Categories of category accessibility: The impact of trait versus exemplar priming on person judgments

Stapel, D.A.; Koomen, W.; van der Pligt, J.

Publication date
1997

Published in
Journal of Experimental Social Psychology

UvA Keur
UB Groningen
Broerstraat 4
9700 AN Groningen

A078295025 ISN: 681032 RAPDOC (R) **OPGEHAALD** NCC/IBL

Verzoeke te behandelen voor: 25-04-2005 **Ingediend door:** 0004/9999
Datum en tijd van indienen: 11-04-2005 19:05 **Datum plaatsen:** 11-04-2005 19:05 **Type aanvrager:** UKB **I.D.:** UVA KEUR (UB GRONINGEN)

PPN: 831680849

Journal of experimental social psychology 1965 New York [etc.] Academic Press
Gewenst: 1997-00-00 **Deel:** 33 **Nummer:** 1 **Electronisch leveren (LH=N)**

Auteur:	**Titel van artikel:**	**Pagina's:**
Stapel, Diederik A. (ed.)	Categories of Category Accessibility: The Impact of Trait Concept versu	44-76

Opmerking:
arno ID: 22604

LEEUW	P0517	Vol. 1(1965)-38(2002)
WWW		Vol. 31(1995)-

1. ○ origineel gestuurd
2. ○ fotokopie gestuurd
3. ○ overige
4. ○ nog niet aanwezig
5. ○ niet aanwezig
6. ○ niet beschikbaar
7. ○ uitgeleend
8. ○ wordt niet uitgeleend
9. ○ bibliografisch onjuist
10. ○ bij de binder

Fakturen zenden aan: Rijksuniversiteit Groningen
Bibliotheek, Uitleenbureau
Postbus 559
9700AN Groningen

JOURNAL OF EXPERIMENTAL SOCIAL PSYCHOLOGY 33, 47–76 (1997)
ARTICLE NO. JS961311

Categories of Category Accessibility: The Impact of Trait Concept versus Exemplar Priming on Person Judgments

DIEDERIK A. STAPEL, WILLEM KOOMEN, AND JOOP VAN DER PLIGT

University of Amsterdam, Amsterdam, The Netherlands

Received: August 15, 1995; revised May 9, 1996; accepted: June 26, 1996

Social cognition and judgment research addressing the impact of category accessibility on person judgments suggests that this impact may depend on the kind of information that is activated. Some priming stimuli (trait concepts, nonperson exemplars) are more likely to exert their influence during the interpretation stage of impression formation. Other priming stimuli (person exemplars) may especially exert their effects during judgment because they are sufficiently similar to the target to serve as a relevant comparison standard. It is posited that when primed category information is used as an interpretation frame, assimilative judgments of ambiguous stimuli are more likely. When category information is used as a comparison standard, contrastive judgments of both ambiguous and well-known stimuli are more likely, provided the primed information is sufficiently extreme. In four studies we test these hypotheses and further specifications by manipulating the comparison relevance and distinctness of the priming stimuli (trait concepts, person exemplars, nonperson exemplars), the extremity of the priming stimuli (moderate, extreme), and the ambiguity of the target stimuli (ambiguous, well known). Implications of these results for previous and future research on knowledge accessibility are discussed.

Quite often it is difficult to form impressions of other people because in many instances we have to rely on information that can be interpreted in more than one way. For example, does the fact that Donald says little at the dinner party mean that he is shy? Depressed? Or perhaps angry at the host? Research on the effects of accessible information on subsequent cognitions and judgments suggests that the way in which ambiguous behavior is interpreted and judged will depend upon

We thank Daniëlle De Doelder, Wilco van Dijk, Marie-Anne Stapel, Marcel Zeelenberg, and the students of "De Goudse Scholengemeenschap" and "Het Rijnlands Lyceum Oegstgeest" for their assistance with data collection and Marc Hazzenthal for many stimulating discussions. We also thank Leonard Martin, Melvin Manis, Norbert Schwarz, and Fritz Strack for their helpful comments on earlier versions of this article. This research was supported by Grant 575-70-074 from the Dutch Science Foundation (Nederlandse Organisatie voor Wetenschappelijk Onderzoek). Correspondence concerning this article should be addressed to Diederik A. Stapel, Department of Social Psychology, University of Amsterdam, Roetersstraat 15, 1018 WB Amsterdam, The Netherlands. Fax: (31) 20 639 1896. E-mail: sp_stapel@macmail.psy.uva.nl.

0022-1031/97 $25.00

which construct (e.g., shy, depressed, or angry) is most accessible at the time the information is received. Accessible information can serve as an interpretation frame and exert its influence when ambiguous target information is encoded. Sometimes, however, accessible information especially affects the impression formation process as a comparison standard during judgment (see for reviews Higgins, 1989; Wyer & Srull, 1989). What determines which of these effects will predominate? In this article, we will argue that an answer to this question may be related to the *kind* of information that is activated. When a trait concept (e.g., depressed) is activated, this information will generally be used as an interpretation frame and judgments of a target person will shift toward the activated information (an "assimilation" effect). On the other hand, when a particular person exemplar (e.g., John, Donald's depressed brother) is activated, this information will be used as a comparison standard and—if this standard is sufficiently extreme—person judgments will shift away from the activated information (a "contrast" effect). In other words, when "depressed" is foremost on our minds we may think Donald is silent at the dinner party because he feels depressed. On the other hand, thoughts about Donald's heavy-hearted brother may lead us to conclude that, compared to his brother's, Donald's behavior is quite normal.

Two separate research traditions in social psychology addressing the impact of "category accessibility" on person judgments tend to focus on either the interpretation frame *or* the comparison standard role of category information. Each of these traditions tends to rely on only one kind of such information (trait concepts *or* person exemplars) to study knowledge accessibility effects during impression formation.

Social cognition research, with its focus on memory structures and information processing strategies, shows that accessible trait concepts guide the interpretation of ambiguous stimuli and induce assimilation (Bruner, 1957; Higgins, Rholes, & Jones, 1977). For example, Srull and Wyer (1979) used a priming task in which they exposed participants to behavior descriptions so as to increase the accessibility of the concepts "hostility" versus "kindness." After this task, participants judged a description of a target person (Donald) whose actions were ambiguous with respect to hostility. Results showed assimilation to the primed concepts: Donald was rated as more hostile following the priming of the trait concept hostility and more kind following the priming of the trait concept kindness (Srull & Wyer, 1979, 1980; see also Higgins et al., 1977; Wyer & Srull, 1989).[1]

[1] Several social cognition researchers have argued that although assimilation may be treated as the default outcome of category accessibility, whether information accessibility actually results in assimilation or contrast may be determined by factors in the general judgmental setting that can prompt respondents either to use or not to use this information. These factors include (a) perceptions of the relation between the target and the context (e.g., Martin et al., 1990), (b) the desire to make context-independent judgments (e.g., Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994), and (c) communication rules (see Schwarz & Bless, 1992). These factors are thought to influence one's estimate of the "appropriateness" of using primed information (Martin, Seta, & Crelia, 1990; Schwarz & Bless, 1992a, 1992b). Furthermore, when priming stimuli are *re*activated right before judgment they

Social judgment research, on the other hand, with its focus on the context-bound and comparative nature of social judgments, provides evidence for the notion that accessible person exemplars can be used as a comparison standard in the judgment stage and—when sufficiently extreme—may induce contrast. As Herr, Sherman, and Fazio (1983, p. 325) put it: "The predominant context effect in the social judgment literature is the contrast effect." For example, Herr (1986) used Srull and Wyer's (1979) "ambiguous" friendly/hostile Donald as a stimulus target but his participants were primed with names of famous people. Herr (1986) found that when primed with person exemplars of extreme hostility (e.g., Hitler, Dracula), participants judged Donald as more kind, whereas when primed with extremely kind person exemplars (e.g., Peter Pan, Shirly Temple), they rated Donald as more hostile, a contrast effect. However, when the primed person names were moderately extreme exemplars, assimilation emerged in ratings of Donald. Thus, Donald was judged to be kind by participants who had just been primed with Robin Hood or Henry Kissinger, but as hostile by participants who had just been thinking of Alice Cooper or Joe Frazier. These and other findings from social judgment research (see Biernat, Manis, & Nelson, 1991; Herr, 1986; Herr et al., 1983; Kahneman & Miller, 1986; Manis, Nelson, & Shedler, 1988; Sherif & Hovland, 1961) suggest that when priming person exemplars, subsequent judgment effects may be largely determined by the perceived extremity or distributional norm of the activated information. Later we will discuss this notion in more detail.

The seemingly contradictory effects of "category accessibility" in, on the one hand, social cognition research and, on the other hand, social judgment research illustrate that these effects may depend on whether trait concepts or exemplars are activated. To date, research on the impact of priming on person judgments has not examined systematically the importance of what kind of information is activated. Surprisingly, most investigators treat the priming of trait concepts and person exemplars as interchangeable techniques to obtain the same effect: Category accessibility (Herr, 1986; Higgins, 1989; Higgins & Bargh, 1987; Sedikides & Skowronski, 1991; Wyer & Srull, 1989, inter alia). We argue that these priming techniques differ in the *kind* of stimuli that are used as primes and hence in the kind of information they activate and in the role they play in impression formation. More specifically, we postulate that primed trait concepts (e.g., "hostility") may serve to interpret an ambiguous person description and result in assimilation. In a similar vein, primed person exemplars may guide the categorization of an ambiguous target because they spontaneously activate the categorical dimension these exemplars exemplify (e.g., "hostility"). However, when person

---

are relatively more likely to be used as a comparison standard and yield contrast effects (see Stapel & Koomen, 1995a; Strack, Schwarz, Bless, Kübler, & Wänke, 1993). However, when priming is "subtle," priming stimuli are not reactivated, and respondents are not "suspicious" of the biasing influence of the priming episode the default outcome of priming in social cognition is thought to be assimilation (see Higgins, 1989; Lombardi, Higgins, & Bargh, 1988; Martin et al., 1990; Schwarz & Bless, 1992a).

exemplars are sufficiently extreme (e.g., "Hitler"), they will predominantly be used as a comparison standard against which the evaluation of target persons is contrasted.

We thus distinguish two stages at which accessible category information may exert its influence during impression formation: the *encoding* and the *judgment* stage (see for similar distinctions Banaji, Hardin, & Rothman, 1993; Gilbert, 1989; Manis, Biernat, & Nelson, 1991; Philippot, Schwarz, Carrera, De Vries, & Van Yperen, 1991; Schwarz & Bless, 1992a, 1992b; Strack, 1992; Trope, 1986; Trope, Cohen, & Alfieri, 1991; Trope & Liberman, 1993; Wyer & Srull, 1989). More important perhaps, we relate this distinction between the "interpretative" and "comparative" effects of accessible information to the judgmental consequences of two types of knowledge accessibility: trait concept priming and person exemplar priming. We argue that whereas *trait concepts* primarily influence the encoding of ambiguous stimuli (and result in assimilation), *person exemplars* may be used as an interpretation frame during encoding (and result in assimilation) but they may also be used as a comparison standard in the judgment stage (and—when sufficiently extreme—result in contrast). Thus, we argue that after both trait concept and person exemplar priming assimilative interpretation processes may occur, but after extreme person exemplar priming these processes may be "overruled" by contrastive comparison processes. This hypothesis is inspired by Wyer and Srull (1989), who, while reinterpreting previous findings of assimilation and contrast, argued that respondents are more likely to use accessible information as an interpretation frame when that information consists of an attribute concept (e.g., "hostility"). Accessible information is, on the other hand, more likely to serve as an extreme comparison standard when an attribute-object link (e.g., a "hostile Adolph") is activated. An explanation of the differential effects of knowledge accessibility may be found in studies in classical psychophysics and comparative judgment.

Brown (1953) and Helson (1964) noted that stimuli that do not provide judges with information that is perceived as "distinctive" and "relevant" will not be used as subjective standards for purposes of comparison. In the context of the present research, the *distinctness* part of this notion suggests that when abstract trait concepts such as "lust," "hostility," or "beauty" are primed, these constructs will be perceived as less distinct than when specific prototypes and/or cultural icons that exemplify these categories are activated (e.g., "Marilyn Monroe," "Adolph Hitler," "Cindy Crawford"). A specific, prototypical exemplar or a concrete icon, such as "a famous person," constitutes a distinct and separate entity with relatively clear object boundaries and is therefore more likely to be used as a comparison standard. An abstract trait concept or attribute with no clear object boundaries lacks the distinctness to be used as a comparison standard (see Wyer & Srull, 1989, p. 134). When abstract attributes, such as trait concepts, are relevant to interpretation of the target, however, they may exert their influence during encoding. Or, as Murphy and Zajonc (1993, p. 736) put it, such "diffuse"

information "can 'spill over' onto unrelated stimuli" (see also Schwarz & Bless, 1992a; Stapel, Koomen, & Van der Pligt, 1996; Stapel & Spears, in press).

More importantly perhaps, the notion that context information is more likely to be used as a comparison standard when it has *comparison relevance* suggests that, when the task is to judge a target person, trait concepts may be perceived as not similar to the target category and therefore they will not be used as relevant comparison standards. As Brown stated: "The anchor, to be effective, must be perceived as a member of the same class" as the target (Brown, 1953, p. 210). Person exemplars, on the other hand, do belong to the same category as the target and can therefore be used as relevant anchors in person judgments.

The logic of this comparison relevance argument is corroborated by a variety of recent empirical investigations. Work by Manis and his colleagues (e.g., Biernat et al., 1991; Manis & Paskewitz, 1984b; Manis et al., 1991) shows that comparison relevance is an important determinant of whether accessible information can be used as a comparison standard. For example, in a study by Biernat et al. (1991), respondents rated the height of different students who were shown in full-length photographs. Despite explicit instructions that stressed a constant judgmental framework, results suggested that the male targets were inadvertently rated in comparison with other men and female targets were compared with other women. This finding shows that contrast effects predominantly occur if respondents judge targets relative to context information about the *same* category (see also Kahneman and Miller's (1986) discussion of the use of "local norms").

The comparison relevance argument implies that in *person* judgments not only trait concept primes, but also *nonperson* exemplar primes are not likely to be used as a comparison standard. Here the old adage "Do not compare apples with oranges" applies. In judging Donald, for example, we are most likely to compare Donald with other persons because they provide a relevant comparison standard, rather than compare him to trait concepts or other nonperson information. Thus, *animal* exemplars like "Shark" and "Tiger" are not very likely to be used as a comparison standard when judging the hostility or friendliness of a *person* named Donald. These exemplars are not similar, do not belong to the target category (persons), and thus lack comparison relevance which makes contrast unlikely to emerge. However, because such animal names are likely to spontaneously prime the construct they exemplify (e.g., "hostility"; see Herr, 1986; Smith & Zarate, 1990; Stapel & Koomen, 1996b), they may still activate information that is likely to be used to interpret a target person's behavior. This latter process should result in assimilation.

In sum then, we argue that the concepts of "distinctness" and especially "comparison relevance" may shed new light on the divergent effects of category accessibility effects as studied in social cognition and social judgment research. More specifically, we hypothesize the following: Priming *nonperson exemplars* exemplifying constructs that are relevant to the interpretation of an ambiguous target stimulus will result in assimilation because these constructs may guide the interpretation of ambiguous targets in the encoding stage of impression formation.

Nonperson exemplars cannot be used as a comparison standard because they lack comparison relevance. Conversely, *person exemplars* are both distinct and have comparison relevance. Therefore, although possibly exerting some influence during encoding, these person exemplars are especially likely to be used as a comparison standard in the judgment stage of impression formation. And, as classic social judgment research has demonstrated, when primed person exemplars constitute a sufficiently extreme anchor, judgment of an ambiguous target is likely to be contrasted with the activated information (Biernat et al., 1991; Helson, 1964; Herr, 1986; Herr et al., 1983; Manis et al., 1988; Sherif & Hovland, 1961). Priming *trait concepts* activates information that is relatively indistinct and lacks comparison relevance. Thus—given that the activated information is relevant for the interpretation of an ambiguous target stimulus—in judgments of ambiguous targets, we expect assimilation because such information is more likely to be used during encoding and less likely to be used as a judgmental standard (see Higgins et al., 1977; Srull & Wyer, 1979). Together, these hypotheses imply that—in judgments of ambiguous targets—*contrast* is more likely to be the result of knowledge accessibility when the accessible information is relatively more *distinct,* has more *comparison relevance,* and is sufficiently *extreme* to be used as an anchor with which ambiguous targets can be contrasted in the judgment stage of impression formation. The less these three features apply, the more likely it is that assimilation rather than contrast will occur in judgments of ambiguous targets.[2]

The core of our hypothesis thus focuses on the use of category information as an interpretation frame in the encoding stage or as a comparison standard in the judgment stage of impression formation (cf. Trope, 1986; Wyer & Srull, 1989). But how can we observe whether a particular assimilation or contrast effect emerged because priming stimuli were used as an interpretation frame or as a comparison standard? Based on the hypotheses outlined above, we discuss below three moderators that are thought to have different consequences when priming stimuli are used as an interpretation frame as compared to a comparison standard. More specifically, we focus on the effects of the *ambiguity* of the target stimulus, the *time* at which the priming stimuli are presented, and the *extremity* of the priming stimuli.

Ambiguity of the Target

We hypothesize that both trait concept and nonperson exemplar priming result in assimilation effects due to category accessibility during the encoding of ambiguous information. Accordingly, these assimilation effects should be ob-

[2] We would like to stress that our perspective does not imply that these three features (distinctness, comparison relevance, and extremity) are the only or most important determinants of contrastive knowledge accessibility effects. Other variables, such as "appropriateness" or "reactivation" of accessible knowledge (see footnote 1) may also determine the direction of these effects. However, we argue that when investigating what *kind* of knowledge accessibility is likely to result in assimilation or contrast, these three variables are, *ceteris paribus,* important determinants.

tained only when judging a target requires interpretation, i.e., when the target is ambiguous. No such assimilation effects should emerge when the target stimulus is unambiguous or well known and thus needs no interpretative efforts. Conversely, we hypothesize that person exemplar priming may—when sufficiently extreme—result in contrast effects that reflect the use of accessible information as a comparison standard when evaluating a target individual. Accordingly, the emergence of such contrast effects should be independent of whether the target requires interpretation. In other words, the emergence of contrast effects after extreme person exemplar priming will obtain in judgments of ambiguous targets and *also* in judgments of unambiguous or well-known targets (cf. Herr et al., 1983; Philippot et al., 1991).

Time at Which the Priming Stimuli Are Presented

Our hypothesis is that assimilation effects following trait concept priming are the result of interpretation processes, whereas contrast effects following extreme person exemplar priming are the result of comparative judgment processes. From this it can be deduced that the time at which the priming stimuli are presented (i.e., before or after encoding) may be essential in the case of trait concept priming but inconsequential in the case of person exemplar priming. We hypothesize that whereas the interpretation effects of trait concepts will only result in assimilation when these concepts are primed *before* an ambiguous target is encoded, the comparison effects of extreme person exemplars will result in contrast independent of whether these exemplars are primed *before* or *after* encoding (cf. Srull & Wyer, 1980).

Extremity of the Priming Stimuli

The notion that trait concept priming may only affect the interpretation process, whereas person exemplar priming may also induce comparison processes, implies that varying the extremity of priming stimuli will lead to different effects when trait concepts are primed compared to when person exemplars are primed. We hypothesize that when trait concept priming is followed by judgments of ambiguous targets, priming moderately extreme trait concepts will lead to assimilation and priming extreme trait concepts to even stronger assimilation because in the latter case the ambiguous targets will be interpreted in more extreme terms. However, based on the present conceptualization, we do not expect this additive assimilation effect of extremity to ensue after person exemplar priming.

We postulate that, similar to trait concepts, person exemplars may guide the interpretation of an ambiguous target because they may spontaneously activate the categorical dimension they exemplify (see Herr, 1986; Smith & Zarate, 1990; Stapel & Koomen, 1996b). However, because person exemplars are both relatively distinct and comparison relevant, they may also be used as a comparison standard in the judgment stage. Whether the use of primed person exemplars as a comparison standard results in contrast and thus overrides earlier encoding effects may be dependent on the extremity of these exemplars, as suggested by previous

research (Biernat et al., 1991; Herr et al., 1983; Manis et al., 1988; Sherif & Hovland, 1961). When primed person exemplars are extreme, they may provide an extreme enough standard for comparative judgment processes to result in contrast. However, when primed person exemplars are only moderately extreme, it is more likely that the contrastive judgment effects are not strong enough to predominate the assimilative encoding effects (see Biernat et al., 1991; Manis et al., 1988, 1991). In this case, it is more likely that the encoding effects of exemplar priming leave their trace. Consequently, similar to Herr et al. (1983) we expect that when moderately extreme person exemplars are primed and an *ambiguous* target has to be judged, this target "will be judged as an instance of the primed category" (Herr et al., 1983, p. 327) and assimilation will ensue. However, when a *well-known* target is to be judged after moderately extreme person priming, we expect contrast will follow. Well-known targets are by definition well-defined objects that need no interpretation.[3] It is therefore improbable that activated exemplars will be able to exert any assimilative influences during encoding. Thus, in this case the effect of *both* moderately extreme and extreme person exemplar priming will only pull in the direction of contrast. This suggests that, because of the result of comparative processes in the judgment stage, in judgments of well-known targets moderately extreme and extreme person exemplar priming is more likely to result in contrast (see for similar reasoning Herr, 1986, p. 1107; Herr et al., 1983, pp. 326–327; Manis et al., 1991, p. 210).

STUDIES 1–4

Overview of Hypotheses Tested

We tested the hypotheses we set out to investigate in a series of four studies. In Study 1 we provide a first test of the hypothesis that trait concept priming influences judgments through interpretation and thus results in assimilative judgments of ambiguous targets but has no effect on judgments of well-known targets. In Study 2 we test the hypothesis that extreme person exemplar priming leads to contrast in judgments of both ambiguous and well-known targets,

[3] It is important to note that here we use the term "well-known target" whereas others have used the term "unambiguous target" (Herr, Sherman, & Fazio, 1983; Philippot et al., 1991). We prefer to talk about well-known targets because in our studies participants are not asked to evaluate a target that is described by "unambiguous behaviors" but to judge "a good friend." To what extent the differences between this target and ambiguous Donald center around the concept of "ambiguity" is not exactly clear. Of course, by definition well-known, familiar targets are well-defined objects that need hardly any interpretation. It is unlikely that respondents will have to encode new information about their close friends. However, respondents are also likely to have relatively more information about "good friends" and to evaluate them relatively positively. These features (quantity and valence of information) distinguish these targets from "ambiguous" Donald in addition to ambiguity *per se*. This being said, however, most relevant for the present concerns is the notion that comparing a "well-known" target to an "ambiguous" target allows us to study the differences between the encoding and judgment effects of accessible knowledge. It is likely that the ambiguity of target information rather than its quantity or valence is most relevant to the occurrence of such differences (see also Herr et al., 1983; Stapel & Koomen, 1996b).

whereas similarly extreme nonperson exemplar priming leads to assimilation in ambiguous targets but not in well-known targets. In Study 3 we manipulate the time extreme person exemplar primes and (similarly extreme) trait concept primes and test the hypothesis that trait concept priming leads to assimilation in ambiguous judgments only when the primes are presented before exposure to ambiguous target information whereas similar person primes lead to contrastive judgments, independent of the time the primes are presented. In Study 4 we test the hypothesis that whereas both moderately extreme and extreme trait concepts lead to interpretation assimilation in judgments of ambiguous targets, extreme person exemplars lead to contrast in judgments of ambiguous and well-known targets and moderately extreme person exemplars lead to assimilation in judgments of ambiguous targets and to contrast in judgments of well-known targets.

In contrast to most previous studies of category accessibility effects, we tested these hypotheses in a "simple contextual cue" paradigm. In typical category accessibility studies assimilation and contrast effects are achieved using an ostensibly "unrelated" experimental task to present multiple priming stimuli, all implying one particular category (see for reviews Higgins, 1989; Higgins & Bargh, 1987; Sedikides & Skowronski, 1991; Wyer & Srull, 1989). Recently, Moskowitz and Roman (1992) have suggested that such elaborate priming procedures may lack ecological validity. In everyday social perception it is seldom the case that people are bombarded with a large number of cues which all imply the same construct. Yet, the accessibility literature has seldom allowed trait concept activation to develop naturally from exposure to only a few contextual cues and in fact has cast doubt on whether doing so is possible (Srull & Wyer, 1979; Wyer & Srull, 1989; but see Stapel et al., 1996). Assimilation and contrast research would gain theoretical and practical importance if these phenomena were shown to emerge when only a few contextual cues were presented. Thus, in the present investigations only a small number of simple contextual cues were used to test our hypotheses.

Method and Preliminary Analyses

Because the studies reported in this article are similar in procedure and dependent measures we first describe the common features of all of them. When describing each of the studies separately, we note significant differences in procedures where they occur.

Procedure

In each of the studies participants were administered a survey that was "part of a project on Reading and Judging Written Texts." In the introduction of this questionnaire participants were asked to read the text about Donald that was presented on the next page and to form an impression of this person. They were instructed to read the text carefully and attentively, to answer the questions that would be presented on the pages that followed the Donald paragraph, and not to turn back pages. On the second page of the booklet was an ambiguous description of Donald, whose behavior could be categorized as either hostile and unfriendly or assertive and friendly. The description was a Dutch translation of the one used in previous priming research (Herr, 1986; Philippot et al., 1991; Srull & Wyer, 1979, 1980). The next pages of the booklet contained the trait ratings. All participants were asked to indicate their impressions of Donald and of a good friend on several trait dimensions. Depending on whether priming stimuli were presented before ("preinformation") or after ("postinformation") participants

had formed an impression of Donald (see Study 3), the following text was presented either on page 2 before the Donald paragraph or on page 3 after the Donald paragraph, just before the rating scales were presented: "We are daily confronted with all kinds of information. Sometimes this information is specific and brief. When we are confronted with such information we attempt to form an impression that is as good and precise as possible. For example, we will have to work hard to form an impression of the following piece of succinct information." Then, on the next line, the priming stimuli (e.g., "Dracula, Stalin, and Hitler" or "mean, violent, and unfriendly") were presented printed in bold letter type. Subsequently, in the following paragraph it was mentioned that sometimes "we have to process more elaborate information. When this is the case we will have to form an impression of this information in another way." The Donald paragraph that participants were about to read (or had just read in postinformation conditions) was then mentioned as an example of "more elaborate information." Because our hypotheses partly concern effects on ambiguous and well-known targets, we asked participants after reading the Donald paragraph to indicate their impressions of (ambiguous) Donald *and* a good friend (of their own sex) on several trait dimensions. When participants were finished, the questionnaires were collected, and participants were probed as to what they thought the experiment was about. Finally, participants were thanked and debriefed.

Participants

Dutch high school students (mean age 16 years) participated in Experiments 1 to 3. Dutch undergraduate students (mean age 22 years) participated in Study 4. The total sample of participants constituted 57% female and 43% male students, distributed randomly across conditions. The experiments were conducted in groups of 7 to 31 persons.

Priming Stimuli

In each of the studies, the priming stimuli participants were exposed to were all relevant to the dimension on which the description of Donald's behavior was ambiguous. Participants assigned to *hostile primes* conditions were exposed to three names of exemplars or three trait concepts (adjectives) that denoted hostility. Participants assigned to *friendly primes* conditions were exposed to three category exemplars or three trait concepts that denoted friendliness. The three hostile trait concepts we used in Studies 1 and 3 were "mean," "violent," and "unfriendly." The three friendly trait concepts we used in Studies 1 and 3 were "nice," "gentle," and "friendly." The exemplars used in Studies 2 and 3 were selected on the basis of a pretest with 30 participants. This pretest indicated that on the relevant dimensions the hostile exemplars (e.g., "Stalin" or "Shark") differed significantly from the friendly exemplars (e.g., "Ghandi" or "Puppy") we used. Each of the (person or animal) hostile exemplars was rated more "hostile" and less "friendly" than each of the (person or animal) friendly exemplars (t's (29), p's $< .001$). Also, both within the group of hostile exemplars and within the group of friendly exemplars, the person and animal names we used did not differ significantly on these dimensions. The trait concepts and person exemplars used in Study 4 were selected on the basis of an additional pretest (see Study 4 Method section).

Dependent Measures and Preliminary Analyses

Participants were asked to rate Donald and a good friend on 10 unipolar trait dimensions that were adapted from Srull and Wyer (1979, 1980). Participants indicated their impressions by scoring 5 trait dimensions that implied either a high or a low degree of hostility ("hostile," "aggressive," "unkind," "considerate," "amicable") and 5 trait dimensions that were unrelated to hostility ("selfish," "fretful," "intelligent," "dependable," "helpful"). Inclusion of the latter scales would decrease the possibility that participants would become suspicious that the concept of interest was hostility-related. Related and unrelated rating scales were interspersed with each other. Ratings were made along a scale from 1 ("not at all") to 9 ("extremely"). Ratings of the ambiguous and well-known targets were counterbalanced to be able to control for possible order effects.

In each of the studies the effects of the independent variables were tested in analyses of variance (ANOVAs). None of the studies showed main or interaction effects for the order of ambiguous and

well-known target judgments on any of the dependent measures.[4] Similarly, in none of the studies were priming effects found on the unrelated rating scales.[5] As a consequence we ignored these factors in the Results sections.

Reliability analyses of the applicable trait ratings were conducted to form a composite scale of these five ratings. In each study this "applicable ratings index" was quite reliable (see Cronbach's α values in the Results sections). Participants' score on this index, ranging from 1 (negative) to 9 (positive) was used as dependent variable in analyses of Studies 1 to 4. ANOVAs, treating ratings of Donald and the participant's friend as a within-subject factor, revealed main effects of targets on the applicable ratings index (F's > 100, p's $< .0001$), indicating that participants evaluated their friend more positively than Donald in each study. This theoretically less interesting result is not further discussed in the separate Results sections.

STUDY 1: TRAIT CONCEPT ACCESSIBILITY

The effect of accessible trait concepts on the categorization of an ambiguous stimulus is so robust a finding in social psychology that it may approach the status of a law (Sedikides & Skowronski, 1991). However, in contrast to previous investigations, in the present study such information was not activated by exposing participants to multiple priming stimuli in an "unrelated" experiment. We used a simple contextual cue paradigm to test the interpretation-guiding capacities of activated trait concepts. Furthermore, this study provides a first test of the hypothesis that the accessibility of trait concepts may influence judgments of ambiguous targets, whereas such influence is unlikely to emerge in judgments of well-known targets (cf. Herr et al., 1983; Philippot et al., 1991; Stapel & Koomen, 1996b).

We manipulated trait concept accessibility as follows: Just before participants read the paragraph about Donald, they were presented three trait concepts that were either synonymous with hostility or friendliness. In the control conditions participants were only presented with three nonsense words. When trait concept accessibility results in assimilation via an interpretation effect during the encoding stage, exposure to hostility concepts should lead to more negative judgments of Donald, whereas exposure to friendliness concepts should lead to more positive judgments of this ambiguous target. Because these are effects that are thought to occur during the interpretation of new stimuli, no concept priming effects should emerge in judgments of a well-known target.

[4] This null effect of the order manipulation may be due especially to the fact that in the questionnaire the questions about the ambiguous and well-known targets were presented as two separate, unrelated tasks. Furthermore, as investigations of context effects in survey research have shown, for order (or context) effects to occur the contextual cue has to be rather extreme to be able to exert any influence (see Schwarz & Bless, 1992a). As our results show, judgments of "Donald" and a "good friend" were rather moderate. Finally, other researchers who have asked participants to judge both ambiguous and well-known targets did not find order effects (see Herr et al., 1983; Philippot et al., 1991; Stapel & Koomen, 1996b; Wyer & Srull, 1989).

[5] That priming does not affect inapplicable scales is evidence against the possibility that in the present experiments participants are not responding to the activation of specific trait concepts (i.e., "friendliness" or "hostility"), but merely to the evaluative aspects of the activated concepts and are subsequently forming evaluatively consistent judgments (cf. Martin, 1986; see Wyer & Srull, 1989).

TABLE 1
MEAN RATINGS (SD) OF DONALD AND GOOD FRIEND AS A FUNCTION OF TRAIT CONCEPT PRIME VALENCE

	Trait concept prime valence		
	Friendly	Hostile	No trait
Ratings of Donald	4.41 (1.07)	3.61 (1.27)	4.00 (1.42)
Ratings of good friend	7.43 (1.45)	7.63 (1.12)	7.51 (1.00)

Note. Scale range is from 1 to 9. Higher scores indicate more positive ratings.

Method

Participants, design, and priming stimuli. Ninety-six participants were randomly assigned to three conditions (Trait prime valence: hostile, friendly, no trait) in a between subjects design. In the hostile concept condition participants were exposed to the following cues "mean," "violent," and "unfriendly." In the friendly concept condition the cues were "nice," "gentle," and "friendly." In the no trait condition participants were simply exposed to the meaningless cues: "Lempan," "Tilada," and "Trenton."

Results and Discussion

Table 1 shows participants' mean ratings on the index of the applicable ratings of Donald (Cronbach's $\alpha = .71$) and a good friend (Cronbach's $\alpha = .80$) as a function of the manipulation.

The pattern of means confirmed our predictions. An ANOVA, treating ratings of Donald and participants' friends as a within-subject factor revealed the predicted, albeit marginally significant, two-way interaction between target and concept prime valence, $F(2, 89) = 2.56$, $p < .08$. To further investigate this interaction, we conducted separate analyses of the ratings of Donald and participants' friends.

For ratings of Donald, the ambiguous target, an ANOVA revealed the expected main effect for concept prime valence, $F(2, 89) = 4.98$, $p < .05$. As can be seen in Table 1 these ratings clearly revealed the predicted assimilation effect. Ratings of Donald were more positive ($M = 4.41$) when friendliness was primed and more negative ($M = 3.61$) when hostility was primed, $t(59) = 2.66$, $p < .01$. Ratings of Donald when no traits were primed were midway between the friendliness and hostility conditions ($M = 4.00$). As predicted for ratings of the well-known target, an ANOVA revealed no effect for concept prime valence, $F(2, 89) < 1$. Ratings of participants' friends did not differ between conditions.

This pattern of findings confirms previous evidence that trait concept priming may lead to assimilation, but it qualifies this evidence by showing that judgments of well-known targets remain unaffected by trait concept priming. Furthermore, these findings establish the effectiveness of our use of simple contextual cues and suggest that elaborate priming procedures are not always necessary to obtain

subsequent judgment effects (see also Moskowitz & Roman, 1992; Stapel et al., 1996).

STUDY 2: COMPARISON RELEVANCE

In the present study we test our prediction that when primed with category exemplars, contrast effects in person judgments will emerge when sufficiently extreme exemplars that *do* belong to the same category as the target are primed, whereas assimilation will occur when similarly extreme exemplars that *do not* belong to the same category as the target are activated. In the former case, extreme category exemplars are primed that are *comparison relevant* and can thus be used as a subjective comparison standard when evaluating either ambiguous or well-known targets. In the latter case category exemplars are primed that are *comparison irrelevant* and will thus not be used when setting a standard in the judgment stage (cf. Biernat et al., 1991; Brown, 1953; Manis & Paskewitz, 1984b; Manis et al., 1991). However, when comparison irrelevant category exemplars exemplify a construct that is applicable to the dimension on which this target is ambiguous (i.e., "hostility" or "friendliness" when evaluating Donald), they may still affect judgment of an ambiguous target during the encoding stage and result in assimilation (see also Stapel & Koomen, 1996b).

We tested these predictions as follows: Half of the participants were primed with names of either hostile or friendly *persons*. This would result in contrast in ratings of both ambiguous and well-known targets. The other half of the participants were exposed to names of either hostile or friendly *animals*. This would result in assimilation effects in ratings of the ambiguous target, but would have no effect on ratings of a well-known target.

Method

Participants, design, and priming stimuli. Seventy-six participants were randomly assigned to the conditions of a 2(Exemplar Prime valence: hostile, friendly) × 2(Comparison relevance: person, animal) between subjects design. In the hostile person primes condition participants were exposed to the following cues "Dracula," "Stalin," and "Hitler." In the friendly person primes condition the cues were "Aladdin," "Ghandi," and "Mandela." In the hostile animal primes condition they were "Shark," "Tiger," and "Panther." In the friendly animal primes condition they were "Seal," "Puppy," and "Bunny."

Results and Discussion

Table 2 shows participants' mean ratings on the index of the applicable ratings index of Donald (Cronbach's $\alpha = .65$) and a good friend (Cronbach's $\alpha = .82$) as a function of the manipulations.

An ANOVA, treating ratings of Donald and participants' friends as a within-subject factor did not reveal the predicted three-way interaction between target, comparison relevance, and exemplar prime valence, but a marginally significant two-way interaction between target and comparison relevance, $F(1, 72) = 2.77$, $p < .10$, and a significant two-way interaction between comparison relevance and exemplar prime valence, $F(1, 72) = 9.14, p < .01$. As can be seen in Table 2, these

TABLE 2
MEAN RATINGS (SD) OF DONALD AND GOOD FRIEND AS A FUNCTION OF EXEMPLAR PRIME VALENCE AND COMPARISON RELEVANCE OF THE PRIMED EXEMPLARS FOR PERSON JUDGMENTS

	Exemplar prime valence	
	Friendly	Hostile
Ratings of Donald		
Exemplar prime		
Person	3.71	4.50
	(.79)	(1.29)
Animal	4.22	3.50
	(1.12)	(1.26)
Ratings of good friend		
Exemplar prime		
Person	6.84	7.74
	(1.61)	(1.39)
Animal	7.64	7.73
	(.86)	(1.02)

Note. Scale range is from 1 to 9. Higher scores indicate more positive ratings.

interactions reflect the predicted patterns of means. To test our predictions more specifically, we conducted separate analyses of the ratings of Donald and participants' friends.

For ratings of the ambiguous target an ANOVA revealed the expected Exemplar prime valence × Comparison relevance interaction, $F(1, 72) = 8.65$, $p < .01$. These ratings revealed a contrast effect when person exemplars were primed. Ratings of Donald were more positive ($M = 4.50$) when hostile persons were primed and more negative ($M = 3.71$) when friendly persons were primed, $F(1, 72) = 4.75$, $p < .05$. However, these ratings revealed an assimilation effect when animal exemplars were primed. Ratings of Donald were more negative ($M = 3.50$) when hostile animals were primed and more positive ($M = 4.22$) when friendly animals were primed, $F(1, 72) = 3.99$, $p < .05$.

For ratings of the well-known target, we predicted an interaction between comparison relevance and exemplar prime valence. An ANOVA only revealed a marginally significant main effect for Prime valence, $F(1, 72) = 2.88$, $p < .10$. As may be observed in Table 2, however, this effect is almost completely based on a difference in ratings when person exemplars were primed. This difference reflects a significant contrast effect. Ratings of participants' friends were more positive ($M = 7.74$) when hostile persons were primed and more negative ($M = 6.84$) when friendly persons were primed, $F(1, 72) = 4.81$, $p < .05$. Conversely, these ratings were more or less the same ($F < 1$) when animal exemplars were primed.

Together, this pattern of findings indicates that exposure to rather extreme exemplar primes may result in assimilation as well as in contrast effects. Which of these effects emerges depends on the comparison relevance of these exemplars. When exemplar primes are persons and thus belong to the same object category as

the target, they will be used as a comparison standard—which may result in contrast when they are relatively extreme (cf. Herr, 1986). When, however, the exemplar primes are animals and thus do not belong to the same category as the target, they lack comparison relevance and consequently cannot be used as a comparison standard (cf. Brown, 1953; Helson, 1964; Manis et al., 1991). Yet when these comparison irrelevant exemplars strongly imply a relevant trait category, they can be used to interpret an ambiguous target stimulus. That primed *person* exemplars were used as an extreme comparison standard was demonstrated by the emergence of comparison contrast in judgments of both ambiguous and well-known person targets. The fact that priming *animal* exemplars resulted in assimilation in judgments of an ambiguous person target and did not show any impact on judgments of a well-known target is evidence for the notion that extreme exemplar priming may activate trait categories that can be used to interpret an ambiguous target.

Together, the findings of the present experiment shed new light on findings reported by Philippot et al. (1991). Similar to the current study, these researchers exposed participants to person exemplars that were either very friendly or hostile and asked them to rate both an ambiguous and a well-known target person. Results showed contrast away from the primed person exemplars. However, when the primed exemplars were accompanied with the trait concepts they exemplify (i.e., "friendly" or "hostile"), participants assimilated their judgments to the primed constructs. According to Philippot et al. (1991), if primes are processed in applicable trait concepts, these concepts will be used in the encoding stage and assimilation is likely to ensue. If no applicable trait concepts are activated or if no encoding is required, the primed exemplars may be used as a comparison standard in the judgment stage and contrast is likely to ensue. Philippot et al. (1991) further argue that if an exemplar prime is not accompanied by a trait concept and therefore "not processed in trait terms to begin with, no trait concept should be primed." Moreover, because exemplar primes are quite complex and "may be related to a number of different trait concepts, (. . .) the one rendered most accessible in a given situation may not be the one that is applicable to the subsequent encoding tasks" (Philippot et al., 1991, p. 295). In other words, according to Philippot et al. exemplar primes cannot *spontaneously* activate applicable trait concepts. Philippot et al. (1991) thus provide an either/or perspective on exemplar priming effects: *either* exemplar primes are accompanied with trait concepts and will be used during encoding, *or* they are not accompanied with trait concepts and will be used during judgment. The current results suggest that this either/or perspective perhaps draws too rigid a picture. The fact that in judgments of an ambiguous target nonperson exemplar priming yielded assimilation whereas person exemplar priming yielded contrast provides evidence for our notion that exemplar primes may exert "spontaneous" effects during encoding and judgment, irrespective of whether they are accompanied by trait concepts. Furthermore, our interpretation of the present findings fits nicely with the assimilation effects reported by Philippot et al. after "exemplar+trait" priming.

Our perspective suggests that those assimilation effects are probably determined by the decreased level of distinctness and comparison relevance when distinct person exemplars are accompanied by and processed in relatively indistinct and abstract trait terms (see for further discussion of this issue Stapel & Koomen, 1996b).

STUDY 3: PRE- AND POSTINFORMATION PRIMING OF TRAIT CONCEPTS AND PERSON EXEMPLARS

In the present study we compare the impact of trait concept and person exemplar priming by manipulating the time these primes are presented. Several studies have demonstrated that the assimilation effects of trait concept priming on the encoding of ambiguous information occur primarily at the time the information is first received and that once encodings have been made, concepts that are activated subsequently have little influence on the interpretation or judgment of a target (e.g., Srull & Wyer, 1980; see further Wyer & Srull, 1989, pp. 142–145). As Srull and Wyer (1980) argue, people who have already formed a representation of a target will typically retrieve and use this representation as a basis for subsequent judgments and decisions concerning the target. In other words, they will not retrieve and reinterpret the original information in terms of information that happens to be accessible at the time of judgment. However, according to the present perspective, in which a distinction is made between trait concept and person exemplar priming, priming stimuli that are presented *after* ambiguous information is processed may result in contrast effects when they are distinct, relevant, and extreme enough to function as a comparison standard with which the ambiguous target can be contrasted. Thus, Srull and Wyer's (1980) findings can be reinterpreted as meaning that postinformation assimilation effects of *trait concept* accessibility are unlikely. In the present study we attempted to replicate this finding, but we also tested our prediction that *person exemplar* accessibility may result in both "preinformation" and "postinformation" contrast effects when these exemplar primes can be used as a sufficiently extreme comparison standard. More specifically, we predicted that participants' judgments of an ambiguous target will only be assimilated to the primed trait concepts when these trait concepts are presented before an impression of this target is formed. Accessible trait concepts will have no effects on judgment when they are presented after ambiguous target information has been interpreted. When participants are exposed to extreme person exemplars, both ambiguous and well-known targets will be contrasted with these exemplars, independent of whether they are presented before or after participants are exposed to target information.

Method

Participants, design, and priming stimuli. One hundred twenty participants were randomly assigned to the conditions of a 2(Prime type: trait concept, person exemplar) × 2(Prime valence: hostile, friendly) × 2(Prime time: preinformation, postinformation) between subjects design. In the preinformation conditions participants were exposed to the priming cues just before they read the paragraph about Donald, whereas in the postinformation condition these cues were presented on the page that

TABLE 3
MEAN RATINGS (SD) OF DONALD AND GOOD FRIEND AS A FUNCTION OF PRIME TYPE, PRIME VALENCE, AND PRIME TIME

	Prime type			
	Trait concept		Person exemplar	
Prime valence:	Friendly	Hostile	Friendly	Hostile
Ratings of Donald				
Prime time				
Preinformation	4.07	2.92	3.08	4.08
	(.81)	(1.22)	(.99)	(1.14)
Postinformation	3.45	3.52	3.37	4.00
	(.62)	(.95)	(1.00)	(.85)
Ratings of good friend				
Prime time				
Preinformation	7.23	7.03	6.87	7.39
	(1.23)	(1.50)	(.93)	(1.22)
Postinformation	7.03	7.12	6.61	7.31
	(1.50)	(.92)	(1.29)	(1.09)

Note. Scale range is from 1 to 9. Higher scores indicate more positive ratings.

followed the paragraph about Donald, immediately before they were presented the rating scales. The hostile person exemplar primes were "Dracula, Stalin, and Hitler." The friendly person exemplars were "Aladdin, Ghandi, and Mandela." In the hostile trait concept condition participants were exposed to "mean, violent, and unfriendly." In the friendly trait concept condition the cues were "nice, gentle, and friendly."

Results and Discussion

Table 3 shows participants' mean ratings on the applicable ratings index of Donald (Cronbach's $\alpha = .62$) and a good friend (Cronbach's $\alpha = .75$) as a function of the manipulations.

An ANOVA only revealed a two-way interaction between prime type and prime valence, $F(1, 112) = 12.10, p < .01$. No other main or interaction effects, such as the predicted four-way interaction between target, prime type, prime valence, and prime time reached ordinary levels of significance. However, as may be observed in Table 3, the pattern of means clearly confirmed our predictions. Our prediction was that assimilation effects would only occur in judgments of ambiguous targets in the preinformation conditions when participants were presented with trait concepts before they formed an impression of Donald. Contrast effects were predicted for judgments of both ambiguous and well-known targets, independent of the time at which these (extreme) person exemplars were presented. To more specifically test these predictions we conducted separate analyses of the ratings of Donald and participants' friends for the trait concept priming and for the exemplar priming conditions of the design.

Trait concept priming conditions. An ANOVA only revealed a marginally significant Trait concept prime valence × Prime time interaction $F(1, 56) = 2.85$, $p < .10$. As can be seen in Table 3, this interaction reflects the predicted pattern of means. To test our predictions more specifically, we conducted separate analyses of the ratings of Donald and participants' friends. For ratings of the ambiguous target an ANOVA revealed a main effect of prime valence, $F(1, 56) = 4.97$, $p < .05$, that is qualified by the predicted interaction effect of trait concept and prime time, $F(1, 56) = 6.58$, $p < .05$. When trait concepts were primed before participants were presented with the Donald paragraph, ratings of Donald were more positive ($M = 4.07$) when friendly trait concepts were primed and more negative ($M = 2.92$) when hostile trait concepts were primed, $F(1, 56) = 11.49$, $p < .01$. Conversely, these ratings were more or less the same ($F < 1$) when trait concepts were primed after participants had formed an impression of Donald. As predicted for ratings of the well-known target, an ANOVA revealed no main or interaction effects for trait concept prime valence or prime time (Fs < 1). Ratings of participants' friends did not differ between conditions in the trait concept part of the design.

Person exemplar priming conditions. An ANOVA revealed the expected main effect for person exemplar prime valence, $F(1, 56) = 12.55$, $p < .01$. To be consistent with our other analyses, we conducted separate analyses for ratings of Donald and participants' friends. For ratings of the ambiguous target an ANOVA revealed the expected main effect for person exemplar prime valence, $F(1, 56) = 9.90$, $p < .01$. As can be seen in Table 3, these ratings revealed a contrast effect when person exemplars were primed, irrespective of whether participants were exposed to these person exemplars before or after they were presented with the Donald paragraph. In both the preinformation and postinformation conditions, ratings of Donald were more negative ($M = 3.23$) when friendly person exemplars were primed and more positive ($M = 4.04$) when hostile person exemplars were primed. For ratings of the well-known target these contrast effects were less strong. An ANOVA revealed a marginally significant trend for person exemplar prime valence, $F(1, 56) = 3.37$, $p < .07$. In both the preinformation and postinformation conditions, ratings of friends were more negative ($M = 6.74$) when friendly person exemplars were primed and more positive ($M = 7.35$) when hostile person exemplars were primed.

This pattern of findings indicates that exposure to extreme person exemplars may result in comparison contrast when they are presented before exposure to a target, but also when they are presented after exposure to a target. Similar to earlier findings (Srull & Wyer, 1980) the accessibility of trait concepts resulted in assimilation in judgments of an ambiguous target only when participants were exposed to these concepts before they had formed an impression of this target. No effects emerged when trait concepts were primed after impression formation had occurred. These findings again indicate that whereas person exemplar primes may be used as a comparison standard (and thus can exert their effects both before and

after target encoding), trait concept primes primarily guide target interpretation (and thus only exert effects when presented before encoding has taken place).

STUDY 4: WHEN AND HOW EXTREMITY MATTERS

Traditional approaches to context effects in studies of comparative and social judgment have attempted to explain assimilation and contrast by focusing on the distributional norm or "extremity" of priming stimuli (see Biernat et al., 1991; Brown, 1953; Helson, 1964; Herr, 1986; Herr et al., 1983; Kahneman & Miller, 1986; Manis et al., 1988; 1991; Sherif & Hovland, 1961). In contrast, the present conceptualization of knowledge accessibility effects suggests that not only *prime extremity,* but also *prime type* (person exemplars, nonperson exemplars, trait concepts) may determine the direction of such effects. Nevertheless, it is possible that our distinctions between prime types are actually driven by variations in prime extremity. It may be argued that person exemplar primes are more extreme than trait concepts and nonperson primes and are therefore more likely to result in contrast (see Herr, 1986, p. 1107; Higgins, 1989, p. 81; Manis et al., 1988, p. 28; Martin, 1986, p. 493). However, the results from our second study seem to rule out explanations of assimilation and contrast effects that *only* consider the actual or relative extremity of the primed stimuli. In that study both assimilation and contrast resulted from exposure to exemplar primes that were in a pretest judged similar concerning their extremity on the relevant dimension (extremely hostile or friendly, person or animal exemplars). Yet the critical reader may argue that this does not mean that the results of our third study, in which we found contrast after person exemplar priming but assimilation after trait concept priming, were the result of differences in prime extremity rather than prime type.

In the present study we address this alternative explanation of the results of Study 3 and we thus further seek to corroborate the hypothesis that the differential effects of different *kinds* of knowledge accessibility cannot be explained by differences in prime *extremity.* More specifically, we test our hypothesis that the effects of manipulating the extremity of accessible knowledge will be different in the case of trait concept priming than in the case of person exemplar priming. We argue and hypothesize that when primed *person exemplars* are extreme, they may provide an extreme enough standard for comparative judgment processes to result in contrast. However, when primed person exemplars are only moderately extreme, it is more likely that these contrastive effects on judgments of ambiguous targets are not strong enough to predominate the assimilative encoding effects that are the result of exemplars spontaneously activating the categorical dimension they exemplify (see Biernat et al., 1991; Herr, 1986; Manis et al., 1988, 1991; Smith & Zarate, 1990; Stapel & Koomen, 1996b). When a well-known target that needs no interpretation is to be judged, encoding effects are unlikely to occur and therefore, in this case, we hypothesize that comparison between the target and primed person exemplars will result in contrast effects, independent of the extremity of these primes (see Herr et al., 1983).

This trade-off between interpretation and comparison processes will be less

likely to occur, however, when the priming stimuli are relatively indistinct and lack comparison relevance. Thus, when primes are *trait concepts,* subsequent judgments will probably not be the outcome of comparison, but of interpretation processes. Opposite the consequences of "extremity" for judgmental effects of person exemplar priming, we expect that extreme trait concept priming is likely to strengthen the assimilative consequences of interpretation processes. We therefore hypothesize that for judgments of ambiguous stimuli, priming moderately extreme trait concepts leads to assimilation and priming extreme trait concepts may perhaps lead to even stronger assimilation (see Skowronski, Carlston, & Isham, 1993; Wyer & Srull, 1989). Irrespective of their extremity, trait concept primes will have no effect on judgments of well-known targets.

Method

Participants, design, and priming stimuli. One hundred ninety-eight participants were randomly assigned to the conditions of a 2(Prime type: trait concept, person exemplar) × 2(Prime valence: hostile, friendly) × 2(Prime extremity: moderate, extreme) between subjects design.

The priming stimuli were selected on the basis of a pretest in which 33 participants rated a number of adjectives and person names on a scale that ran from "very hostile" (1) to "very friendly" (9). Priming stimuli were selected in such a way that within each level of the extremity conditions corresponding person exemplar and trait concept priming stimuli denoted the same amount of "hostility" or "friendliness." The extremely hostile exemplar primes were "Dracula," "Stalin," and "Hitler" ($M = 1.8$). The moderately hostile exemplars were "Regilio Tuur,"[6] "Margaret Thatcher," and "Napoleon" ($M = 3.3$). The moderately friendly exemplars were "Queen Beatrix," "Robin Hood," and "Robert Redford" ($M = 4.6$). The extremely friendly exemplars were "Aladdin," "Ghandi," and "Mandela" ($M = 6.0$). The extremely hostile trait concepts were "cruel," "mean," and "callous" ($M = 1.6$). The moderately hostile trait concepts were "unfriendly," "disagreeable," and "unpleasant" ($M = 3.3$). The moderately friendly trait concepts were "considerate," "helpful," and "kind" ($M = 4.9$). The extremely friendly trait concepts were "gentle," "tender," and "sweet" ($M = 6.0$).

Results and Discussion

Table 4 shows participants' mean ratings on applicable ratings index of Donald (Cronbach's $\alpha = .74$) and a good friend (Cronbach's $\alpha = .66$) as a function of the manipulations.

The pattern of means confirmed our predictions. An ANOVA treating ratings of Donald and participants' friends as a within-subject factor revealed the predicted four-way interaction between target, prime type, prime valence, and prime extremity, $F(1, 190) = 7.44, p < .01$, a three-way interaction between prime type, prime valence, and prime extremity, $F(1, 190) = 18.63, p < .01$, and two-way interactions between target and prime valence, $F(1, 190) = 14.70, p < .01$, prime type and prime valence, $F(1, 190) = 11.32, p < .01$, and prime valence and extremity, $F(1, 190) = 4.13, p < .05$.

Our prediction was that assimilation effects would occur in judgments of ambiguous targets when participants were presented with trait concepts. Assimila-

[6] Regilio Tuur is a well-known Dutch boxer who won several international championships (cf. "Joe Frazier" in Herr, 1986).

TABLE 4
MEAN RATINGS (SD) OF DONALD AND GOOD FRIEND AS A FUNCTION OF PRIME TYPE, PRIME VALENCE, AND PRIME EXTREMITY

	Prime type			
	Trait concept		Person exemplar	
Prime valence:	Friendly	Hostile	Friendly	Hostile
Ratings of Donald				
Prime extremity				
Moderate	4.35	3.99	4.73	3.62
	(.88)	(.88)	(.98)	(.84)
Extreme	4.66	3.59	3.73	4.64
	(.98)	(1.27)	(1.18)	(1.18)
Ratings of good friend				
Prime extremity				
Moderate	7.42	7.53	7.27	7.66
	(.87)	(.58)	(.66)	(.87)
Extreme	7.56	7.50	6.99	7.89
	(.77)	(.88)	(1.02)	(.87)

Note. Scale range is from 1 to 9. Higher scores indicate more positive ratings.

tion was also predicted for judgments of the ambiguous target when participants were presented with moderately extreme person exemplars. Contrast was predicted for judgments of the ambiguous target when participants were exposed to extreme person exemplars and for judgments of well-known targets, independent of the extremity of the person exemplar primes. To further test these predictions we conducted separate analyses of the ratings of Donald and participants' friends for the trait concept priming and the person exemplar priming conditions of the design.

Trait concept priming conditions. An ANOVA revealed interaction and main effects that to a large extent correspond to our predictions: the predicted Target × Prime valence interaction, $F(1, 94) = 8.68$, $p < .01$, a marginally significant Prime valence × Extremity interaction, $F(1, 94) = 2.69$, $p < .10$, and a main effect of Prime valence, $F(1, 94) = 6.53$, $p < .05$. To further investigate these effects, we conducted separate analyses of the ratings of Donald and participants' friends. For ratings of the ambiguous target an ANOVA revealed a main effect of prime valence, $F(1, 94) = 12.06$, $p < .01$. As can be seen in Table 4, these ratings revealed the predicted assimilation effect when trait concepts were primed. Ratings of Donald were more positive ($M = 4.51$) when friendly trait concepts were primed and more negative ($M = 3.79$) when hostile trait concepts were primed. As can also be observed in Table 4, the difference between the friendly and hostile priming conditions was larger when the primes were extreme, which resulted in a marginally significant interaction between Prime valence × Prime extremity, $F(1, 94) = 3.02$, $p < .07$. The difference between ratings of partici-

pants exposed to extremely friendly ($M = 4.66$) and extremely hostile trait concepts ($M = 3.59$) was highly significant, $F(1, 94) = 13.57, p < .01$, whereas the difference between moderately friendly ($M = 4.35$) and moderately hostile trait concepts ($M = 3.99$) did not reach ordinary levels of significance, $F(1, 94) = 1.53, p = .22$. As predicted for ratings of the well-known target, an ANOVA revealed no main or interaction effects for prime valence or prime extremity (F's < 1). Ratings of participants' friends did not differ between conditions in the Trait concept part of the design.

Person exemplar priming conditions. An ANOVA revealed the predicted Target × Prime valence × Prime extremity interaction, $F(1, 96) = 7.40, p < .01$, a Target × Prime valence interaction, $F(1, 96) = 6.27, p < .05$, a Prime valence × Prime extremity interaction, $F(1, 96) = 19.61, p < .01$, and a main effect of prime valence, $F(1, 96) = 4.89, p < .05$. To further investigate these effects, we conducted separate analyses of the ratings of Donald and participants' friends. For ratings of the ambiguous target an ANOVA revealed the predicted Prime valence × Prime extremity interaction, $F(1, 96) = 21.51, p < .01$. As can be seen in Table 4 these ratings revealed an assimilation effect when moderately extreme person exemplars were primed and a contrast effect when extreme person exemplars were primed. Ratings of Donald were more positive ($M = 4.73$) when moderately friendly person exemplars were primed and more negative ($M = 3.62$) when moderately hostile person exemplars were primed, $F(1, 96) = 11.39, p < .01$. Conversely, ratings of Donald were more negative ($M = 3.73$) when extremely friendly person exemplars were primed and more positive ($M = 4.64$) when extremely hostile person exemplars were primed, $F(1, 96) = 10.13, p < .01$. For ratings of the well-known target contrast was found, independent of the extremity of the person exemplars. An ANOVA revealed a main effect of Prime valence, $F(1, 96) = 13.82, p < .01$. Ratings of friends were more negative ($M = 7.13$) when friendly person exemplars were primed and more positive ($M = 7.78$) when hostile person exemplars were primed.

This pattern of findings indicates that exposure to extreme person exemplars results in contrast effects in judgments of both ambiguous and well-known targets because these exemplars can be used as extreme comparison standards. Yet, when primed person exemplars are moderately extreme, only judgments of well-known targets are likely to show contrast effects. When moderately extreme person exemplars are primed, judgments of an ambiguous target are more likely to result in assimilation (cf. Herr, 1986). Varying the extremity of priming stimuli has different consequences when applied to trait concept priming. Both moderately extreme and extreme trait concept priming result in assimilation effects that are likely to be the result of using these concepts when interpreting an ambiguous stimulus. Here, extremity affects the strength, not the direction of the effect. These results again demonstrate that the consequences of knowledge accessibility depend on the *kind* of information that is activated: Trait concept accessibility guides encoding effects and is thus only likely to result in assimilation of ambiguous person descriptions. Person exemplar priming, on the other hand, can

be used as a comparison standard in judgments of both ambiguous and well-known person targets and may result in contrast. Depending, however, on both their extremity and the ambiguity of the target stimuli, these exemplars may also guide encoding and result in assimilation.

GENERAL DISCUSSION

The four studies reported here support the hypotheses we set out to test, using a simple contextual cue paradigm. Assimilation and contrast effects[7] ensued when people were presented with only a few contextual cues that strongly implied a particular trait category. In comparison with previous studies of category accessibility, these findings clearly suggest that simple priming procedures are sufficient to obtain assimilation or contrast effects (see also Moskowitz & Roman, 1992). More importantly, the general pattern of results in our studies demonstrates that the consequences of category accessibility are dependent upon which "category" of category information is activated. Trait concept, nonperson exemplar, and person exemplar priming have differential effects during the encoding and judgment stages of impression formation. It is important to note, however, that although specific tests corroborated our predictions, some results should be interpreted with caution because the relevant higher-order interaction effects did not reach ordinary levels of significance.

Results of Study 1 support the hypothesis that the assimilation effects of accessible trait concepts on person judgments reflect interpretation effects because only judgments of an ambiguous (as opposed to a well-known) target were affected. Findings of Study 2 showed the importance of comparison relevance when explaining the effects of exemplar priming. Priming (extreme) person exemplars results in contrast in judgments of both ambiguous and well-known person targets. Priming (similarly extreme) exemplars that lack comparison relevance, however, does not result in contrast but in assimilation in judgments of ambiguous person targets. Study 3 provided more support for the notion that trait concepts mainly serve as an interpretation frame, whereas person exemplars can also be used as comparison standards in judgments of targets. Results of that study showed that trait concepts only lead to assimilation in judgments of ambiguous targets when they are presented before an impression of such targets has been formed, whereas person exemplars result in comparison contrast, irrespective of whether they are primed before or after the time a target impression is formed or whether the target is ambiguous or well-known. Study 4 showed the importance of distinguishing between the interpretative effects of trait concept priming and

[7] As a reviewer pointed out to us, because of the absence of a control group in most of the present studies, it is difficult to tell which of the results we report reflect absolute assimilation and contrast and which reflect baseline effects. However, following classic studies of knowledge accessibility effects in which positive and negative (but not control) priming conditions are compared (e.g., Banaji et al., 1993; Herr, 1986; Herr et al., 1983; Higgins et al., 1977; Srull & Wyer, 1979), we prefer to speak of assimilation when judgments are affected toward the valence of activated information and of contrast when judgments are affected away from that valence.

the comparative effects of person exemplar priming by demonstrating the opposite impact of extremity manipulations on these two types of priming stimuli. Priming moderately extreme person exemplars leads to assimilation in judgments of ambiguous targets and to contrast in judgments of well-known targets and priming extreme person exemplars leads to contrast in judgments of both ambiguous and well-known targets. But both moderately extreme and extreme trait concepts lead to assimilation in judgments of ambiguous targets and have no effect on judgments of well-known targets.

Thus, our findings indicate that future research investigating the role of activated category information in impression formation should pay more attention to a factor that to date has largely gone unnoticed: the *kind* of information that is made accessible during the evaluation process. We show that experimental procedures that have previously been used to manipulate category accessibility may not all activate the same type of information. Different priming techniques may activate category representations that are dissimilar in their degree of distinctness, comparison relevance, and extremity. Because of these dissimilarities, different priming techniques have different consequences.

A factor thought to explain assimilation and contrast effects, particularly in priming paradigms, is whether it is "appropriate" to use the accessible information, and whether people are motivated or able to correct for particular context induced biases. Several recent "correction" models address this issue (see Lombardi, Higgins, & Bargh, 1987; Martin, Seta, & Crelia, 1990; Petty & Wegener, 1993; Schwarz & Bless, 1992a; Strack, Schwarz, Bless, Kübler, & Wänke, 1993; Wilson & Brekke, 1994). According to this general approach, when people realize that their thought 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. Contrast away from the implications of the accessible information can occur as a result.[8] Although we

[8] Whereas most researchers have found that awareness of priming stimuli and subsequent correction attempts leads to contrast away from the priming stimuli (e.g., Lombardi et al., 1987; Martin et al., 1990; Strack et al., 1993), Petty and Wegener (1993) have recently demonstrated that where contrast is the more natural default condition, effortful or conscious correction processes can move judgments more toward the valence of the priming stimuli. These differences between results reported by Petty and Wegener (1993) and earlier research on priming and correction processes can easily be reconciled with reference to our hypothesis that for contrast to obtain priming, stimuli have to have comparison relevance in relation to the target. Previous studies primed *trait concepts* and found that judgments where *contrasted* with these prime concepts when participants were reminded of them just before they made their judgments (e.g., Strack et al., 1993) or could recall them at the time of judgment (e.g., Lombardi et al., 1987). Petty and Wegener exposed their participants to a number of vacation locations that were either very popular (the Bahamas, San Francisco) or unpopular (Indianapolis, Kansas City). This is what we would call extreme *exemplar* priming of which the natural default effect is contrast (see results reported in Studies 2 and 3). Although not interpreted in that way, the finding that conscious attempts to correct for biasing influences of primed exemplars on judgments leads to assimilation (Petty & Wegener, 1993), whereas correcting for the primed trait concepts leads to contrast is in complete accordance with our model. This notion, which is a combination of our hypotheses and of Petty and Wegener's (1993) "flexible correction" model, will be addressed in future research.

acknowledge the general validity of "awareness-based" explanations of certain contrast effects, the results of the *present* set of studies are not easily reconciled with such a perspective. Compared to most previous investigations of the impact of priming on social judgments, in the present studies, the presentation of the priming stimuli was quite obviously part of the same judgment task in all conditions and in some conditions of Study 3 actually *followed* the target information. The fact that in all conditions participants had the priming stimuli so close at hand seems to undermine the argument suggested by correction models of assimilation and contrast effects that the judgmental effects in our studies result from conscious versus unconscious processes. In fact, only few participants could recall the priming stimuli they were exposed to when asked to name them during debriefing. Furthermore, the predicted pattern of assimilation and contrast effects across the current studies—in which the direction of accessibility effects is dependent on the combined consequences of the distinctness, comparison relevance, and extremity of priming stimuli, the ambiguity of the target stimulus, and the timing of the priming episode—seems too complex to be explained in terms of demand characteristics or people's naive theories about how to correct for perceived bias (see Strack et al., 1993; Petty & Wegener, 1993; Wilson & Brekke, 1994).

We prefer to explain the assimilation and contrast effects obtained in the present research with reference to the differences between trait concept, nonperson exemplar and person exemplar priming. This explanation centers around the notion that stimuli which do not provide judges with distinct and comparison relevant information are unlikely to be used as a comparison standard in the judgment process (Brown, 1953; Helson, 1964). Thus, trait concepts (e.g., "hostility") may not be distinctive and relevant enough to serve as a comparison standard against which a target person can be contrasted. Conversely, a person exemplar (e.g., "Hitler") may be perceived as a sufficiently distinct and relevant entity to be used as a comparison standard. Furthermore, when primed person exemplars constitute a sufficiently extreme anchor, this is likely to result in contrast (Biernat et al., 1991; Helson, 1964; Herr, 1986; Herr et al., 1983; Manis et al., 1988; Sherif & Hovland, 1961). The logic of this perspective is inspired by, speaks to, and extends previous theorizing on the stages in which knowledge accessibility may have effect by delineating what kind of information is likely to exert its effect in what stage (e.g., Banaji et al., 1993; Gilbert, 1989; Manis et al., 1991; Philippot et al., 1991; Strack, 1992). For example, Wyer and Srull's (1989) model of the role of memory and cognition in social judgments states that accessible knowledge is more likely to be used during encoding when it consists of an attribute concept (e.g., a trait concept), whereas it is more likely to serve as an extreme comparison standard when an attribute-object link (e.g., person exemplar) is activated. Similarly, Trope's (1986) multiple-stage model of dispositional attribution processes implies that contextual knowledge has both an assimilative effect in behavior interpretation and a contrastive effect when it comes to constructing judgments about a particular person. In accordance with the

present conceptualization and results, research testing the Trope-model found that the relative strength of these assimilative and contrastive effects is affected by both target ambiguity and the order in which context and target information is presented (Trope et al., 1991; Trope & Liberman, 1993).

Our perspective on the direction of knowledge accessibility effects is also consistent with Schwarz and Bless' (1992a) inclusion/exclusion model of assimilation and contrast effects. This model predicts assimilation when a primed construct is "included" in the target and contrast when the primed information is "excluded" from the target. Although research testing the inclusion/exclusion model has primarily focused on the category width of the target (Schwarz & Bless, 1992b), the present research suggests that it can be extended as follows: Broader and less distinctive *priming stimuli* that lack comparison relevance (such as trait concepts) are likely to be "included" in and assimilated to an ambiguous target. Likewise, narrow and distinctive *priming stimuli* that do have comparison relevance (such as person exemplars) are more likely to be "excluded" from and may be contrasted to such targets (see also Stapel et al., 1996).[9]

Empirically, our perspective is also supported by the results of other studies we recently completed. For example, based on earlier research that delineated conditions under which exposure to trait-implying behaviors (e.g., "He knew he was the best and he didn't hesitate to tell people about it." implies "conceitedness") is likely to activate either an abstract, indistinct trait concept (e.g., "conceited") or a distinct and comparison relevant person exemplar (e.g., "Paul is a conceited person"), we found that the consequences of trait-implying sentences are dependent on the kind of information that these sentences activate (Stapel et al., 1996).

An important feature of the present conceptualization of the judgmental impact of category accessibility is that trait concept priming is likely to lead to assimilative encoding effects. Exemplar priming can instigate similar encoding

[9] This portrayal of the present results and the inclusion/exclusion model may seem at odds with recent findings by Bodenhausen, Schwarz, Bless, and Wänke (1995). These researchers reported assimilative judgments (e.g., more agreement with the statement that discrimination is still a problem in the U.S.A.) after participants were exposed to person exemplars (well-liked and successful African-Americans, such as Michael Jordan and Oprah Winfrey). These findings seem to run counter to our perspective, which predicts contrast effects when people are primed with specific person exemplars. However, this contradiction between the findings of Bodenhausen et al. (1995) and the present results is easily reconciled when one takes into account the importance of "comparison relevance" for contrast to ensue when exemplars are primed. We have posited that assimilation may follow the priming of exemplar information when that exemplar activates information that helps to interpret a target stimulus. However, contrast is more likely to follow exemplar priming when the exemplar information is similar to the target category and can thus be used as a comparison standard. This explains why Bodenhausen et al. (1995) found assimilation after exposure to exemplars, whereas we found contrast. The participants in the Bodenhausen et al. study were first primed with specific person exemplars and then asked to judge statements about general "social issues": attitudes towards general topics (e.g., discrimination) and large social groups (e.g., African-Americans). The similarity between the priming stimuli and the targets was thus quite low and therefore the priming stimuli lacked comparison relevance.

processes, but under certain conditions the effects of these processes are "overruled" by contrastive comparison processes. We have outlined several conditions under which exemplar priming results in *contrast.* (1) *Extreme* person exemplar priming results in contrast in judgments of both ambiguous and well-known targets. In this situation the primed exemplars provide a sufficiently relevant and extreme standard for comparative judgments to result in contrast. (2) *Moderately extreme* person exemplar priming only results in contrast in judgments of well-known targets. The contrastive judgment effects of moderately extreme exemplar primes may not be strong enough to predominate the assimilative encoding effects such primes may exert on judgments of ambiguous targets. Exemplar primes may exert influence during encoding because they activate the categorical dimension they exemplify. These assimilative forces are less likely to play a role in judgments of well-known targets because these targets need no interpretation. As a consequence of this, exemplar priming is more likely to result in *assimilation* under conditions where (1) moderate person exemplars or (2) nonperson exemplars are primed and ambiguous targets are judged.

This formulation is in some ways similar to the Manis–Paskewitz model of "expectation and contrast" (1984a; Manis, Paskewitz, & Cotler, 1986; Manis et al., 1988, 1991) which suggests that assimilative and contrastive influences may derive from exposure to the same exemplars. Similar to the present conceptualization, the Manis–Paskewitz model recognizes that the cognitive accessibility of *exemplars* of a given category may simultaneously affect our assessment of other targets in two ways: (a) by providing a basis for comparison when we have to judge the target (contrast) and (b) by guiding the interpretation and categorization of the target (assimilation). The pattern of results across our studies supports the hypothesis that category exemplars can play the role of both interpretation frame and comparison standard in impression formation. Consequently, our studies extend the Manis–Paskewitz model and provide insight in the factors that may influence the relative strength of the assimilative and contrastive influences of category exemplar priming: when sufficiently *extreme* and comparison *relevant* the contrastive effects of exemplars are likely to predominate their assimilative effects. Comparison *irrelevant* exemplars, however, may only play the role of interpretation frame and result in assimilation.

In sum, together with related work (e.g., Stapel et al., 1996), the studies reported here imply that when investigating the implications of knowledge accessibility on subsequent social judgments it is essential to know what *kind* of knowledge is made more accessible. Future research should focus on how and why these kinds of category representations are used in subsequent social judgments. To return to our example in the introduction: The category "depressiveness" may be activated either through the previous exposure to a newspaper article about medical treatment of depressiveness or through thoughts about a very depressed person. When trying to understand and evaluate Donald's silence at the dinner party these different experiences may determine what is more likely:

assimilation—we think Donald is depressed and needs "a serious talk"—or contrast—we think Donald needs no help at all, and is quietly enjoying his meal.

REFERENCES

Banaji, M. R., Hardin, C., & Rothman, A. J. (1993). Implicit stereotyping in person judgment. *Journal of Personality and Social Psychology,* **65,** 272–281.

Biernat, M., Manis, M., & Nelson, T. E. (1991). Stereotypes and standards of judgment. *Journal of Personality and Social Psychology,* **60,** 485–499.

Bodenhausen, G. V., Schwarz, N., Bless, H., & Wänke (1995). Effects of atypical exemplars on racial beliefs: Enlightened racism or generalized appraisals? *Journal of Experimental Social Psychology,* **31,** 48–63.

Brown, D. R. (1953). Stimulus-similarity and the anchoring of subjective scales. *The American Journal of Psychology,* **66,** 199–214.

Bruner, J. S. (1957). On perceptual readiness. *Psychological Review,* **64,** 123–152.

Gilbert, D. T. (1989). Thinking lightly about others: Automatic components of the social inference process. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 189–211). New York: Guilford Press.

Helson, H. (1964). *Adaptation-level theory: An experimental and systematic approach to behavior.* New York: Harper & Row.

Herr, P. M. (1986). Consequences of priming: Judgment and behavior. *Journal of Personality and Social Psychology,* **51,** 1106–1115.

Herr, P. M., Sherman, S. J., & Fazio, R. H. (1983). On the consequences of priming: Assimilation and contrast effects. *Journal of Experimental Social Psychology,* **19,** 323–340.

Higgins, E. T. (1989). Knowledge accessibility and activation: Subjectivity and suffering from unconscious sources. In J. S. Uleman & J. A. Bargh (Eds.) *Unintended thought* (pp. 75–152). New York: Guilford Press.

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

Higgins, E. T., Rholes, W. S., & Jones, C. R. (1977). Category accessibility and impression formation. *Journal of Experimental Social Psychology,* **13,** 141–154.

Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review,* **93,** 136–153.

Lombardi, W. L., Higgins, E. T., & Bargh, J. A. (1987). The role of consciousness in priming effects on categorization: Assimilation and contrast as a function of awareness of the priming task. *Personality and Social Psychology Bulletin,* **13,** 411–429.

Manis, M., Biernat, M., & Nelson, T. F. (1991). Comparison and expectancy processes in human judgment. *Journal of Personality and Social Psychology,* **61,** 203–211.

Manis, M., & Paskewitz, J. (1984a). Judging psychopathology: Expectation and contrast. *Journal of Personality and Social Psychology,* **20,** 363–381.

Manis, M., & Paskewitz, J. (1984b). Specificity in contrast effects: Judgments of psychopathology. *Journal of Experimental Social Psychology,* **20,** 217–230.

Manis, M., Paskewitz, J., & Cotler, S. (1986). Stereotypes and social judgment. *Journal of Personality and Social Psychology,* **50,** 461–473.

Manis, M., Nelson, T. E., & Shedler, J. (1988). Stereotypes and social judgment: Extremity, assimilation, and contrast. *Journal of Personality and Social Psychology,* **55,** 28–36.

Martin, L. L. (1986). Set/reset: Use and disuse of concepts in impression formation. *Journal of Personality and Social Psychology,* **51,** 493–504.

Martin, L. L., Seta, J. J., & Crelia, R. A. (1990). Assimilation and contrast as a function of people's willingness and ability to expend effort in forming an impression. *Journal of Personality and Social Psychology,* **59,** 27–37.

Moskowitz, G. B., & Roman, R. J. (1992). Spontaneous trait inferences as self-generated primes: Implications for conscious social judgment. *Journal of Personality and Social Psychology,* **62,** 728–738.

Murphy, S. T., & Zajonc, R. B. (1993). Affect, cognition, and awareness: Affective priming with optimal and suboptimal stimulus exposures. *Journal of Personality and Social Psychology,* **64,** 723–739.

Petty, R. E., & Wegener, D. T. (1993). Flexible correction processes in social judgment: correcting for context-induced contrast. *Journal of Experimental Social Psychology,* **29,** 137–165.

Philippot, P., Schwarz, N., Carrera, P., De Vries, N., & Van Yperen, N. W. (1991). Differential effects of priming at the encoding and judgment stage. *European Journal of Social Psychology,* **21,** 293–302.

Schwarz, N., & Bless, H. (1992a). Constructing reality and its alternatives: An inclusion/exclusion model of assimilation and contrast effects in social judgment. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 217–245). Hillsdale, NJ: Erlbaum.

Schwarz, N., & Bless, H. (1992b). Scandals and the public's trust in politicians: Assimilation and contrast effects. *Personality and Social Psychology Bulletin,* **18,** 574–579.

Sedikides, C., & Skowronski, J. J. (1991). The law of cognitive structure activation. *Psychological Inquiry,* **2,** 169–184.

Sherif, M., & Hovland, C. (1961). *Social judgment, assimilation and contrast effects in communication and attitude change.* Yale University Press, New Haven/London.

Skowronski, J. J., Carlston, D. E., & Isham, J. T. (1993). Implicit versus explicit impression formation: The differing effects of overt labeling and covert priming on memory and impressions. *Journal of Experimental Social Psychology,* **29,** 17–41.

Smith, E. R., & Zarate, M. A. (1990). Exemplar and prototype use in social categorization. *Social Cognition,* **8,** 343–362.

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.

Srull, T. K., & Wyer, R. S. (1980). Category accessibility and social perception: Some implications for the study of person memory and interpersonal judgments. *Journal of Personality and Social Psychology,* **38,** 841–856.

Stapel, D. A., & Koomen, W. (1996a). *When, how far, and in which direction do we go beyond the information given?: The impact of knowledge (re)activation on interpretation and inference.* Submitted.

Stapel, D. A., & Koomen, W. (1996b). *Using primed exemplars during impression formation: Interpretation or comparison?* Submitted.

Stapel, D. A., Koomen, W., & Van der Pligt, J. (1996). The referents of trait inferences: The impact of trait concepts versus actor-trait links on subsequent judgments. *Journal of Personality and Social Psychology,* **70,** 437–450.

Stapel, D. A., & Spears, R. (in press). Event accessibility and context effects in causal inference: Judgment of a different order. *Personality and Social Psychology Bulletin.*

Strack, F. (1992). The different routes to social judgments: Experiential versus informational strategies. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 249–276). Hillsdale, NJ: Erlbaum.

Strack, F., Schwarz, N., Bless, H., Kübler, A., & Wänke, M. (1993). Awareness of the influence as a determinant of assimilation versus contrast. *European Journal of Social Psychology,* **23,** 53–62.

Thompson, E. P., Roman, R. J., Moskowitz, G. B., Chaiken, S., & Bargh, J. A. (1994). Accuracy motivation attenuates covert priming: The systematic *re*processing of social information. *Journal of Personality and Social Psychology,* **66,** 474–489.

Trope, Y. (1986). Identification and inferential processes in dispositional attribution. *Psychological Review,* **93,** 239–257.

Trope, Cohen, O., & Alfieri, T. (1991). Behavior identification as a mediator of dispositional inference. *Journal of Personality and Social Psychology,* **61,** 873–883.

Trope, Y., & Liberman, A. (1993). The use of trait conceptions to identify other people's behavior and to draw inferences about their personalities. *Personality and Social Psychology Bulletin,* **19,** 553–562.

Wilson, T. D., & Brekke, N. (1994). Mental contamination and mental correction: Unwanted influences on judgments and evaluations. *Psychological Bulletin,* **116,** 117–142.

Wyer, R. S., & Srull, T. K. (1989). *Memory and social cognition in its social context.* Hillsdale, NJ: Erlbaum.