subjects' mean ratings did not differ reliably (all p's $>$ .12). The mean "exemplary" rating for the resulting male behavior set was 4.92 and for the female behavior set, 4.94. The four sex-typed behaviors, along with eight sex-neutral stimulus behaviors (taken from those used by Hastie, 1980), were employed as stimuli, with the sex-typed behaviors in the 3rd, 5th, 6th, and 9th positions. The behaviors and the traits they correspond to are shown in Table 1. Each behavior sentence was printed by a laser printer, photo reduced, and copied onto transparent slide material to produce each slide. The target's sex was communicated to subjects only by the name employed (David or Karen) in the behavior sentences.

Dependent Measures

We were interested in the extent to which subjects accurately made inferences about personality traits based on the sex-typed behaviors, so we asked them to rate how much the target possessed each trait indicated by the behaviors. We also chose four male and four female sex-typed traits from the consensus of previous sex-stereotyping research that were not directly relevant to our stimulus behaviors (e.g., makes decisions easily; gentle; neat; analytical). The use of these trait scales allowed us to assess whether subjects sex type the target person at the trait level.

Job suitability ratings of the targets are an important possible consequence of stereotyping, and can be a subtle indicator of stereotyping. Futoran (1983, cited in Futoran & Wyer, 1986) pretested many job descriptions and identified those that undergraduates believed were stereotypically suited to males or females. We used suitability ratings on such jobs as one of our measures of sex stereotyping, after ensuring that the jobs used were not directly related to the stimulus behaviors. For example, the behavior "fixed a stereo turntable" might be indicative that the target would make a good repairperson or mechanic, so that attributing such a suitability rating to sex stereotyping might be inaccurate. Therefore, a different set of 30 subjects from our experimental pool were instructed to take the role of a personnel manager and read through a set of the sex-typed behaviors we used in the study, form an impression of the actor (whose sex was not given), and then decide how suited he or she was to each of Futoran's set of sex-typed jobs. Of 18 sex-typed jobs, 6 were not rated reliably differently depending on which behavior set subjects read. Ratings of suitability of the target for these six jobs (male typed according to Futoran's subjects: medical doctor, insurance sales, airline pilot, bank vice president; female typed: retail sales and bank teller) served as a global, non-trait measure of sex stereotyping that is not attributable to the content of the behavioral information presented. Thus both trait and global measures were employed that could indicate whether subjects went beyond the behavioral information presented in their impressions of the target.

Last we wished to administer a subtle global impression measure, so Spence et al.'s (1974) PAQ, which measures sex-linked general dimensions of *instrumentality* (or agency) and *expressiveness* (or communion), was completed by subjects with reference to the target. The PAQ has been used by many researchers (e.g., Futoran & Wyer, 1986; Ruble, 1983; Spence et al., 1974) and has the additional advantages of providing two unipolar scales of sex type, rather than one bipolar scale (e.g., Bem, 1974; Constantinople, 1986), and of not appearing to concern sex. Like the trait scales, it is appropriate to the task of forming an impression of another person in a psychology experiment.

Procedure

Subjects participated in groups of 2 to 4. All subjects in each session were randomly assigned to one of the eight conditions. The experimenter explained that the researchers were interested in how people form impressions of others. They were told that they would be shown a series of slides describing typical acts of a person named David (or in the female target conditions, Karen) and should "form an impression or opinion of him (her); that is, think about what kind of person he (she) is; what he (she) is like; how you would describe him (her) to a friend." Subjects were informed that after the presentation of the slides, they would be asked some questions about what they thought of David (Karen). In the nonoverload condition, each behavior slide stayed on the screen for 7 s; in the overload condition, each behavior slide stayed on the screen for 1.5 s.

After presentation of the behavior slides, subjects turned over their packets containing the instruments and were asked to write down their impressions of the target. After 5 min, subjects were instructed to turn the page, and respond to the remaining questions at their own pace in the order the questions appeared.

Subjects then filled out the trait scales. Male- and female-typed traits were randomly intermixed, but the first eight scales did not correspond to any presented behavior (*male-typed:* makes decisions easily, competitive, analytical, acts as a leader, *female-typed:* gentle, emotional, neat, likes children). Following these eight trait scales were the eight that were relevant to the sex-typed behaviors (four for the male-typed and four for the female-typed behaviors, in random order). The behavior-relevant traits were rated last so that any global impressions of sex type that might result from completing the behavior-relevant trait ratings would not influence the behavior-irrelevant trait ratings. When subjects had completed these scales, they completed the six job-suitability ratings. Finally, subjects filled out the PAQ about the target. When subjects turned in their packets, they were debriefed and thanked for their participation.

RESULTS

We considered each of our impression measures to represent a different aspect of subjects' impressions; therefore, we subjected each to a separate analysis of variance (ANOVA) with the full experimental design: 2 (target sex) × 2 (behavior type) × 2 (information load). Additionally, because we were interested in the relations among the components of impressions, we performed path analyses. As expected, subject sex had no reliable main effects or meaningful interactions on any of the measures, and so will not be discussed further. The results are presented in the order in which the measures were collected.

Analyses of Variance

Free descriptions. To check whether subjects were relying on the presented behavioral information in their free descriptions of the target, we recorded whether or not subjects mentioned each behavior. We expected that subjects in the overload condition would mention fewer behaviors than subjects in the nonoverload condition, because they would have less attentional capacity with which to effectively store the behaviors (see Fisk & Schneider, 1984). This was the case for both the sex-typed behaviors ($M = 1.26$ for nonoverload and $M = 0.49$ for overload; $F(1, 76) = 8.34$, $p = .005$) and sex-neutral behaviors ($M = .77$ for nonoverload and $M = 0.33$ for overload; $F(1, 76) = 4.05$, $p = .05$). Thus our manipulation of cognitive load was effective.

Two independent coders blind to the experimental hypotheses counted the number of behavior-relevant male-typed and female-typed trait labels the subjects used to describe the target, and the number of behavior-irrelevant sex-typed trait labels subjects used. The behavior-irrelevant traits were synonymous with sex-typed traits identified by Bem (1974), Spence et al. (1974), Futoran and Wyer (1986), and Ruble (1983). The inter-rater correlations for these four variables ranged from .77 to .87; analyses were conducted on the mean of the two coders' counts.

The number of sex-typed behavior-irrelevant traits used to describe the target is an indicator of the extent to which subjects went "beyond the

TABLE 2
DIFFERENCE IN NUMBER OF MALE- AND FEMALE-TYPED TRAITS NOT RELEVANT TO THE BEHAVIORS IN DESCRIPTIONS OF TARGET BY TARGET SEX BY BEHAVIOR TYPE, AVERAGED ACROSS SUBJECTS

Target	Behavior type	
	Male	Female
Karen	2.23	−1.08
David	1.13	−0.50

Note. $N = 77$. Positive numbers indicate more male- than female-typed traits were used; negatives indicate the reverse.

information given" at the trait level in forming their impressions. The ANOVA found behavior type to be a reliable [$F(1, 69) = 67.64$, $p < .001$] and large effect (account for 44% of the variance), and it interacted reliably with target sex [$F(1, 69) = 7.99$, $p = .006$]. The effect was in the expected direction; that is, presentation of male-typed behaviors produced relatively more masculine than feminine attributes and female-typed behaviors relatively more feminine attributes than masculine attributes, but this difference was twice as great when the target was female than male (see Table 2). Thus, in their free descriptions subjects did include sex-typed traits for which they had no behavioral evidence, but these generalizations were driven more by the sex typed of what the target *did* than by the target's sex.

The ANOVA on the number of behavior-relevant sex-typed traits in the subjects' descriptions also showed a main effect for behavior type [$F(1, 69) = 105.2$, $p < .001$], a reliable two-way interaction between behavior type and load [$F(1, 69) = 7.65$, $p = .001$], and a reliable three-way interaction [$F(1, 69) = 3.49$, $p = .02$]. The means (see Table 3) clearly shows a large effect for behavior type, which accounts for 54% of the variance, with male-typed behavior sets producing more masculine than feminine traits and conversely for female-typed behavior sets. This effect is present at $p < .001$ in both load conditions, but is larger in the nonoverload condition ($\eta^2 = 69.7\%$) than in the overload condition ($\eta^2 = 41.5\%$), resulting in the two-way interaction. The three-way interaction does not essentially modify this result, and appears to be due to a single condition (nonoverload, male typed) in which the female target is described as more male typed than the male target. In general, subjects' descriptions of the target accurately reflected the sex-typed behaviors the target performed. The descriptions given by subjects in the nonoverload condition correspond to these behaviors even more closely than did those

TABLE 3
DIFFERENCE IN NUMBER OF MALE- AND FEMALE-TYPED BEHAVIOR-RELEVANT TRAITS IN DESCRIPTIONS OF TARGET BY LOAD, BEHAVIOR TYPE, AND TARGET SEX, AVERAGED ACROSS SUBJECTS

	Load condition			
	Nonoverload		Overload	
Behavior type:	M	F	M	F
Target				
Karen	1.50	−1.50	0.72	−0.28
David	0.83	−1.15	0.90	−0.64

Note. $N = 78$. M = male typed and F = female typed. Positive numbers indicate more male- than female-typed traits were used; negatives indicate the reverse.

of overload subjects, presumably because of greater attention availability (see Bargh & Thein, 1985).

The results on the free descriptions showed that, as expected, subjects under both overload and nonoverload could accurately interpret the behavioral information presented, as evidenced by the main effect of behavior type on behavior-relevant trait labels. However, this effect was stronger in the nonoverload condition, presumably due to greater attentional capacity. The results on the behavior-irrelevant trait labels showed that subjects in both load conditions also typed the targets based on the behavioral information, and thus it appears that behavioral information can influence stereotyping as well. These open-ended results are highly similar to our pilot study results, which used qualitative ratings of sex-typedness of trait labels rather than quantitative counts as in the present study.

Trait scales. These included eight behavior-irrelevant but sex-typed scales and eight behavior-relevant trait scales, which were respectively averaged to form stable measures of behavior-irrelevant and behavior-relevant sex-typed traits. These and all subsequent measures were coded such that high values indicate male typing and low values indicate female typing. As with the open-ended trait descriptions, behavior type had a large effect (45% of the variance) on the behavior-irrelevant trait ratings [$F(1, 69) = 68.63$, $p < .001$]. Again, this effect was twice as great in the nonoverload ($\eta^2 = 62\%$) as in the overload condition ($\eta^2 = 30\%$; the two-way interaction yielded $F(1, 69) = 5.94$, $p = .02$; see Table 4). This analysis also yielded an interaction between target sex and load [$F(1, 69) = 5.95$, $p = .02$], which was not predicted and attributable to a moderately masculine rating of the female target in the overload condition ($M = 3.29$).

The ANOVA on the behavior-relevant trait scales revealed a main

TABLE 4
MEAN OF THE EIGHT BEHAVIOR-IRRELEVANT TRAIT SCALES BY BEHAVIOR TYPE AND LOAD CONDITION

Behavior type	Load condition	
	Nonoverload	Overload
Female	−2.79	−0.25
Male	5.35	4.22

Note. $N = 77$. Scales ranged from −7 to 7 and were scaled so that high values correspond to endorsement of masculine traits and low values correspond to endorsement of feminine traits.

effect for behavior type [$F(1, 69) = 109.31$, $p < .001$], a two-way interaction between behavior type and load [$F(1, 69) = 4.30$, $p = .04$], and a marginally reliable main effect for target sex [$F(1, 69) = 3.15$, $p = .08$]. The behavior-type effect occurred in the expected direction, but the effect for female-typed behaviors was attenuated by overload, resulting in the interaction.

Thus the results of the trait scales are very similar to those of the free descriptions: subjects in both load conditions accurately interpreted the behavioral information at the trait level, as sex type of target behavior largely drove the behavior-relevant trait ratings. Moreover, subjects in both load conditions used this behavioral information to stereotype at the trait level, as indicated by reliable effects for behavior type on the behavior-irrelevant trait scales.

Job suitability. Subjects judged the suitability of the target for six sex-typed, but behavior-irrelevant jobs. the ANOVA on the mean of all six scales[1] yielded a main effect for behavior type [$F(1, 70) = 11.56$, $p = .001$], accounting for 13% of the variance. Targets performing the male-typed behavior set were rated as more suited to male-typed jobs, regardless of target sex. Thus, when considering the target for jobs, subjects relied on behavioral information. But recall that suitability for these jobs had been pretested *not* to be predicted by the behavior sets. Thus again it appears that subjects did not stereotype on the basis of target sex, but based on the sex type of behaviors the target performed.

PAQ. The global stereotype fit measure (PAQ) was assessed last to minimize the influence it might have on other measures. To make it comparable to the other scales, the instrumentality and expressiveness scales were combined; the same analyses on the two scales (instrumentality

[1] Similar analyses done on a weighted average which equalized the influence of male- and female-typed jobs yielded highly similar results.

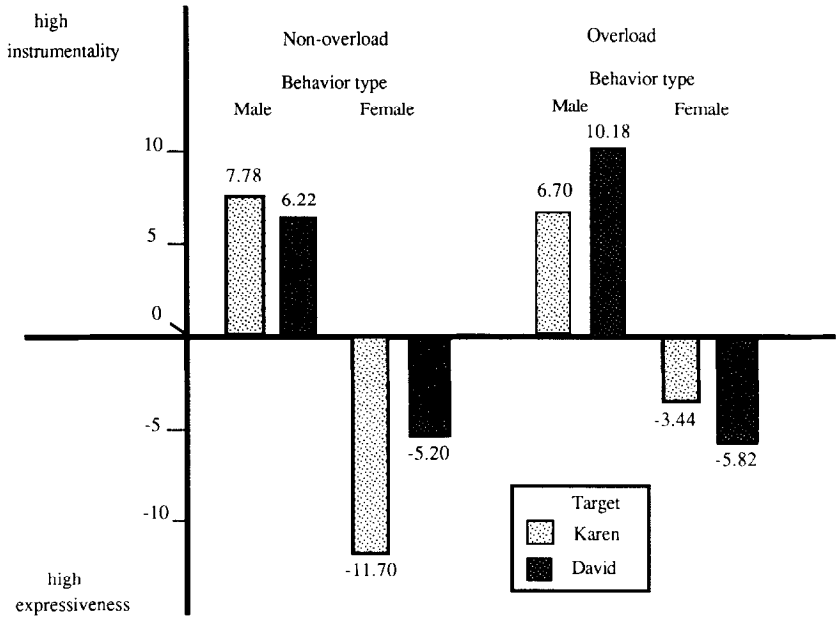

FIG. 1. Mean score on the PAQ scale (expressiveness and instrumentality combined) by attention load, behavior type, and target sex. $N = 79$. Theoretical range was −44 (high on expressiveness) to 44 (high on instrumentality).

and expressiveness) separately yielded highly similar results. The ANOVA revealed a main effect for behavior type [$F(1, 71) = 80.23$, $p < .001$] with the expected pattern that male-typed behaviors resulted in more instrumental ratings and female-typed behaviors in more expressive ratings. However, a more detailed look reveals an interesting pattern indicated by a reliable three-way interaction [$F(1, 71) = 4.70$, $p = .03$; see Fig. 1]. In the nonoverload condition, the simple effects for behavior type and target sex were both reliable at $p < .001$, but so was the two-way interaction [$F(1, 70) = 5.04$, $p = .05$]. That is, in the nonoverload condition, the difference between the behavior types was larger for female than for male targets and for female-typed than male-typed behavior sets, whereas in the overload condition only the simple effect for behavior type was reliable [$F(1, 70) = 38.9$, $p < .001$]. Thus, in the nonoverload condition, subjects used both the target sex and behavior-type information. In the overload condition, target sex did not influence the PAQ ratings, which were wholly driven by behavior type.

The results presented thus far can be summarized by stating that the sex type of the target's behavior had a large effect on all the variables, except that it had a moderate effect on the job suitability ratings. Target sex resulted in main effects only on the PAQ under nonoverload con-

ditions, and, to a small degree, on behavior-relevant trait scales. In addition, attentional load interacted reliably with the main effects on almost all the measures, with larger effects in the nonoverload conditions than in overload conditions. Subjects under both overload and nonoverload could accurately interpret behavioral information, but the sex-typed nature of that information caused them to generalize their impressions to other traits consistent with that sex type. This stereotyping based on the behavioral data also was manifested in the global personality measure, the PAQ, and occurred in overload as well as in nonoverload conditions.

Path Analyses

To assess the relations among the dependent variables, path analyses were performed (e.g., Loehlin, 1987; Spaeth, 1975). We assumed that global-level stereotypic beliefs about the target would be generated no matter what the attentional load, but the integration of the behaviors into a trait-level impression would be disrupted under overload conditions. We also assumed that relatively independent trait and global-level impressions would develop under the nonoverload conditions (Brewer, 1988; Wyer & Martin, 1986). But we expected that under overload, subjects would be less able to integrate the various behaviors into a coherent trait-level impression, and so those trait-level impressions would be influenced to a greater extent by their global impressions (see Bargh & Thein, 1985). To test this prediction, the data for the two load conditions were analyzed separately. The separation is also justified by the reliable interactions between load and the stimulus main effects on all measures. Composite indices for the behavior-relevant and behavior-irrelevant measures were created by averaging the z scores of the number of sex-typed traits listed in the description and the trait scale scores. Because we expected the global impressions to influence trait-level impressions under overload, and because the results on the behavior-irrelevant measures suggested that all subjects typed the target, our model used the global measures (PAQ and job suitability ratings) as predictors of the trait-level measures. In addition of course, exogenous factors (target sex and behavior type) predicted all dependent measures. The path coefficients that were reliable are shown in Fig. 2.

Target sex did not reliably influence the global measures as the paths from target sex to PAQ and to job scales were small and unreliable. Under overload, target sex influenced the behavior-irrelevant traits in the opposite direction as expected, possibly due to the strong influence of sometimes sex-"contradictory" behavioral information. Instead of stereotyping based on target sex, subjects' impressions were based on the behavior type, as shown by the reliable paths in both load conditions. The paths from behavior type to behavior-relevant traits confirm that the subjects understood the traits implied by the behaviors. However, the

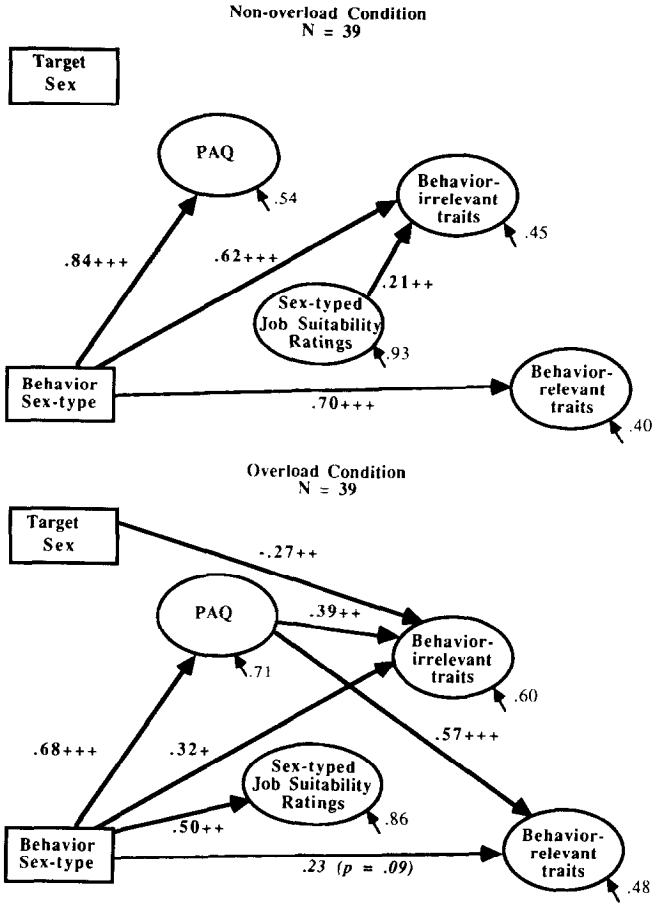

FIG. 2. Path analysis modeling the global impression's influence on trait-level impressions. All paths reliable at $p < .10$ or better are shown. Additionally, $^{+}p < .05$; $^{++}p < .01$; $^{+++}p < .0001$.

influence of the behavior type on the behavior-irrelevant traits and on the global PAQ shows a different phenomena—that subjects typed the target person based on the target's sex-typed behaviors. Note that in this form of stereotyping, which is not based on target sex, subjects still go beyond the information given in that they infer traits not implied by the behaviors but which are associated with the sex-type implied by the behaviors. For example, subjects rated a target who played the piano to relax as *emotional* and *liking of children*. This process is consistent with the results of Andersen and Klatzky (1987), who showed that subjects easily inferred social stereotypes from sets of personality traits.

Additionally, the paths between the global and trait-level variables

differed between the nonoverload and overload conditions, as predicted. Under nonoverload, subjects were able to form three separate (uncorrelated) global, behavior-based trait-level and nonbehavior-based trait-level judgments. Under overload, however, subjects based their trait impressions on the global judgment, as the PAQ reliably predicted both behavior-relevant and behavior-irrelevant trait level judgments. In fact, the influence of the PAQ on the traits indicated by the behaviors was stronger than the influence of the behaviors themselves, which was only marginally reliable. The job suitability ratings did not behave as either simple correlates of the PAQ, or as the trait measures, and in the ANOVAs they showed small effect sizes. Under both load conditions, the job judgment may have been difficult for subjects under an impression set, whose thoughts about the target were probably more personal and psychological than task oriented; hence the lack of correspondence with other measures.

DISCUSSION

First of all, the path analysis results confirmed our thesis that behavior-based trait-level and global components of impressions can be independent. When subjects had more time to process each bit of behavioral information, their trait and global impressions were relatively independent. When subjects had little time to consider each behavior, their trait-level impressions were strongly guided by their global impressions. For this reason, it is important that researchers measure impressions with regard to stereotype fit *and* stereotype-relevant traits. Now let us consider the relative strengths of the two different types of person information (category membership and behaviors) on these components.

As in our preliminary study, different types of target information (target sex and behaviors) influenced trait and global impression measures differently. Target sex again affected the global personality measure (the PAQ) under the high attentional capacity conditions, but did not strongly affect the trait-level ratings under either load condition. The finding that the target sex did not influence the global rating under low capacity may be surprising given that relying on target sex instead of behaviors would seem to be a simpler, perhaps heuristic strategy (see Bodenhausen & Wyer, 1985; Bodenhausen & Lichtenstein, 1987). However, this result must be interpreted in light of the influence of the behavioral information on impressions. Generally, behavior type was a strong determinant of impressions. Behavior sex type affected the behavior-relevant trait measures under both load conditions; as in many other studies, subjects were able to correctly interpret the behavioral information as indicative of traits. In addition, behavior type influenced the PAQ and job scales. The relative strength of the influence of behaviors compared to sex-based stereotypes in both studies, even on the global measures, is perhaps not surprising.

We purposely designed each experiment to maximize the chances of the behaviors influencing all the measures. The behaviors were clearly diagnostic of sex-typed traits, and the global measures followed the trait measures, so there may have been carry-over from the traits to the global measures.

However, behavior sex type influenced several measures that we had not expected it to, based on pretests: job suitability ratings, sex-typed but behavior-irrelevant trait scales, and the number of behavior-irrelevant traits used in descriptions of the target. So the evidence shows quite clearly that subjects' reliance on the behavior type did not mean they were not stereotyping. Rather, it seems they were willing to take the behavioral information as indicative of a sex *type* (which indeed it was) regardless of the sex of target and to base predictions about job suitability and trait characteristics on expectations based on this person-type—not just on the four traits implied by the behaviors.

This suggests that data-driven impressions are not necessarily free from stereotypic biases. Our findings are congruent with those of Fiske et al. (1987) in that behavioral information clearly related to a social category (sex group, occupations, roles) leads subjects to form impressions in line with that category. Our study has shown this tendency to hold even if the category suggested by the behavioral information is inconsistent with categories suggested by other, concrete features of the persons perceived (in the present case, the target's sex as indicated by his or her name). And this form of stereotyping, wherein a category type with specific trait and role implications is activated by apparently individuating information, may be much more difficult to prevent or combat. One reason is that it probably will not seem to perceivers that they are stereotyping when their judgments are based on behaviors; none of our subjects reported any awareness of sex typing in the stimuli or in their own impressions. Moreover, if perceivers have applied thoughtful efforts toward interpreting behavioral information, they may feel that is all they can do to avoid stereotyping. Indeed, considering the merits of the individual apart from group membership has long been posed as the way to prevent unfair discrimination. In addition, behavior-based person judgments are relatively easy to justify to others since the behavior (implicitly coupled with the shared categories with which it is interpreted) serves as "evidence." For example, one might argue, "She wants to control the company—take charge. She runs 10 miles every day, you know." For these reasons, this form of stereotyping may be much more insidious.

To the extent that real behaviors are not as diagnostic of stereotyped categories as our stimuli were, people may not fall prey to the kind of behavior-based stereotyping found here. However, the probable greater ambiguity of social behavior *in vivo* than the behavior sentences presented to our subjects (e.g., Bruner, 1958) may have other consequences for

stereotyping: (1) It may increase reliance on category-based stereotypes because interpreting actual behaviors of others is likely to be more difficult and cognitively demanding, and (2) It may increase the likelihood that category-consistent behaviors are noticed more than category-inconsistent behaviors. If anything, then, our results may have *overestimated* the influence of the behavior information and *underestimated* the influence of category-based stereotypes.

Another factor to consider in whether people in real life are more or less likely to stereotype than our subjects did is how much attentional capacity is usually available. We consider the overload condition faced by some of our subjects to be the more ecologically valid situation, just as Rothbart (1981, p. 70) considered the high memory load condition of the Rothbart et al. (1978) experiment to be the more realistic. That is, people usually do not have sufficient time to consider the implications of each piece of individuating information about a person for their impression of that person—and this is especially likely when the information source is the individual's ongoing behavior. Thus even though most of our measures were affected by behavior type, these effects were lessened under information overload even though all had time to make the correct trait inferences from it. In addition, all our subjects were motivated to the same degree to attend to the target information and try to form an impression from it. Such high attention and motivational states, plus the goal of psychological interpretation, cannot be assumed to be typical, so our small but reliable effects for sex stereotype on global measures are even smaller than they probably are in everyday life. Thus consideration of motivational states and attention in stereotyping (e.g., Erber & Fiske, 1984) is key to understanding stereotyping in normal life.

We conclude that people are very good at interpreting trait-specific information from individuating, behavioral information, but that attentional limits may reduce their ability to integrate or reconcile its implications with category-based expectations. When this is the case, they may be forced to fall back on group or behavior-based stereotypes which have chronic, if small, influences on their impressions of others. Thus, in attention-limited situations, the existence of individuating information that is inconsistent with a relevant stereotype suggested by physical or nominal characteristics may not be enough to counteract the influences of all stereotypic beliefs. To the extent the information itself is consistent with another social stereotype, stereotyping based on behavioral evidence may occur.

REFERENCES

Allport, G. W. (1935). Attitudes. In C. Murchison (Ed.), *Handbook of social psychology* (pp. 798–844). New York: Harper & Row.

Andersen, S. M., & Klatzky, R. L. (1987). Traits and social stereotypes: Levels of cate-

gorization in person perception. *Journal of Personality and Social Psychology,* **53,** 235–246.

Ashmore, R. D. (1981). Sex stereotypes and implicit personality theory. In D. L. Hamilton (Ed.), *Cognitive processes in stereotyping and intergroup behavior* (pp. 37–81). Hillsdale, NJ: Erlbaum.

Ashmore, R. D., & DelBoca, F. K. (1981). Conceptual approaches to stereotypes and stereotyping. In D. L. Hamilton, (Ed.), *Cognitive processes in stereotyping and intergroup behavior* (pp. 1–35). Hillsdale, NJ: Erlbaum.

Bargh, J. A., & Thein, R. D. (1985). Individual construct accessibility, person memory, and the recall–judgment link: The case of information overload. *Journal of Personality and Social Psychology,* **49,** 1129–1146.

Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology,* **42,** 155–162.

Bodenhausen, G. V., & Lichtenstein, M. (1987). Social stereotypes and information processing strategies: The impact of task complexity. *Journal of Personality and Social Psychology,* **52,** 871–880.

Bodenhausen, G. V., & Wyer, R. S. (1985). Effects of stereotypes on decision-making and information-processing strategies. *Journal of Personality and Social Psychology,* **48,** 267–282.

Brewer, M. B. (1988). A dual process model of impression formation. In R. S. Wyer & T. K. Srull (Eds.), *Advances in social cognition* (Vol. 1). Hillsdale, NJ: Erlbaum.

Brewer, M. B., Dull, V., & Lui, L. (1981). Perceptions of the elderly: Stereotypes as prototypes. *Journal of Personality and Social Psychology,* **41,** 656–670.

Brown, R. (1986). *Social psychology: The second edition.* New York: Free Press.

Bruner, J. (1958). Social psychology and perception. In E. E. Maccoby, T. M. Newcomb, & E. L. Hartley (Eds.), *Readings in social psychology* (3rd ed., pp. 85–94). New York: Holt, Rinehart, & Winston.

Carlston, D. E., & Skowronski, J. J. (1986). Trait memory and behavior memory: The effects of alternative pathways on impression judgment response. *Journal of Personality and Social Psychology,* **50,** 5–13.

Constantinople, A. (1986). Masculinity–femininity: An exception to a famous dictum? *Psychological Bulletin,* **80,** 389–407.

Deaux, K., & Lewis, L. L. (1983). Assessment of gender stereotypes: Methodology and components. *Psychological Documents,* **13,** 25. (Ms. No. 2583).

Deaux, K., & Lewis, L. L. (1984). Structure of gender stereotypes: Interrelations among components and gender label. *Journal of Personality and Social Psychology,* **46,** 991–1004.

Eagly, A., & Wood, W. (1982). Inferred sex differences in status as a determinant of gender stereotypes about social influence. *Journal of Personality and Social Psychology,* **43,** 915–928.

Erber, R., & Fiske, S. T. (1984). Outcome dependency and attention to inconsistent information. *Journal of Personality and Social Psychology,* **47,** 709–726.

Fisk, A. D., & Schneider, W. (1984). Memory as a function of attention, level of processing, and automatization. *Journal of Experimental Psychology: Learning, Memory, and Cognition,* **10,** 181–197.

Fiske, S. T. (1982). Schema-triggered affect: Applications to social perception. In M. S. Clark & S. T. Fiske, (Eds.), *Affect and cognition: The 17th annual Carnegie symposium on cognition* (pp. 55–78). Hillsdale, NJ: Erlbaum.

Fiske, S. T., & Neuberg, S. L. (1989). A continuum model of impression formation: From category-based to individuating processes as a function of information, motivation, and attention. In M. P. Zanna (Ed.), *Advances in experimental psychology* (Vol. 23, pp. 1–108). New York: Academic Press.

Fiske, S. T., Neuberg, S. L., Beattie, A. E., & Milberg, S. J. (1987). Category-based and attribute-based reactions to others: Some informational conditions of stereotyping and individuating processes. *Journal of Experimental Social Psychology,* **23,** 399–427.

Fiske, S. T., & Pavelchak, M. A. (1986). Category-based versus piecemeal-based affective responses: Developments in schema-triggered affect. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 1, pp. 167–203). New York: Guilford Press.

Fiske, S. T., & Taylor, S. E. (1984). *Social cognition.* Reading, MA: Addison-Wesley.

Futoran, G. C. (1983). *Normative study of occupational stereotypes.* Unpublished master's thesis, University of Illinois.

Futoran, G. C., & Wyer, R. S. (1986). The effects of traits and gender stereotypes on occupational suitability judgments and the recall of judgment-relevant information. *Journal of Experimental Social Psychology,* **22,** 475–503.

Grant, P. R., & Holmes, J. G. (1981). The integration of implicit personality schemas and stereotypes images. *Social Psychology Quarterly,* **44,** 107–115.

Grant, P. R., & Holmes, J. G. (1982). The influence of stereotypes in impression formation: A reply to Locksley, Hepburn, & Ortiz. *Social Psychology Quarterly,* **45,** 274–276.

Hamilton, D. L. (1979). A cognitive-attributional analysis of stereotyping. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 12, pp. 53–84). New York: Academic Press.

Hastie, R. (1980). Memory for information that confirms or contradicts a personality impression. In R. Hastie et al. (Eds.), *Person memory: The cognitive basis of social perception* (pp. 155–177). Hillsdale, NJ: Erlbaum.

Heilman, M. E. (1984). Information as a deterrent against sex discrimination: The effects of applicant sex and information type on preliminary employment decisions. *Organization Behavior and Human Performance,* **33,** 174–186.

Higgins, E. T., & Bargh, J. A. (1987). Social cognition and social perception. *Annual Review of Psychology,* **38,** 369–425.

Kreuger, J., & Rothbart, M. (1988). Use of categorical and individuating information in making inferences about personality. *Journal of Personality and Social Psychology,* **55,** 187–195.

Langer, E. J., Taylor, S. E. Fiske, S. T., & Chanowitz, B. (1976). Stigma, staring, and discomfort: A novel stimulus hypothesis. *Journal of Experimental Social Psychology,* **12,** 451–463.

Locksley, A., Borgida, E., Brekke, N., & Hepburn, C. (1980). Sex stereotypes and social judgment. *Journal of Personality and Social Psychology,* **39,** 821–831.

Locksley, A., Hepburn, C., & Ortiz, V. (1982). Social stereotypes and judgment of individuals: An instance of the base-rate fallacy. *Journal of Experimental Social Psychology,* **18,** 23–42.

Loehlin, J. C. (1987). *Latent variable models: An introduction to factor, path, and structural analysis.* Hillsdale, NJ: Erlbaum.

McArthur, L. A. (1981). What grabs you? The role of attention in impression formation and causal attribution. In E. T. Higgins, C. P. Herman, & M. P. Zanna (Eds.), *Social cognition: The Ontario symposium* (Vol. 1, pp. 201–246). Hillsdale, NJ: Erlbaum.

McArthur, L. Z., & Friedman, S. A. (1980). Illusory correlations in impression formation: Variations in the shared distinctiveness effect as a function of the distinctive person's age, race, and sex. *Journal of Personality and Social Psychology,* **39,** 615–624.

Rasinski, K. A., Crocker, J., & Hastie, R. (1985). Another look at sex stereotypes and social judgments: An analysis of the social perceiver's use of subjective probabilities. *Journal of Personality and Social Psychology,* **49,** 317–326.

Rothbart, M. (1981). Memory processes and social beliefs. In D. L. Hamilton, (Ed.),

Cognitive processes in stereotyping and intergroup behavior (pp. 145–181). Hillsdale, NJ: Erlbaum.

Rothbart, M., Fulero, S., Jensen, C., Howard, J., & Birrell, P. (1978). Recall for confirming events: Memory processing and the maintenance of social stereotypes. *Journal of Experimental Social Psychology,* **14,** 237–255.

Ruble, T. (1983). Sex stereotypes: Issues of change in the 1970s. *Sex Roles,* **9,** 397–402.

Spaeth, J. L. (1975). Path analysis. In D. J. Amick & H. J. Walberg (Eds.), *Introductory multivariate analysis* (pp. 53–89). Berkeley, CA: McCutchen Publishing.

Spence, J. T., Helmreich, R., & Stapp, J. (1974). The personal attributes questionnaire: A measure of sex-stereotypes and masculinity–feminity. *JSAS Catalog of Selected Documents in Psychology,* **4,** 43.

Srull, T. K., & Wyer, R. S. (1979). The role of category accessibility in the interpretation of information about persons: Some determinants and implications. *Journal of Personality and Social Psychology,* **37,** 1660–1672.

Taylor, S. E., Fiske, S. T., Etcoff, N. L., & Ruderman, A. J. (1978). Categorical bases of person memory and stereotyping. *Journal of Personality and Social Psychology,* **36,** 778–793.

Winter, L., & Uleman, J. S. (1984). When are social judgments made? Evidence for the spontaneousness of trait inferences. *Journal of Personality and Social Psychology,* **47,** 237–252.

Wyer, R. S., & Gordon, S. E. (1984). The cognitive representation of social information. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (Vol. 2, pp. 73–150). Hillsdale, NJ: Erlbaum.

Wyer, R. S., & Martin, L. L. (1986). Person memory: The role of traits, group stereotypes, and specific behaviors in the cognitive representation of persons. *Journal of Personality and Social Psychology,* **50,** 661–675.