

## The Referents of Trait Inferences: The Impact of Trait Concepts Versus Actor–Trait Links on Subsequent Judgments

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The authors investigated the hypothesis that when trait inferences refer to abstract behavior labels they act as a general interpretation frame and lead to assimilation in subsequent judgments of an ambiguous target, whereas when they refer to a specific actor–trait link they will be used as a scale anchor and lead to contrast. Similar to G.B. Moskowitz and R.J. Roman's (1992) study, participants who were instructed to memorize trait-implying sentences showed assimilation, and participants who were instructed to form an impression of the actors in these sentences showed contrast. However, exposure to trait-implying sentences that described actors with real names and were accompanied with photos of the actors resulted in contrast under both memorization and impression instructions (Experiment 1). Furthermore, contrast ensued when trait-implying sentences were accompanied with information that suggested a person attribution, whereas assimilation ensued when that information suggested a situation attribution, independent of processing goals (Experiment 2). These findings are interpreted as support for referent-based explanations of the consequences of trait inferences.

Trait inferences are studied because they have important interpersonal consequences, but saying anything about these consequences requires specifying what such inferences are and what they are not. (Newman & Uleman, 1993, p. 514)

Imagine the following scene: The personnel manager of a company has lunch with Paul Jones, the research analyst of the company. Paul Jones tells the personnel manager that he is the best research analyst in his field and boasts that since he has been in charge of the research-and-development unit of the company, things have been going better than ever. After lunch, back at her desk, the personnel manager starts reviewing the record of a young and promising employee who is up for promotion. She needs to decide whether to promote the employee to the position of account manager—a job that requires confidence, but not arrogance, to sell the products of the company persuasively and successfully. The personnel manager reviews

the employee's record attentively and repeatedly, but the file offers no clear picture of the employee's confidence. What could be the impact of the arrogant behavior of the research analyst on the personnel manager's later evaluation of the potential account manager?

Recently, Thompson and his colleagues (Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994) used a similar example to explain the notion of *category accessibility*: When people encode social stimulus information to which competing trait constructs are applicable, whichever construct is cognitively most accessible will be used to interpret and judge the stimulus (Bruner, 1957; Higgins, Rholes, & Jones, 1977). Suppose that in our example, an important part of the employee's psychological profile reads: "By the way he acts one could readily guess that he is well aware of his ability to do many things well." To this information the traits *confident* and *conceited* may be equally applicable, making it difficult for the personnel manager to make an evaluation of the young employee on this important dimension. If during lunch the research analyst's behavior had activated the trait *conceited* just before the personnel manager read the employee's file, however, she might be more likely to see the description of the employee's behavior as an indication of arrogance and not as an indication of self-assurance. This process, by which information is interpreted in terms of highly accessible, relevant cognitive structures, is called *assimilation* (Higgins et al., 1977; cf. Thompson et al., 1994).

It is conceivable, however, that the behavior of the research analyst did not only activate the abstract behavior label *conceited*, as Thompson et al. (1994) suggested, but also activated the more specific actor–trait link "Paul Jones is conceited." The activation of this specific actor–trait link could make the personnel manager use it as a standard or anchor against which to compare the target individual (the young employee). This

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would result in a *contrast* effect, that is, the target would be judged as less arrogant and more self-assured.

In the studies reported in this article, we investigated the hypothesis that when a specific actor–trait link is cognitively activated, contrast effects would more likely be observed in subsequent person judgments, whereas when a behavior label is activated assimilation is more likely. Thus, with regard to contrast effects, we propose that when the personnel manager evaluates the file of the conceited/confident employee while the actor–trait link “Paul Jones is conceited” is cognitively accessible, she will be more likely to consider the ambiguous target information in relation to this specific representation of arrogance and may use it as a comparison standard, making contrast effects more likely. As investigations of comparative and social judgment have shown, stimuli that do not provide judges with information that is perceived as distinctive and relevant will not be used as a comparison standard (Helson, 1964; Herr, 1986; Sherif & Hovland, 1961). When the task is to judge a target person, activated behavior labels such as *conceited* may be perceived as less distinctive than specific category exemplars, such as “Paul Jones is conceited.” The latter is more likely to be used as a comparison standard (see Stapel & Spears, in press-a). Furthermore, *behavior* labels may not be similar enough to the target *person* to be used as a relevant comparison standard. Actor–trait links that indicate person concepts are, on the other hand, more similar to the target and may therefore be used as relevant standards in person judgments and result in contrast. When *abstract* behavior labels such as *conceited* are primed, however, we would expect assimilation to occur. These global behavior descriptions will “capture” the subsequently presented target stimulus (Bruner, 1957) and function as a general interpretation frame when information about the target stimulus is encoded. They will not be used as a comparison standard, because they lack distinctiveness and relevance (see Manis, Biernat, & Nelson, 1991; Stapel, Koomen, & van der Pligt, 1995).

This line of reasoning is consistent with Schwarz and Bless's (1992) inclusion–exclusion model of assimilation and contrast effects. This model predicts assimilation when a primed construct can be included in the target and predicts contrast when the primed information is excluded from the target. Although Schwarz and Bless (1992) primarily focused on assimilation and contrast effects that are determined by the ambiguity or *category width* (Schwarz & Bless, 1992) of the *target stimulus*, their model suggests that the broader and more inclusive the *primed category*, the more likely it is that judgments of target stimuli will be assimilated to it. Likewise, contrast effects are likely to the extent that the primed category is narrow and exclusive (Ford, Stangor, & Duan, 1994; Schwarz & Bless, 1992; Stapel & Spears, in press-a). The present conceptualization also can be related to theorizing by Wyer and Srull (1989). Reinterpreting previous findings of assimilation and contrast, Wyer and Srull suggested that respondents are more likely to use accessible information as an interpretation frame during encoding when that information consists of an attribute concept (e.g., *conceitedness*). Accessible information may, on the other hand, be more likely to serve as a comparison standard in the judgment stage when both an attribute concept and an object concept (e.g., *conceited person*) are activated.

It thus seems important to know which factors determine

whether traits or actor–trait links are activated when studying the effects of exposure to trait-implicating behavioral information. Research on spontaneous trait inferences (STIs) deals directly with this issue.

STI research was initiated by Uleman and his colleagues (e.g., Uleman, 1989; Winter & Uleman, 1984; Winter, Uleman, & Cunniff, 1985). It investigates how and when people make inferences about a person's disposition. The typical experimental procedure in the STI paradigm (e.g., Winter & Uleman, 1984) is to present participants with a series of sentences describing behaviors that clearly imply specific personality traits. Although participants are not encouraged to form impressions of sentence actors, results consistently show that the traits corresponding to the behaviors serve as effective retrieval cues for those behaviors.

Initially, STIs were described as spontaneous *person* descriptions (e.g., Uleman, 1989; Winter & Uleman, 1984; Winter et al., 1985). Recently, however, it has been suggested that (spontaneous or intentional) trait inferences do not necessarily refer to inferences about people and their dispositions, but merely to *behavior* descriptions (Bassili, 1989a, 1989b; Claeys, 1990; Uleman & Moskowitz, 1994; Uleman, Moskowitz, Roman, & Rhee, 1993; Whitney, Davis, & Waring, 1994). It seems intuitively sensible that traits can refer to either behavior or to person descriptions. As Newman and Uleman (1993) noted, to be told that someone “did something stupid” is not the same as being told that the person is stupid, and saying that someone “has been very generous lately” may imply that the person is not usually generous. Although various theorists have staked out positions at each extreme of the dichotomy “Do trait inferences refer to behavior descriptions or to dispositions?” (Bassili, 1989a, 1989b; Moskowitz, 1993b; Uleman & Moskowitz, 1994; Wyer & Srull, 1989), recent evidence seems to suggest that it depends on the circumstances. For instance, procedural knowledge (Smith, 1990), the situational context (Uleman et al., 1993; Whitney et al., 1994), the goals and motivation of the individual perceiver (Uleman & Moskowitz, 1994), and the personality the perceiver brings into the situation (Moskowitz, 1993a) may all affect the likelihood that trait inferences activate dispositions or actor–trait links instead of mere behavior descriptions. For example, specific actor–trait links (e.g., “Paul Jones is conceited”) are reported to be activated when participants have an *impression* formation goal when reading trait-implicating sentences, whereas abstract behavior labels have been shown to be activated (e.g., *conceited*) under *memory* instructions (see Bassili, 1989a, 1989b; Uleman & Moskowitz, 1994; Uleman et al., 1993; Whitney et al., 1994). These findings are seemingly robust and are supported by more general evidence from the person memory literature, indicating that social information tends not to be dispositional in nature, or organized in memory around person categories, unless the perceiver is given an instructional set that facilitates such organization (e.g., Hamilton, 1981; Srull, 1983; Wyer & Gordon, 1984).

In the present research, as explained before, we hypothesized that when trait inferences refer to abstract behavior labels they will lead to assimilation in judgments of a relevant, ambiguous target individual, whereas when they refer to specific actor–trait links they will lead to contrast effects in subsequent judgments. STI research suggests that the processing goal (memory vs.

impression) people have when being exposed to a single piece of trait-implying information determines whether a behavior label or an actor-trait link is activated by such exposure. This implies that the impact (assimilation or contrast) of trait inferences will differ between people with memorization and impression formation goals.

Moskowitz and Roman (1992) reported findings that support this line of reasoning. In their research, participants who were asked to memorize a small set of trait-implying sentences subsequently judged an unrelated target actor in a manner consistent with the implied traits (assimilation). Participants who were asked to form an impression of the actors in the sentences judged an unrelated target actor in a manner opposite to the traits implied by the sentences (contrast). Using the conceptualization of the determinants of assimilation and contrast effects as presented above, we would explain these results as follows: In the memory conditions, trait-implying sentences activate behavior labels that function as a general interpretation frame when participants are encoding information about the target stimulus and thus result in assimilation. In the impression conditions, on the other hand, the trait-implying sentences activate specific actor-trait links. Participants use these as comparison standards, in relation to which the target individual is contrasted.

Moskowitz and Roman (1992), however, interpreted their findings in a different manner. They suggested that assimilation of ambiguous stimulus information to an activated construct depends on the extent to which one is unaware of the source of the fortuitous activation, that is, the trait-implying sentences. Moskowitz and Roman (1992) argued that when participants are aware of the earlier prime at the time of judgment, they may interpret the stimulus in terms alternative to the primed category: "Memory subjects, whose inferences are spontaneous, should show assimilation effects on the relevant trait dimensions. Impression subjects, whose inferences are conscious (because of their goal of forming trait inferences) should show contrast effects on the relevant trait dimensions" (Moskowitz & Roman, 1992, p. 733). Although Moskowitz and Roman (1992) did not elaborate on the cognitive process underlying "awareness-based" contrast in their impression conditions, other researchers have explained contrast effects using similar terminology (e.g., Lombardi, Higgins, & Bargh, 1987; Newman & Uleman, 1990; Skowronski, Carlston, & Isham, 1993; Strack, Schwarz, Bless, Kübler, & Wänke, 1993). Some of these authors argued that awareness-based contrast effects are driven by participants' attempts to partial out the influence of the primes from the representation of the target (e.g., Martin, 1986) or by overcorrection when participants are trying to avoid unwanted contamination of their judgments (e.g., Petty & Wegener, 1993; Wilson & Brekke, 1994). Others argue that when participants are aware of the priming episode, these primes reinforce extreme standards that do not match the ambiguous target information when participants are evaluating the fit between target and primed traits (e.g., Skowronski et al., 1993). Whatever the exact process, awareness of the priming episode seems to be a possible determinant of contrast effects. We need to add, however, that recent research has demonstrated that it is neither a sufficient nor a necessary ingredient for the occurrence of prime-attenuating or contrast effects (see Banaji, Hardin, & Rothman, 1993; Ford & Kruglanski, 1995; Ford et al., 1994;

Herr, 1986; Sedikides, 1990; Schwarz & Bless, 1992; Stapel & Spears, in press-a; Thompson et al., 1994). Moreover, in traditional studies of comparative judgment (e.g., Helson, 1964; Parducci, 1965), contrast effects are depicted as mediated by the *automatic* and *unconscious* use of contextually induced norms or anchors (see Kahneman & Miller, 1986).

In our explanation of Moskowitz and Roman's (1992) results, the distinctive factor is not awareness versus unawareness, but activation of actor-trait links versus behavior labels. We propose that, when considering the impact of trait-implying sentences, an important determinant of assimilation and contrast effects is whether the context in which these sentences are embedded stimulates the activation of either behavior labels or actor-trait links. This implies that even under impression instructions, exposure to trait-implying sentences could result in subsequent assimilation effects, when the context of these sentences invites the activation of abstract behavior labels. Likewise, even under memory instructions, exposure to trait-implying sentences could result in contrast effects when the context invites the activation of specific actor-trait links.

Uleman and Moskowitz (1994) noted that in typical STI research the formation of actor-trait links when one is memorizing trait-implying sentences may have been less likely because "neither our tasks nor materials facilitated explicit trait-to-actor links as much as we would expect in more complex and realistic settings" (p. 494). Uleman et al. (1993) suggested that the activation of actor-trait links when a person is exposed to trait-implying sentences may be enhanced by making the actors in these sentences more salient. This would result in more elaborate and actor-related encoding (see also Moskowitz, 1993a, 1993b). Recent research by Carlston and Skowronski (1994) may be interpreted as support for this proposition. Using complex and elaborate trait-implying stimulus material that enhanced person memory organization by actors, these researchers demonstrated the activation of actor-trait links under a range of goals, including both memorization and impression formation. In contrast to the material used by Carlston and Skowronski (1994), Moskowitz and Roman (1992) used trait-implying sentences that did not direct much attention to the actors. These sentences were simple descriptions of the actions of arbitrary persons that were described as "he" or "she" ("He knew he was the best and didn't hesitate to tell people about it"). In the present research we examined the hypothesis that embedding these "impoverished" trait-implying sentences in a context that, as previous research has demonstrated, is likely to invite actor-trait links under both memory and impression instructions leads to contrast effects in subsequent person judgments.

In the first study, we investigated the impact of changing the he/she sentences Moskowitz and Roman (1992) used in sentences describing actions of individuals with real names and accompanied these trait-implying sentences by photographs of the actors. As research by Uleman et al. (1993; see also Uleman, Newman, & Moskowitz, in press) has suggested, this manipulation is expected to activate actor-trait links. In the second study, we used Kelley's (1967) covariation paradigm of consensus, distinctiveness, and consistency information to investigate the impact of (de)personalization of trait-implying sentences on subsequent person judgments. As Bassili (1989a) showed, when

trait-implying sentences are accompanied by covariation information that implies person attributions, actor-trait links are likely to be activated, whereas when such information implies situation attributions the activation of behavior labels is more likely (Bassili, 1989a; cf. Lupfer, Clark, & Hutcherson, 1990).

The present studies provided a test of our referent-based explanation of the judgmental effects of trait-implying sentences. We investigated our "activation of behavior label versus actor-trait link" explanation of assimilation and contrast effects not only by varying the instructions (memory vs. impression conditions) given to participants, but also by varying the context in which the trait-implying sentences are embedded (personal vs. impersonal). According to our referent-based hypothesis, under conditions in which the activation of behavior labels is more likely, participants who are exposed to trait-implying sentences should exhibit assimilation effects in subsequent judgments, whereas under conditions in which the activation of actor-trait links is more likely they should exhibit contrast effects in their judgments.

### Experiment 1

In this experiment we investigated whether personalization of trait-implying sentences would result in contrast effects in subsequent judgments of a relevant but ambiguous target stimulus and whether depersonalization of such sentences would result in assimilation effects. In the personal conditions of this experiment we extended Moskowitz and Roman's (1992) design by changing the he/she sentences they used to sentences describing actions of individuals with real names. Furthermore, in personal conditions participants were presented with photographs (with name and age) of the actors in the trait-implying sentences. In the impersonal conditions, he/she sentences were used, and no photographs were given to participants.

### Method

#### Overview

We created two groups of participants on the basis of the instructions provided. One group was asked to memorize a series of sentences (*memory* participants). Another group was asked to form an impression of the actors described in the sentences (*impression* participants). Each of these groups was presented with five sentences, two of which were experimental and three of which were neutral fillers. For half of the participants, the actors in these sentences were described with real names, and the sentences were accompanied by passport photos of the actors (*personal* condition). For the other half, the actors in the sentences were described with *he/she*, and the sentences were not accompanied with photos (*impersonal* condition). On the basis of experimental sentences type, we created three groups. One third of the participants read two experimental sentences that implied the (negative) traits *stubborn* and *conceited*. One third of the participants read two experimental sentences that implied the (positive) traits *persistent* and *confident*. One third of the participants read sentences that did not imply traits along the persistent-stubborn or confident-conceited dimensions. Order of sentence presentation was counterbalanced across conditions. After the sentence task, participants were asked to read a paragraph about an actor named "Donald", whose actions were determined to be ambiguous along the persistent-stubborn and confident-conceited dimensions. All participants then judged Donald on a number of bipolar rating scales. Finally, participants were asked to try to recall the five sentences.

#### Participants

Three hundred thirty-eight Dutch high school students (mean age 17 years) participated in this experiment. There were 184 female and 154 male students, distributed randomly across conditions. The experiment was conducted during regular classes in groups of 15–30 persons.

#### Design

The experiment consisted of a 3 (prime type: positive, negative, irrelevant)  $\times$  2 (instruction condition: memory, impression)  $\times$  2 (personalization of trait-implying sentences: impersonal, personal) factorial between-subjects design.

#### Materials

**Trait-implying sentences.** Each participant was shown five sentences. All read the same three neutral filler sentences. The remaining two sentences were varied by the experimental prime type and personalization manipulations. These sentences were Dutch translations of the sentences used by Moskowitz and Roman (1992), who had chosen pretested sentences that were both strong in their ability to imply traits and relevant to two trait dimensions in Higgins et al.'s (1977) paragraph describing Donald (persistent-stubborn and confident-conceited). The positive impersonal (personal) sentences were: "He (Peter) peddled [sic] even harder as he fell further behind in the race" (persistent); "He (John) knew he could handle most problems that would come up" (confident). The negative sentences read: "He (Peter) refused to listen to them even though all the evidence was in their favor" (stubborn); "He (John) knew he was the best and didn't hesitate to tell people about it" (conceited). The irrelevant sentences were: "He (Peter) decorated the office with antiques from the Far East" (cultured); "He (John) invited them to call if they needed any help getting settled" (helpful). The filler sentences were: "She (Ann) climbed the tree with her pet frog in her pocket;" "She (Sarah) did not like to walk the streets by herself at night;" "He (Paul) inspired them to reexamine their places in the universe."

**Photographs.** In the personal conditions, participants were shown a page with black-and-white passport photographs of five people before they read the trait-implying sentences. Below each photo the name and age of the person portrayed were mentioned. The names were identical to the names used in the personal trait-implying sentences.

**Paragraph.** Participants read a Dutch translation of a paragraph adopted from Higgins et al. (1977) that described the activities of a character named Donald. This paragraph consisted of a series of behavioral descriptions that had been pretested and determined to be ambiguous along the specific trait dimensions implied by the sentences participants read (see Moskowitz & Roman, 1992). The paragraph read as follows:

Donald spent a great amount of his time in search of what he liked to call excitement. He had already climbed the Mont Blanc, did some white-water canoeing in a kayak, had driven in the exhausting Paris-Dakar race, and piloted a jet-powered boat—without knowing very much about boats. He had risked injury, and even death, a number of times. Now he was in search for new excitement. He was thinking, perhaps he would do some parachuting [adventurous-reckless]. By the way he acted one could readily guess that Donald was well aware of his ability to do many things well [confident-conceited]. Once Donald made up his mind to do something it was as good as done, no matter how long it might take or how difficult the going might be. Only rarely did he change his mind even when it might have been better if he had [persistent-stubborn].

Although participants read no trait-implying sentences that implied ei-

ther *adventurous* or *reckless*, the behavioral description of this dimension was retained in the paragraph to maintain coherence (cf. Moskowitz & Roman, 1992).

**Rating scales.** After reading the paragraph, participants were asked to rate Donald along four (two applicable and two inapplicable) bipolar trait dimensions. Participants indicated their impressions of Donald by circling a number on 7-point scales that measured along the applicable confident–conceited and persistent–stubborn dimensions and the inapplicable friendly–irritating and intelligent–stupid trait dimensions. A rating of 1 indicated a positive evaluation, and a rating of 7 indicated a negative evaluation (cf. Moskowitz & Roman, 1992).

### Procedure

On the basis of the procedure Moskowitz and Roman (1992) used in their research, each participant received a booklet with the instructions on the front page. Participants were told that they could complete the questionnaires at their own pace. In the personal conditions they were then shown the page with the five photos of the actors in the sentences they were going to read and were instructed to study these photos attentively and to attempt to memorize which photo was linked to which name. On the next page, half of the participants were informed that they were participating in a study of sentence memory and that their task was to memorize the five sentences that appeared in the booklet by repeating each of them silently to themselves. These participants were also told not to turn back in the booklet to look up the sentences. The other half of the participants were informed that they were participating in a study of impression formation and that their task was to read the five sentences that appeared in the booklet and to form an impression of the persons and their characteristics in each of these sentences.<sup>1</sup> After participants had read the memorization or impression instructions they read the five trait-implicating sentences. One group of participants read two experimental sentences that implied the traits *confident* and *persistent* along with three filler sentences. One group of participants read two sentences that implied the traits *conceited* and *stubborn* along with the three filler sentences. One group of participants read two sentences that did not imply traits on these dimensions along with the three filler sentences. The experimental sentences always appeared in the second and the fourth position. Order was counterbalanced so that the confident–conceited dimension occurred in the second position for half of the participants and the persistent–stubborn dimension appeared in the second position for the other half.

On the next page of the booklet was the paragraph about Donald. Participants in both the memory and impression conditions were instructed to read the paragraph and to try to form an impression of the characteristics of the person described.<sup>2</sup> The next page of the booklet contained the trait rating scales, on which all participants were asked to indicate their impressions of Donald. Order of rating scales was counterbalanced. Finally, on the last page, both memory and impression participants were asked to recall the five trait-implicating sentences they had read before they read the Donald paragraph (without turning back).

### Results

We predicted a three-way interaction among the prime type, instruction, and personalization manipulations. More specifically, **memory** participants who were presented with **impersonal** positive trait-implicating sentences (confident and persistent) or negative **trait-implicating** sentences (conceited and stubborn) should show an **assimilation** effect and rate Donald as more confident and persistent or more conceited and stubborn, respectively. **Memory** participants presented with **personal** trait-implicating sentences and **impression** participants presented with either **personal** or **impersonal** sentences should show a **contrast effect** and should rate Donald

more confident and persistent when the sentences implied negative inferences (conceited and stubborn) and rate Donald more conceited and stubborn when the sentences implied positive inferences. Finally, participants shown sentences that did not imply relevant trait dimensions should not show differences in their ratings. We predicted no systematic main or interaction effects for judgments along the inapplicable (friendly–irritating, intelligent–stupid) dimensions.

We tested our predictions in a 3 (prime type)  $\times$  2 (instruction)  $\times$  2 (personalization) analysis of variance (ANOVA). Because order of sentence presentation and the order of rating scales showed no effects, these variables are not reported here. As predicted, ANOVAs did not reveal any main or interaction effects for the inapplicable rating scales friendly–irritating, intelligent–stupid.<sup>3</sup> To keep presentation of the results simple, we report ANOVAs on the composite scores of the applicable scales (confident–conceited, persistent–stubborn).<sup>4</sup> For this measure, an ANOVA revealed the expected three-way interaction among prime type, instruction, and personalization,  $F(2, 326) = 3.21, p < .05$ . Table 1 presents composite mean ratings of Donald on the applicable scales for each of the conditions.

To assess the pattern of this interaction, we conducted separate analyses for the impersonal conditions of the design and the personal conditions of the design.

#### Impersonal Conditions

An ANOVA revealed the expected Prime Type  $\times$  Instruction interaction,  $F(2, 164) = 14.28, p < .001$ . As can be seen in

<sup>1</sup> Our procedure differs from that of Moskowitz and Roman (1992). We only instructed participants to form an impression of the actors in the trait-implicating sentences. Participants were not explicitly told “to generate a word that best described the characteristics or traits possessed by that person” (p. 732) because, strictly speaking, this instruction asks participants not only to form impressions of the actors but also to generate specific trait words. To avoid confounding impression instructions and overt or blatant activation of trait terms that are more likely to lead to awareness-based contrast per se (see Martin, 1986; Petty & Wegener, 1993; Strack et al., 1993), we decided to test more conservatively the hypothesis that the impression instructions lead to contrast effects and avoided Moskowitz and Roman’s explicit trait-generation instruction.

<sup>2</sup> In Moskowitz and Roman’s (1992) research, memory and impression participants were given different instructions regarding the Donald paragraph. Memory participants were told to read it and were asked afterward to give their impressions of Donald, whereas impression participants had been given an impression set before they read the Donald paragraph. To avoid possible confounds resulting from these differential instructions, in the research reported here all participants were given the same instructions regarding the Donald paragraph at the same point in the questionnaire (on the same page as the Donald paragraph).

<sup>3</sup> These findings replicate earlier results reported by Moskowitz and Roman (1992, Experiment 2), who showed that assimilation and contrast effects of trait inferences are caused by the fact that the trait-implicating sentences activate semantic concepts (see also Erdley & D’Agostino, 1988; Higgins et al., 1977; Sinclair, Mark, & Shotland, 1987). That priming does not affect inapplicable scales is evidence against the possibility that participants are merely responding to the evaluative aspects of the activated concepts and are subsequently forming evaluatively consistent judgments (cf. Martin, 1986; see also Stapel et al., 1995).

<sup>4</sup> Univariate and multivariate ANOVAs on participants’ ratings on the applicable scales showed the same pattern of results as the analyses on the composite measure reported in the *Results* sections.



Table 1  
*Trait Ratings of Prime Type × Instruction × Personalization Sentences: Experiment 1*

Personalization sentences and instructions	Prime type		
	Positive	Negative	Irrelevant
Impersonal Memory Impression	2.3 <sub>a</sub>	3.5 <sub>a</sub>	2.9 <sub>ac</sub>
Personal Memory Impression	3.4 <sub>b</sub>	2.5 <sub>a</sub>	2.9 <sub>abc</sub>
Impersonal Memory Impression	3.3 <sub>b</sub>	2.3 <sub>a</sub>	2.9 <sub>c</sub>
Personal Memory Impression	3.5 <sub>b</sub>	2.5 <sub>a</sub>	3.0 <sub>c</sub>

Note. Means were computed over the applicable rating scales (confident-conceited, persistent-stubborn). Within the impersonal and personal conditions, means with different subscripts differ significantly at  $p < .05$ . Lower scores indicate more positive ratings.

Bottom 2 green are described collapsed.

Right column is standard control. Yellow are cross-over.

Table 1, this interaction reflects that ratings of the stimulus target were more positive (negative) for memory participants who were shown positive (negative) trait-implying sentences—assimilation—and were more negative (positive) for impression participants who were shown positive (negative) sentences—contrast.

Comparison of the relevant means showed that memory participants exposed to positive trait-relevant sentences rated Donald as more positive ( $M = 2.3$ ) than did memory participants exposed to negative trait-implying sentences ( $M = 3.5$ ),  $F(1, 164) = 18.67, p < .001$  (assimilation), whereas impression participants exposed to positive trait-implying sentences rated Donald as more negative ( $M = 3.4$ ) than impression participants primed with negative sentences ( $M = 2.5$ ),  $F(1, 164) = 10.37, p < .01$  (contrast). Ratings of participants exposed to irrelevant sentences were halfway between ratings of participants in the experimental conditions. As Table 1 shows, we found that differences between experimental and irrelevant prime type conditions were significant when we compared ratings of memory participants primed with irrelevant sentences ( $M = 2.9$ ) and memory participants exposed to negative sentences ( $M = 3.5$ ),  $F(1, 164) = 5.70, p < .05$ .

### Personal Conditions

An ANOVA that focused on the part of the design that is an extension of Moskowitz and Roman's (1992) study revealed the expected main effect of prime type,  $F(2, 162) = 11.49, p < .001$ . As can be seen in Table 1, this main effect reflects a contrast effect: Within both the memory and impression conditions, rating of the stimulus target were more positive (negative) for participants who were shown negative (positive) trait-implying sentences.

Comparison of the relevant means showed that memory and impression participants exposed to positive trait-implying sentences rated Donald as more negative ( $M = 3.4$ ) than participants who were shown negative sentences ( $M = 2.4$ ),  $F(1, 162) = 23.00, p < .001$ . Furthermore, ratings of participants primed with irrelevant sentences were halfway between ratings of participants in the experimental prime type conditions. As Table 1 shows, these differences were significant ( $ps < .05$ ).

### Recall of Trait-Implying Sentences

Each participant's recall of the priming sentences was coded by a coder who was blind to experimental conditions. For each of the five sentences participants could recall, the following 3-point scoring system was used (cf. Banaji et al., 1993): 3 = perfect recall, 2 = conceptually identical recall, 1 = incorrect recall or no recall of sentence. A Prime Type × Instruction × Personalization ANOVA of this measure revealed a main effect of instruction,  $F(1, 326) = 184.1, p < .001$ . Memory participants showed better sentence recall ( $M = 10.9$ ) than impression participants ( $M = 8.0$ )<sup>5</sup> No other main or interaction effects ( $F_s < 1$ ) were found for recall of trait-implying sentences.

### Discussion

These results show that the way in which exposure to trait-implying sentences affects subsequent judgments is dependent not only on processing goals but also on the salience of the actors in these sentences. When the actors in trait-implying sentences are denoted only with simple pronouns (he/she), memory participants assimilate their judgments of an ambiguous stimulus target to the inferences activated by these trait-implying sentences, whereas impression participants contrast their judgments. When the actors in these sentences are indicated with real names and the sentences are accompanied with photographs of these actors, however, both memory and impression participants contrast their judgments away from the activated inferences.

This experiment replicated and extended the results reported by Moskowitz and Roman (1992). Like their results, in the present experiment memory participants assimilated their judgments of the target stimulus toward the constructs activated by the trait-implying sentences. Impression participants, on the other hand, contrasted their judgments away from the primed constructs. Moskowitz and Roman explained these differences in terms of (un)awareness of the inferences made under memorization and impression conditions. They stated that participants who are asked to form impressions of the actors in trait-implying sentences "should be conscious of these inferences and should exhibit contrast effects in their subsequent judgments. Participants asked to memorize sentences should form STIs outside of awareness and should exhibit assimilation effects in their judgments." (Moskowitz & Roman, 1992, p. 731). Thus, their explanation of assimilation and contrast effects is strongly connected to the hypothesis that when a person reads trait-implying sentences, impression instructions activate *conscious*

<sup>5</sup> The finding that in the present research memory instructions led to better recall than impression instructions seems inconsistent with classic findings reported, for example, by Hamilton (1981). These previous studies showed that impression formation enhances recall of a list with a series of behaviors, probably because it requires the perceiver to make sense of many individual items of information—for example, by fitting the behaviors to a pre-existing schema. Compared with these previous studies, however, participants in the present research were exposed to a very small list of behaviors that were very difficult to fit to a schema because they described a disparate set of behaviors. This may explain why we find superior recall under memory instructions (see also Hoffman, Mischel, & Mazze, 1981).

trait inferences, whereas memory instructions activate *unconscious* trait inferences. Compared with this awareness-based explanation, our referent-based explanation emphasizes that impression instructions do not necessarily activate conscious trait inferences, but—because participants are asked to form an impression of a specific actor—prime concrete actor–trait links that are used as an anchor or comparison standard with which subsequent targets are contrasted. Our data indicate that not only impression but also memory participants who were exposed to personalized trait-implying sentences (photos of actors, actors described with proper names) contrasted their target judgments with the implied traits. This suggests that contrast effects are not necessarily linked to impression conditions and cannot always be explained by awareness-based contrast processes.

One could argue, however, that the personalization manipulation not only made the actors in the trait-implying sentences more salient but also increased the memorability of these sentences. This could suggest that the contrast effects reported here were not due to the activation of actor–trait links but to the heightened awareness of these sentences. Uleman et al. (1993) showed that recall of behavior descriptions is improved when actor photos are present while people encode these behaviors. There are several arguments that seem to counter this alternative explanation.

First, for such memorability to result in contrast effects, mere recall of the priming episode (here, the trait-implying sentences) is not enough. As many researchers have noted (e.g., Martin, 1986; Petty & Wegener, 1993; Wilson & Brekke, 1994), awareness of the prime is likely to result in contrast effects only when people are aware not only of the prime at the time of judgment, but also of its possible contaminating effects on subsequent judgments. Only when people are able and motivated to correct for the potentially contaminating influences of the prime, “correction” processes to avoid contamination will occur (Ford & Kruglanski, 1995; Martin, Seta, & Crelia, 1990; Thompson et al., 1994). Such awareness-and-correction processes have been demonstrated to result in contrast effects when very “blatant” (Martin, 1986; Martin et al., 1990), “overt” (Skowronski et al., 1993), or “explicit” (Strack et al., 1993) priming procedures are used. Trait-implying sentences as used in our experiment do not directly present participants with traits, they *imply* traits. It therefore seems quite unlikely that participants who have to memorize such sentences will become aware of the potentially contaminating influences of the traits subtly implied in such sentences when these sentences are accompanied with photos of the actors in these sentences, whereas such awareness does not ensue when the trait-implying sentences are not accompanied with such photos.

A second argument against an awareness-based explanation of the contrast effects found in the personal memorization conditions is the fact that our analysis of the sentence recall measure did not show superior recall of personalized trait-implying sentences when compared with recall of impersonal trait-implying sentences. Although recall measures taken after the judgment task can serve only as indirect measures of level of prime-awareness, our results make awareness-based explanations of the effects of personalized trait-implying sentences seem less likely.

We conducted a second experiment to replicate the findings of the first experiment conceptually and to eliminate the possibility

that accompanying the trait-implying sentences with photographs does not merely activate actor–trait links but also makes these sentences more memorable.

## Experiment 2

In this experiment we investigated whether embedding trait-implying sentences in a context that stimulates the activation of actor–trait links would result in subsequent contrast effects and whether embedding these sentences in a context that activates only behavior labels would result in assimilation effects, independent of processing goals. Compared with the first experiment, we operationalized personalization of the trait-implying sentences in a different way. In this study we changed the he/she trait-implying sentences Moskowitz and Roman (1992) used to sentences describing actions of individuals with real names in all conditions. Instead of either accompanying or not accompanying these sentences with photographs of the actors, however, we presented the trait-implying sentences with background information about the actors and their circumstances.

As many researchers have suggested, the process of drawing inferences from single sentences may be influenced by the informational context in which the trait-implying sentences are presented (see, e.g., Bassili, 1989a; Clark, 1985; Hilton & Slugoski, 1986; Leddo & Abelson, 1986; Lupfer et al., 1990; Read, 1987). For example, the trait concept *clumsy* can refer to a behavior label (stepping on a dance partner's feet is clumsy) and to a specific actor–trait link (Paul is clumsy). Using Kelley's (1967) covariation model in which attributions can be based on consensus, distinctiveness, and consistency information, Bassili (1989a) demonstrated that context information often determines whether either *clumsy* as a behavior label or “Paul is clumsy” as an actor–trait link is activated. This can be illustrated by consideration of a situation in which Paul's display of clumsiness is accompanied by the following information: “Paul seldom steps on his partner's feet while dancing [high distinctiveness]; most other people step on Judy's feet while dancing [high consensus].” Although Paul's dancing might be identified as clumsy in this situation, it is unlikely that the perceiver will infer that Paul himself is a clumsy person. It is more the specific context that instigates his clumsiness, and therefore the actor–trait link “Paul is clumsy” is not likely to be made. Now suppose the context information is as follows: “Paul always steps on his partner's feet while dancing [low distinctiveness]; most other people do not step on Judy's feet while dancing [low consensus].” In this case it is much more likely that the perceiver will infer that Paul is clumsy. In other words, Bassili (1989a) demonstrated that when context information accompanying trait-implying actions has a high-distinctiveness/high-consensus structure, the action is likely to merely activate a behavior label, whereas when such context information has a low-distinctiveness/low-consensus structure, actor–trait links are primarily likely to be activated<sup>6</sup> (see also Lupfer et al., 1990).

<sup>6</sup> Bassili (1989a) did not manipulate the third of Kelley's covariation criteria—consistency—for two reasons. It does not discriminate between person and entity attributions, and it could not be matched with several trait-implying sentences describing events that typically occur once. For similar reasons, we decided to leave out consistency information in our manipulations.

In the present experiment we used these properties of context information to investigate the proposed referent-based explanation of assimilation and contrast effects that are the consequence of exposure to trait-implying sentences under memory and impression conditions. In a procedure similar to the first experiment, we extended the experimental design used by Moskowitz and Roman (1992). Thus, in this study we tested assimilation/contrast effects experimentally by varying the instructions (memory vs. impression conditions) given to participants and varying the background information that accompanied the trait-implying sentences. The levels of this variable are hereafter referred to as *situation information* (high distinctiveness/high consensus) versus *person information* (low distinctiveness/low consensus). Memory and impression participants exposed to sentences accompanied with situation information should form trait inferences of which the referents are behavior labels and exhibit assimilation effects in their judgments of an ambiguous target. Memory and impression participants shown sentences accompanied with person information should form trait inferences of which the referents are actor-trait links and exhibit contrast effects in their judgments. Memory and impression participants shown sentences accompanied with neutral control context information should show the same effects as found in the impersonal (Moskowitz–Roman) conditions of the first experiment: Memory participants should exhibit assimilation, and impression participants should exhibit contrast effects.

These predictions provide a more stringent test of our perspective on the consequences of trait-implying behaviors. We predicted assimilation effects when impression instructions are accompanied with context information that suggests situation attributions. Awareness-based explanations of contrast effects that contain the notion that impression instructions result in awareness of the implied traits seem to rule out such predictions (see Moskowitz & Roman, 1992). Furthermore, in the person information conditions of the present experiment, no vivid photographs that could confound memorability and the elicitation of actor–trait links were accompanying the trait-implying sentences. In the present study the person information and the situation information conditions did not differ in the *amount* or *vividness* of the information given to participants. Merely the *kind* of background information was varied to investigate the differential effects of person and situation information on the effects of exposure to trait-implying sentences.

### Method

#### Participants

Three hundred fifty-five Dutch high school students (mean age 15 years) participated in this experiment. There were 186 female and 169 male students, distributed randomly across conditions. The experiment was conducted during regular classes in groups of 15–30 persons.

#### Design

The experiment formed a 3 (prime type: positive, negative, irrelevant)  $\times$  2 (instruction condition: memory, impression)  $\times$  3 (context information: person, situation, control) factorial between-subjects design.

#### Materials

**Trait-implying sentences.** Participants were shown the same five sentences as those used in Experiment 1: three neutral filler sentences

and two experimental sentences that varied by the manipulation of prime type. However, in this experiment proper names of the actors were used in all experimental conditions. Furthermore, following Bassili (1989a), each of these five trait-implying sentences was accompanied by two context sentences that together suggested a person attribution (person information conditions) or a situational attribution (situation information conditions). The three neutral filler sentences and the trait-implying sentences in the control information conditions were accompanied with neutral information (e.g., “John lives with his wife and children in Amsterdam. John has two brothers and one sister.”).

To ensure that the presentation of the context information made sense, information that made the trait-implying sentences descriptions of specific events was added. To give an example of the general format of the trait-implying sentences and context information used, the sentence “John knew he could handle most problems that would come up while he was a United Nations soldier” (confident) was followed by situation (person) information: “John seldom (often) thinks that he can handle most problems that come up. Most (Few) United Nations soldiers thought they could handle most problems that would come up.”

**Paragraph and rating scales.** After reading the paragraph about Donald, participants were asked to rate Donald along several bipolar trait dimensions. The participants indicated their impressions of Donald by circling a number on 7-point scales that measured along applicable trait dimensions (confident–conceited, persistent–stubborn, adventurous–reckless) and inapplicable target-unrelated trait dimensions (friendly–irritating, intelligent–stupid, interesting–boring, warm–cold).<sup>7</sup> On all scales a rating of 1 indicated a positive evaluation and a rating of 7 indicated a negative evaluation.

#### Procedure

The general structure of the experimental procedure was the same as the one used in Experiment 1. Memory participants were informed that they were participating in a study of sentence memory and that their task was to memorize the five trait-implying sentences. These participants were also told that the two sentences that were printed below each of the five trait-implying sentences could help the memorization process. To ensure that it was clear to all participants which sentences they had to memorize and which sentences were merely “helpful,” the trait-implying sentences were printed in boldface type, whereas the context information sentences were printed in italics. The impression participants were informed that their task was to form an impression of the persons in the five trait-implying sentences (printed in bold). These participants were told that the additional sentences (printed in italics) could help them form these impressions. As in Experiment 1, the experimental sentences always appeared in the second and the fourth position, and the order of the trait-implying sentences was counterbalanced. Order of rating scales was counterbalanced to control for possi-

<sup>7</sup> In the first experiment, we established that assimilation and contrast effects of trait inferences are caused by the fact that trait-implying sentences do not activate general evaluative response modes. We investigated the semantic and evaluative consequences of priming by comparing participants’ judgments on scales that were prime-related, and corresponded to the ambiguous target description with scales that were prime-unrelated, but also did not correspond to an ambiguous target description. Compared to this first experiment, in Experiment 2 we investigated whether primes also affect judgments on dimensions along which the target is ambiguous but that are semantically *unrelated* to the primes by including an extra applicable rating scale (adventurous–reckless). This scale was not semantically related to the constructs implied by the sentences participants read (confident–conceited, persistent–stubborn) but constituted a dimension on which the target was described in ambiguous terms.



Table 2  
Trait Ratings Scores of Prime Type  $\times$  Instruction  $\times$  Context  
Information Sentences: Experiment 2

Context information and instructions	Prime type		
	Positive	Negative	Irrelevant
Control			
Memory	2.5 <sub>a</sub> (2)	3.4 <sub>a</sub> (3)	2.9 <sub>c</sub> (5)
Impression	3.3 <sub>b</sub>	2.5 <sub>a</sub>	2.9 <sub>c</sub>
Situation			
Memory	2.5 <sub>a</sub>	3.2 <sub>b</sub>	2.9 <sub>c</sub>
Impression	2.6 <sub>a</sub>	3.4 <sub>b</sub>	2.9 <sub>c</sub>
Person			
Memory	3.3 <sub>b</sub>	2.5 <sub>a</sub>	2.8 <sub>c</sub>
Impression	3.3 <sub>b</sub>	2.3 <sub>a</sub>	2.8 <sub>c</sub>

Note. Means were computed over the prime-related (confident–conceited, persistent–stubborn) and target-related (adventurousness–reckless) scales. Within the control, situation, and person conditions, means with different subscripts differ significantly at  $p < .05$ . Lower scores indicate more positive ratings.

I split the irrelevant ones because dv is reported by rows. Bottom and middle left are presented collapsed, so I treat each "ble order effects, and on the last page both memory and impression participants were asked to recall the five trait-implying sentences ("the sentences printed in bold") they had read before they read the Donald paragraph (without turning back).

### Results

We predicted that the kind of inference (behavior label vs. actor–trait link) participants formed when reading trait-implying sentences would guide their judgments of Donald. Memory and impression participants exposed to sentences accompanied with situation information should form trait inferences of which the referents are behavior labels and should therefore exhibit assimilation effects in their judgments. Memory and impression participants exposed to sentences accompanied with person information should form trait inferences of which the referents are actor–trait links and should therefore exhibit contrast effects in their judgments of Donald. Memory participants shown trait-implying sentences with control information should, similar to the participants in Moskowitz and Roman's (1992) study, form trait inferences of which the referents are behavior labels and should exhibit assimilation effects, whereas under these conditions impression participants should form trait inferences of which the referents are actor–trait links and should exhibit contrast effects. In other words, we predicted a three-way interaction among the prime type, instruction, and context information manipulations.

We tested our predictions with a 3 (prime type)  $\times$  2 (instruction)  $\times$  3 (context information) ANOVA. Because order of sentence presentation and the order of rating scales showed no effects, these variables are not reported here. Again, ANOVAs did not reveal any main or interaction effects for the inapplicable rating scales.<sup>8</sup> However, on the composite score of the applicable rating scales an ANOVA did reveal the expected three-way interaction among prime type, instruction, and context information,  $F(4, 337) = 6.62, p < .001$ ; and a two-way interaction between prime type and context information,  $F(4, 337) = 16.85, p < .001$ ; and a two-way interaction between prime type and instruction,  $F(2, 337) = 4.82, p < .01$ . Table 2

presents composite mean ratings of Donald on the prime-related and target-related measures for each of the conditions in the design.

As in Experiment 1, to assess the pattern of these interactions, we conducted separate analyses focusing on (a) the control information, (b) the situation information, and (c) the person information conditions of the design.

### Control Information Conditions

An ANOVA revealed the expected Prime Type  $\times$  Instruction interaction,  $F(2, 109) = 29.97, p < .001$ . As can be seen in Table 2, this interaction reflects that ratings of the stimulus target were more positive (negative) for memory participants who were shown positive (negative) trait-implying sentences—assimilation—and were more negative (positive) for impression participants who were shown positive (negative) sentences—contrast.

A comparison of the relevant means shows that memory participants who were exposed to positive trait-relevant sentences rated Donald as more positive ( $M = 2.5$ ) than memory participants who were exposed to negative trait-implying sentences ( $M = 3.4$ ),  $F(1, 109) = 30.11, p < .001$  (assimilation), whereas impression participants exposed to positive trait-implying sentences rated Donald as more negative ( $M = 3.3$ ) than did impression participants primed with negative trait-implying sentences ( $M = 2.3$ ),  $F(1, 109) = 29.94, p < .001$  (contrast). Ratings of participants exposed to irrelevant sentences were halfway between ratings of participants in the experimental prime type conditions. As Table 2 shows, these differences were significant ( $ps < .05$ ).

### Situation Information Conditions

An ANOVA revealed the expected main effect of prime type,  $F(2, 115) = 17.95, p < .001$ . As can be seen in Table 2, this

<sup>8</sup> Because univariate analyses of the target-related adventurous–reckless scale showed the same pattern as the two prime-related scales, we report ANOVAs only on the composite scores of these three scales (see also footnotes 3,4,7). The trait-implying sentences affected ratings not only on scales that were semantically related to primed constructs but also on a scale that was semantically unrelated to the primes but related to a dimension on which the target was described as being ambiguous. This suggests that, although the primed inferences did not result in a general evaluative response tendency toward the target (because no priming effects were found on inapplicable scales), the activation of specific trait construct meanings probably guided the interpretation and judgment of all target dimensions that were ambiguous. Although preliminary, these findings are in line with Wyer and Srull's (1989) model of person memory, which suggests that when a specific semantic concept has been primed, participants use this to interpret applicable behavioral information, and on the basis of these interpretations they develop a more general evaluative person concept of the target. They might then use this general person concept as the basis for further inferences. In an extension to this model, however, our results indicate that the formation of a general person concept does not necessarily affect all target judgments. Our findings suggest that people are more likely to fall back on a general evaluative impression when they have some relevant target information (e.g., the adventurous–reckless judgment) than when they have no relevant information (e.g., the intelligent–stupid judgment). Stapel and Koomen (1995b) recently completed a series of studies in which they investigated this issue more extensively and precisely.

main effect reflects assimilation: Within both the memory and impression conditions ratings of the stimulus target were more positive (negative) for participants who were shown positive (negative) trait-implying sentences.

A comparison of the relevant means shows that memory and impression participants who were exposed to positive trait-implying sentences rated Donald as more positive ( $M = 2.6$ ) than participants who were shown negative sentences ( $M = 3.3$ ),  $F(1, 115) = 16.50, p < .001$ . Ratings of participants exposed to irrelevant sentences were halfway between ratings of participants in the experimental prime type conditions. As Table 2 shows, these differences were significant ( $ps < .05$ ).

### *Person Information Conditions*

An ANOVA revealed the expected main effect of prime type,  $F(2, 113) = 28.71, p < .001$ . As can be seen in Table 2, this main effect reflects a contrast effect: Within both the memory and impression conditions ratings of the stimulus target were more positive (negative) for participants who were shown negative (positive) trait-implying sentences.

A comparison of the relevant means shows that memory and impression participants exposed to positive trait-implying sentences rated Donald as more negative ( $M = 3.3$ ) than participants who were shown negative sentences ( $M = 2.4$ ),  $F(1, 113) = 57.32, p < .001$ . Ratings of participants who were exposed to irrelevant sentences were halfway between ratings of participants in the experimental prime type conditions. As Table 2 shows, these differences were significant ( $ps < .05$ ).

### *Recall of Trait-Implying Sentences*

As in Experiment 1, we scored participants' recall of the five trait-implying sentences. A Prime Type  $\times$  Instruction  $\times$  Context Information ANOVA of this recall measure revealed a main effect of instruction,  $F(1, 337) = 162.6, p < .001$ . As in Experiment 1, this indicated that memory participants showed better sentence recall ( $M = 10.5$ ) than impression participants ( $M = 8.0$ ), (see footnote 5). No other main or interaction effects ( $F_s < 1$ ) were found for this recall measure.

### *Discussion*

The results of the second experiment provide further support for the notion that the way in which exposure to trait-implying sentences affects subsequent judgments is dependent on the *kind* of trait information (abstract behavior label or specific actor–trait link) these sentences prime.

We argued before that awareness-based explanations do not provide an adequate explanation of the contrast effects found in the personal conditions of Experiment 1. Results of the present experiment show even more clearly that awareness of the prime is not a necessary precondition for the occurrence of contrast effects. First, as in Experiment 1, participants who contrasted their target judgments with the traits implied by the sentences to which they were exposed did not show superior recall of these sentences. Second, context information conditions that facilitated person attributions did not present participants with extra vivid, or potentially more memorable stimulus material, such

as photos of the actors. Finally, our results show that assimilation and contrast effects can occur independently of memorization and impression formation instructions. When the context in which trait-implying sentences are embedded is more likely to instigate person attributions and to activate actor–trait links, an unrelated target actor is more likely to be judged in a manner inconsistent with the traits implied by the sentences. When the context in which trait-implying sentences are embedded is more likely to instigate situation attributions and to activate behavior labels, an unrelated target actor is more likely to be judged in a manner consistent with the traits implied by the sentences. Memorization and impression formation instructions seem to make a difference only when the trait-implying sentences have to speak for themselves and are not accompanied by relevant information about the actions or actors described. Only in these “impoverished” conditions do memory participants assimilate their target judgments to the inferred constructs, whereas impression participants then contrast their target judgments to these constructs. The pattern of results in the other conditions and previous STI research (e.g., Bassili, 1989a; Uleman & Moskowitz, 1994; Uleman et al., 1993; Whitney et al., 1994) suggest that the differences between impoverished memorization and impoverished impression conditions are determined by the fact that impression instructions are more likely to activate actor–trait links, whereas memorization instructions activate only behavior labels.

### *General Discussion*

Taken together, these two studies extend earlier research on the prime-generating properties of trait-implying behaviors (Moskowitz & Roman, 1992). They support and specify the general hypothesis that inferences resulting from the exposure to trait-implying sentences can guide the manner in which subsequent behavior is interpreted and judged. The pattern of results across the two experiments supports the hypothesis that when trait inferences refer to abstract behavior labels they lead to assimilation in judgments of a relevant, ambiguous target, whereas when they refer to specific actor–trait links they lead to contrast in subsequent judgments. On the basis of earlier research that delineated conditions under which exposure to trait-implying behaviors is likely to activate either abstract behavior labels or specific actor–trait links (e.g., Bassili, 1989a; Moskowitz, 1993b; Uleman & Moskowitz, 1994; Uleman et al., 1993; Uleman et al., in press; Whitney et al., 1994) we found that, when using impoverished stimulus material that by itself is not very likely to attract attention to the actors in the trait-implying sentences, memorization instructions yield assimilation effects in subsequent target judgments. Contrast effects are more likely to occur when people are explicitly instructed to form an impression of the actors in these sentences or when these sentences are embedded in a context that invites actor-related encoding. Specifically, the present studies show that accompanying trait-implying sentences with photos of the actors or with covariation information that suggests strong person attributions results in contrast *regardless* of whether these sentences are read under memory or impression instructions. More generally then, together with previous research these findings suggest that actor–trait links are relatively likely to be activated when the behavior

somebody engages in is clearly a consequence of his or her personality makeup rather than the situation, when we are motivated to form an impression of the actor performing the behavior, or when the actor is a salient or vivid part of the situation (e.g., when the actor is somebody we know, we have seen before, or whose appearance stands out and "engulfs the field"; see Uleman et al., in press).

In trait inference research there is considerable ambiguity regarding the kinds of evidence suitable for demonstrating the occurrence of trait inferences that refer to actor-trait links versus behavior labels. As Carlston and Skowronski (1994) recently argued, to detect the precise nature of trait inferences, measures should be used that do not depend on intentional retrieval, such as the cued-recall tasks that are typically used in traditional STI studies:

To detect inferences, implicit memory tasks need to be used that are more conceptual than perceptual in nature. *Conceptual* (or *indirect*) implicit memory tasks use test materials that differ from the original study materials and are affected not by perception but by interpretation, elaboration, or organization of that material. (p. 842)

The two category accessibility studies reported here could be interpreted as providing evidence, albeit indirect and conceptual, for what Carlston and Skowronski (1994) think is needed to settle the debate concerning the referents of STIs. As Smith and Branscombe (1988) pointed out, the

category accessibility effect is a form of implicit memory: memory because it constitutes an effect of an earlier experience, and implicit because the task is presented as a judgment rather than a memory task, and in fact the effect can occur without the perceiver's awareness of the prior (priming) episode. (p. 490)

Although in our experiments the activation of behavior labels or actor-trait links was not independently established, we argue that one implication of our referent-based explanation of these effects is that future researchers may want to use the current implicit-memory paradigm (cf. Banaji et al., 1993) to investigate when STIs refer to actor-trait links and when they refer to behavior labels. The present studies suggest quite persuasively that when in subsequent judgments assimilation is found STIs are likely to refer to behavior labels, whereas when contrast is found they probably refer to actor-trait links. More research is needed to further validate this claim.<sup>9</sup>

There are several factors thought to explain assimilation and contrast effects as found in the present paradigm. We prefer to explain assimilation as the result of the activation of abstract behavior labels, whereas contrast is the result of the accessibility of specific actor-trait links. In the literature on context effects, the "extremity" of the prime has been identified as underlying the conditions for assimilation and contrast (e.g., Herr, 1986; Petty & Wegener, 1993; Sherif & Hovland, 1961). For example, in ratings of ambiguous targets, a moderate prime is likely to lead to assimilation, whereas a more extreme contextual prime is likely to lead to contrast (e.g., Herr, 1986). In our studies the fact that both assimilation and contrast resulted from exposure to the same trait-implicating sentences would seem, at least in our findings, to rule out explanations in terms of the actual or relative extremity of the primed inferences. There is a version of the extremity hypothesis, however, that may fit the present data. According to Higgins

(1989), because of the rules of communication, primed person concepts or actor-trait links tend to be seen as more extreme than primed behavior labels or trait concepts. This is because when we describe somebody as, for example, *persistent*, we presumably do so because that person clearly differs from others on the persistence dimension. In other words, the person is assumed to be more persistent than average. Thus, priming actor-trait links may produce a more extreme construct than the priming of a behavior label. Although the present findings do not rule out the possibility that actor-trait links represent more extreme information than behavior labels, we argue that extremity is not a sufficient precondition for contrast to occur. Elsewhere we show that the impact of extremity is dependent on the *type* of information that is activated (Stapel et al., 1995). More specifically, in regard to the impact of extremity in the context of specific person exemplar priming, extremity leads to strong contrast effects (see also Herr, 1986), whereas in the context of abstract trait concept priming, extremity leads to strong assimilation effects (see also Wyer & Srull, 1989). Thus, whereas person concepts could be more extreme than trait concepts, we argue that the present contrast findings cannot be explained by prime extremity alone, because extreme trait primes intensify *assimilation* effects relative to moderate trait primes (see also Stapel et al., 1995).

Awareness-based explanations of contrast effects assume that when people realize that their thoughts or judgments could be influenced by the primed information, they may avoid using this information or actively subtract it from their subsequent judgments in an attempt to correct for perceived influences. For such correction attempts to occur and succeed, participants have to be aware of the relation between contextual information and the target description and must have the requisite motivation and opportunity to remove the contextual influence from their "true" reaction to the target. Across the two studies presented here, there seems no reason to expect that participants would be more suspicious of potential contamination of their target judgments in the conditions in which we found contrast (cf. Petty & Wegener, 1993; Schwarz & Bless, 1992; Wilson & Brekke, 1994). Both assimilation and contrast were found under impression formation instructions that are thought to induce heightened consciousness of the inferred traits (see Higgins, 1989; Moskowitz & Roman, 1992; Newman & Uleman, 1993). This suggests that awareness or judgments of inappropriateness are not necessary preconditions for contrast effects

<sup>9</sup> In a recent study, Stapel and Koomen (1995a) collected more *direct* evidence for the referent-based explanation of the consequences of trait inferences. In that study, participants were explicitly told what the referents were of the trait-implicating sentences they read. Half of the participants were told the sentences described a particular behavior, whereas the other half were told that they described a particular person. The results showed the pattern predicted by the present hypothesis: Subsequent target judgments were assimilated to the implied trait in the behavior conditions and contrasted away from these traits in the person conditions. Although this study does not provide evidence for the activation of behavior labels versus actor-trait links independent of the occurrence of assimilation or contrast, the nature of the crucial manipulation was relatively direct (and blatant) compared to the studies reported here. Together with the results reported in the present article, the Stapel-Koomen study strengthens the plausibility of our referent-based hypothesis concerning the consequences of trait inferences.

(see Banaji et al., 1993; Ford et al., 1994; Schwarz & Bless, 1992; Stapel & Spears, in press-a; Thompson et al., 1994). Therefore, we prefer viewing the contrast effects found here as a result of "unaware" *comparison* processes between the person information implied by the trait-implying sentences and the target person, as opposed to active and "aware" *correction* processes in which an attempt is made to subtract contextual contamination from target judgments.

Our explanation of the assimilation and contrast effects found in the present set of studies emphasizes that when trait-implying sentences activate abstract trait concepts or behavior labels, these concepts will serve as an interpretative framework, making assimilation to their features more likely when encoding information about the target stimulus. When trait-implying sentences activate more specific actor-trait links, contrast is more likely because these actor-trait links are sufficiently distinctive and relevant (Helson, 1964; Stapel et al., 1995) to be used as subjective standards for purposes of comparison in person judgment (cf. Herr, 1986; Sherif & Hovland, 1961; Wyer & Srull, 1989). Or, to put it in terms of Schwarz and Bless's inclusion-exclusion model, activated actor-trait links are relatively likely to result in contrast effects because they represent information that is narrow rather than wide (cf. Ford et al., 1994; Schwarz & Bless, 1992; Stapel et al., 1995; Stapel & Spears, in press-a).

Our preference for a comparison explanation of the contrast effects found in the present set of studies is warranted not only by the lack of support for alternative correction explanations but also by results recently reported by Stapel and Spears (in press-b). These authors, investigating the effects produced by analogies in the judgment of target stimuli they are used to embellish, demonstrated that when an analogy constitutes subtle background information that activates certain abstract features (e.g., "an unjust war" when the Vietnam War is used as an analogy to the Gulf War), people use these features to interpret the stimulus target, producing assimilation. However, when analogies constitute foreground information that activates feature-analogy links (e.g., "The Vietnam War was unjust") that can be compared with the target stimulus, people's judgments show more contrast between the analogy and the target ("The Gulf War was a just war"). In other words, the broader and more inclusive the primed category ("unjust war," "conceited"), the more likely it is that judgments of target stimuli will be assimilated to it. Likewise, contrast effects are more likely to the extent that the primed category is narrow and exclusive and relevant for comparison (Stapel et al., 1995; Stapel & Spears, in press-b). In this way results from earlier investigations of the effects of covert priming on person judgments can be *reinterpreted*. Accessible information is more likely to be used as a general interpretation frame when it is an abstract trait concept that is activated (e.g., *hostility*), whereas it is more likely to be used as a scale anchor when it is an applicable category exemplar that can be compared with the target (e.g., "Adolf Hitler"; Stapel et al., 1995).

Seen in this light, the pattern of results of our two studies may come as less of a surprise and more as a logical consequence of both the literature on STIs—which suggests conditions under which trait inferences would either refer to trait concepts or actor-trait links—and the literature on category accessibility—which suggests that trait concepts result in assimilation and that applicable category exemplars result in contrast effects (see Sta-

pel et al., 1995). As Bargh (1988) noted, the world seems like a very different place depending on whether one has just finished the biography of Niccolò Machiavelli or of Mother Theresa. How exactly the world will look after reading one of these books depends on whether reading them leaves memory traces of global concepts, such as "nasty and brutish" (in the case of Machiavelli) or of specific instances, such as "Machiavelli's world was nasty and brutish."

In sum, the studies reported here and related work on the consequences of what could be called *feature-priming* (e.g., behavior labels such as *conceited*) versus *instance-priming* (e.g., actor-trait links such as "Paul Jones is conceited") imply that an important avenue for future research is to investigate further which situations determine whether trait concepts or actor-trait links are made cognitively accessible in the social perceiver (see Stapel et al., 1995; Stapel & Spears, in press-a). As a more specific version of the quotation by Newman and Uleman (1993) with which we started this article would suggest: Cognitive inferences are studied because they have important consequences for cognitions and judgments, but saying anything about these consequences requires specifying whether such inferences refer to abstract category descriptions or to specific instances of that category.

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