

**Mental Construal and the Emergence of Assimilation and Contrast Effects:
The Inclusion/Exclusion Model**

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Abstract

The inclusion/exclusion model provides an integrative framework for conceptualizing the emergence of assimilation and contrast effects in evaluative judgment. The model assumes that feature-based evaluative judgments require a mental representation of the object of judgment (target) and of a standard to which the target is compared. Both representations are context-sensitive and based on the information that is most accessible at the time. The way in which accessible information influences the judgment depends on how it is used. Information that is used in forming a representation of the target results in assimilation effects; information that is used in forming a representation of the standard results in contrast effects. How information is used depends on (i) individuals' beliefs about whether the information was brought to mind by some irrelevant influence, (ii) the information's perceived representativeness for the target, and (iii) conversational norms that influence the perceived appropriateness of information use. We summarize the core assumptions of the inclusion/exclusion model, review empirical evidence bearing on it, and highlight its integrative nature.

1. Introduction

Our daily life is full of experiences that confirm a truism of psychology: human judgment is context dependent. The same objective temperature can feel warm or cold depending on yesterday's weather; the grade we assign to a student's paper may be influenced by our earlier impression of the student or by the quality of the previous paper we read; and being affiliated with a prestigious research institution may cast a positive light on our own contributions, until we compare ourselves with the Nobel laureate next door. In all cases, judgments pertaining to the same target may be profoundly influenced by the context in which they are made. At the most general level, context effects can be classified as assimilation or contrast effects, depending on the direction of the contextual influence. We refer to *assimilation effects* whenever the judgment reflects a positive relationship between the implications of some piece of information and the resulting judgment. For example, thinking of a domain of life in which we are particularly happy increases general life-satisfaction, whereas thinking of a domain in which we are particularly unhappy decreases general life-satisfaction (e.g., Schwarz, Strack, & Mai, 1991). We refer to *contrast effects* whenever the judgment reflects a negative (inverse) relationship between the implications of some piece of information and the resulting judgment. For example, watching a TV show with highly attractive actors decreases the perceived attractiveness of one's own significant other (e.g., Kenrick & Gutierrez, 1980). Note that the terms "assimilation" and "contrast" merely describe the direction of contextual influences; they are silent with respect to the specific underlying process.

Not surprisingly, the context dependency of human judgment has found broad attention in psychological research and numerous theories have been offered to conceptualize the emergence of assimilation and contrast effects. Suls and Wheeler (2007) provide an excellent overview of the historical developments. They trace the introduction of the term "contrast" to von Helmholtz (1866), who investigated perceptual distortions, and follow the theoretical developments from early experimental psychologists (e.g., Wundt, 1894) to influential classic theories in social psychology (e.g., Asch, 1952; Sherif & Hovland, 1961) and current work in social cognition. Throughout these developments, theorists have either emphasized (i) the influence of contextual information on the representation of the standard to which the target is compared or (ii) its influence on the representation of the target itself. Inspired by research in psychophysics, one group of theories focuses on the distribution of contextual stimuli, which is assumed to influence the adaptation level (Helson, 1964), comparison standard (e.g., Thibaut and Kelly; 1959) or scale anchor (e.g., Ostrom & Upshaw, 1968; Parducci, 1984; Volkman, 1951). Theories of this type highlight contextual influences on the standard and excel at specifying conditions under which contrast effects are likely to emerge, which they consider the more robust (if not default) outcome;

however, they pay little attention to contextual influences that may affect the mental representation of the target itself. The latter possibility is central to two other groups of theories. One approach, going back to Asch's (1946) observation of primacy effects in impression formation, emphasizes that most stimuli have some degree of ambiguity and require interpretation. As numerous priming studies in social cognition demonstrated, these ambiguities are resolved by interpreting the information in terms of the most accessible applicable concept (e.g., Higgins, Rholes, & Jones, 1977; Srull & Wyer, 1979); which concept is most likely to come to mind is itself a function of contextual influences on concept accessibility (see Higgins, 1996, for a review). This approach considers assimilation effects the most likely outcome, unless specific correction conditions are met. A second approach, going back to Sherif and Hovland (1961), emphasizes categorization processes and assumes that stimuli assigned to the same category are assimilated to one another, whereas stimuli assigned to different categories are contrasted with one another. This approach traces both assimilation and contrast at least in part to changes in the representation of the target, which, depending on the specific model and the prevalent theorizing of the time, are conceptualized as perceptual distortions (e.g., Sherif & Hovland, 1961) or the incorporation of general category knowledge into the representation of the stimulus (e.g., Wyer & Carlston, 1979).

These distinct theoretical approaches and their conceptual relatives have developed in different areas of application – like psychophysics, person perception, and attitude research – and the processes they emphasize are not mutually exclusive. In an attempt to integrate these processes into a coherent conceptual framework that is consistent with current social cognition theorizing, we presented the inclusion/exclusion model (IEM) of assimilation and contrast effects (Schwarz & Bless, 1992a, 2007). The IEM emphasizes the context dependent construal of mental representations of targets and standards and highlights that a given piece of accessible information can result in assimilation as well as contrast effects, depending on whether it is used in forming a representation of the target or of the standard. In the two decades since the initial studies, core predictions of this model have fared well in empirical tests. Moreover, other researchers (most notably Biernat, 2005; Mussweiler, 2003; Stapel, 2007) have substantially advanced our understanding of context effects. This chapter reviews what has been learned and updates the IEM in light of new insights gained over the last two decades.

2. The Inclusion/Exclusion Model

2.1. Overview

The IEM (Schwarz & Bless, 1992a) assumes that feature-based evaluative judgments require two

mental representations: one of the target of judgment and one of a standard against which the target is evaluated. Both representations are formed on the spot, drawing on information that is most accessible at the time of judgment. How accessible information influences the judgment depends on how it is used. Information that is used in forming a representation of the target results in assimilation effects: including positive features in the representation of the target results in a more positive representation and hence a more positive judgment, whereas including negative features results in more negative judgment. The size of assimilation effects increases with the amount and extremity of positive (negative) information included in the representation of the target. These assumptions are not controversial and simply acknowledge that, *ceteris paribus*, a given target of judgment is evaluated more positively the more positive attributes we perceive and more negatively the more negative attributes we perceive.

Information that is excluded from the representation formed of the target results in contrast effects. Contrast effects can take two forms. First, excluding a positive attribute results in a less positive representation of the target and hence in a less positive judgment; conversely, excluding a negative attribute results in a less negative representation and hence a less negative judgment. Like assimilation effects, this type of contrast effect (which we refer to as a subtraction effect) is solely based on changes in the representation of the target; accordingly, it is limited to evaluations of this specific target. The size of subtraction-based contrast effects increases with the amount and extremity of positive (negative) information excluded from the representation of the target. Second, information that has been excluded from the representation of the target may also be used in constructing a representation of a standard. If this information is positive, it results in a more positive representation of the standard, relative to which the target is evaluated less positively; conversely, if the information is negative, it results in a more negative standard, relative to which the target is evaluated more positively. These comparison-based contrast effects generalize to all targets to which the standard is applied. Their size increases with the amount and extremity of positive (negative) information used in constructing the standard. Accordingly, the IEM predicts the direction (i.e., assimilation vs. contrast) and size of context effects, as well as their generalization across targets. We elaborate on these assumptions in more detail in the following sections.

The model assumes that the operation of all variables that can elicit assimilation or contrast effects can be traced to these simple mental construal principles. What renders research on assimilation and contrast effects complex, is not the complexity of the underlying construal processes, but the multitude of variables that can influence them: *any* variable that influences whether a given piece of information is used in constructing a representation of the target or of the standard can determine the direction of the resulting context effect. Most theoretical models in this field focus on a small number of variables, namely

the ones central to their respective substantive area of application, be it psychophysical judgments (e.g., Parducci, 1965), stereotyping (e.g., Biernat & Manis, 2007) or person perception (e.g., Stapel, 2007). We address these and related models when we review the respective variables.

While our presentation of the IEM focuses on feature-based evaluations, i.e., evaluations based on declarative information, it is worth noting that the role of experiential information can also be conceptualized in these construal terms. First, when relevant features are highly accessible, the experienced ease of recall suggests that there are many of them, consistent with Tversky and Kahneman's (1973) availability heuristic. Accordingly, the resulting representation is more positive when positive features are easy rather than difficult to bring to mind (for reviews see Schwarz, 1998, 2004). This increases the size of assimilation effects when the features are used in representing the target, but the size of contrast effects when they are used in representing the standard. Experienced difficulty of recall exerts the opposite influence. Second, people may draw on their apparent affective reaction to the target as a basis of judgment, essentially asking themselves, "How do I feel about this?" (for a review see Schwarz & Clore, 2007). In doing so, they may misread pre-existing moods (e.g., Schwarz & Clore, 1983), affective responses to contextual information (e.g., Winkielman, Zajonc, & Schwarz, 1997) or the positive affect resulting from processing fluency (e.g., Reber, Winkielman, & Schwarz, 1998; Winkielman & Cacioppo, 2001) as their response to the target. This apparent affective response to the target may either be used in lieu of a more feature-based representation or may be considered an additional relevant feature, depending on feature accessibility and the judge's processing motivation. In either case, the apparent affective response results in assimilation effects, here in the form of affect-congruent judgments (e.g., Schwarz & Clore, 1983). The influence of experiential information is eliminated when the informational value of the recall experience or affective reaction is undermined through (mis)attribution manipulations, thus rendering the experience irrelevant to the target at hand (for a review see Schwarz & Clore, 2007). Given space constraints, we will only occasionally comment on experiential information in the present chapter; however, an integration of declarative and experiential information within the current construal framework provides a promising avenue for future research.

Next, we revisit the assumptions of the model in more detail.

2.2 Information Accessibility

Social cognition theorizing attributes much of the variability in human judgment and behavior to the fact that social situations differ with respect to the information that is most likely to come to mind and attract attention (for numerous examples, see Bless, Fiedler, & Strack, 2004; Fiske & Taylor, 2008;

Moskowitz, 2005). The IEM shares this assumption. It further shares the assumption that information search is truncated as soon as enough information has been brought to mind to form a judgment with sufficient subjective certainty (Bodenhausen & Wyer, 1987; Higgins, 1996; Wyer & Srull, 1989). Hence, only the most accessible applicable information will be used in constructing mental representations of the target and the standard. Moreover, the use of highly accessible information is accompanied by a metacognitive experience of fluent processing, which lends the information additional credibility and weight (Schwarz, 1998, 2004).

These assumptions imply that mental representations are flexible and that the same target may be differentially represented, depending on what comes to mind at a given point in time. Numerous strands of theorizing, from classic attitude studies (e.g., Asch, 1940) to recent research into context dependent knowledge representation (e.g., Yeh & Barsalou, 2006) and the situated nature of cognition (e.g., Smith & Semin, 2004), share this perspective. However, the resulting prediction of pronounced context effects in evaluative judgment conflicts with traditional attitude theories (for a review see Eagly & Chaiken, 1993), which assume that evaluations of targets are stored in memory and can simply be retrieved when needed. While stored evaluations may be accessible when they have been generated very frequently and/or very recently, the IEM assumes that most people most of the time will need to form judgments in situ. Nevertheless, the resulting judgments can sometimes be quite stable across time and situations. From a construal perspective, similar judgments across time and situation reflect the use of mental representations with similar evaluative implications (see Lord & Lepper, 1999; Schwarz, 2007, for more detailed discussions).

First, similar judgments across time are expected when the context renders the same information temporarily accessible at both points in time (e.g., Lord, Paulson, Sia, Thomas, & Lepper, 2004) or when the judgment is predominantly based on chronically accessible information; the latter situation that may arise when the context does not provide relevant information (e.g., Sia, Lord, Blessum, Ratcliff, & Lepper, 1997). Moreover, repeated use of information increases its accessibility in memory and the likelihood that it comes to mind again at a later occasion; this self-perpetuating nature of information accessibility (Wyer & Srull, 1989) fosters similarity of repeated evaluations. Second, even when judges draw on different inputs at time 1 and time 2, they will only arrive at different judgments when the new inputs have different evaluative implications; merely replacing one piece of information with a different one of similar valence will not change the evaluative judgment (e.g., Sia et al., 1997). Finally, even when the evaluative implications of accessible inputs differ from time 1 to time 2, the resulting shift in judgment may be small, depending on the variables that determine the size of context effects (addressed below). In short, observed

stability in judgment does not (necessarily) imply that a previously formed judgment has been retrieved; instead, construal models of judgment, like the IEM, offer a coherent conceptualization of stability as well as change and identify conditions under which each one is to be observed.

2.3 Information Use

Going beyond mere information accessibility, the IEM holds that the specific influence of a given piece of accessible information depends on how it is *used*. As already noted, information used in forming a representation of the target results in assimilation effects, whereas information used in forming a representation of the comparison standard results in contrast effects. Accordingly, the *same* piece of accessible information can have opposite effects, depending on its use.

< Figure 1 >

Numerous variables can influence information use. The IEM imposes some order on these variables by relating them to a small number of general questions that bear on their informational value for the task at hand, as shown in Figure 1. At the first step, people need to determine if information that happens to come to mind may bear on the task. This step simply acknowledges that some accessible information (“the door bell rings,” “it’s hot”) may be clearly unrelated to the issue a person is thinking about; such irrelevant information is ignored and does not affect mental representations of the target or of the standard. Information that may potentially bear on the task is considered in more detail and its use depends on three task-related filters. The *first* filter pertains to *why* a given piece of information comes to mind: Does it come to mind because it is relevant to the judgment at hand or does it come to mind due to an irrelevant influence? Most of the time, people assume that whatever comes to mind is “about” what is in the focus of their attention, or why else would it come to mind now? This lay intuition, which Higgins (1998) refers to as the “aboutness” principle, reflects that accessibility is not random. In daily life, what comes to mind is meaningfully related to our current situation, goals, and concerns (Förster & Liberman, 2007). Accessible information will only pass this “aboutness” filter if individuals perceive it as their reaction to the target; they will exclude accessible information when they believe that it was brought to mind by some irrelevant influence, even when it is potentially relevant to the issue at hand (Lombardi, Higgins, & Bargh, 1987; Martin, 1986; Strack, Schwarz, Bless, Kübler, & Wänke, 1993). The *second* filter concerns the representativeness of the information for the target. Information that is not perceived as representative will not pass this filter and will not be used in forming a target representation. This decision is driven by the numerous variables known to influence the categorization of information, including, for example, the information's extremity (e.g.; Herr, 1986) and typicality (e.g., Bless & Wänke, 2000), the

malleability of the category (e.g., Hilton & von Hippel, 1990) and the salience of category boundaries (e.g., Strack, Schwarz, & Gschneidinger, 1985). A *third* filter acknowledges that many judgments are made in a conversational context, where information use is governed by conversational norms (Grice, 1975; Hilton, 1995; Schwarz, 1994). These norms ask speakers, for example, to consider the recipient's knowledge, to take the previously established common ground into account, and to avoid redundancy in their utterances. Such considerations influence the use of information in social contexts and hence the construction of targets and standards. For example, information that has been previously reported to the same recipient is excluded from the representation of the target when its repeated use would violate conversational norms of nonredundancy, resulting in contrast effects (e.g., Schwarz et al., 1991; for a review see Schwarz, 1994, 1996). We return to a detailed discussion of these filters and relevant empirical evidence in the following sections.

Information that passes all three filters is included in the representation formed of the target. Evaluations based on this representation reflect the implications of the included information, resulting in assimilation effects. Suppose, for example, that citizens are asked to evaluate the trustworthiness of politicians and a scandal-ridden exemplar, say Richard Nixon, comes to mind. If the exemplar passes all three filters, it will be included in the representation formed of the target category "politicians", resulting in judgments of low trustworthiness, as shown in the left-hand panel of Figure 2 (Schwarz & Bless, 1992b). Information that fails any one of the three filters is excluded from the representation formed of the target. However, the excluded information is still highly accessible and may come to mind when judges construct a representation of the standard. To continue the scandal example, suppose citizens are asked to evaluate the trustworthiness of a specific politician, say Newt Gingrich, rather than the trustworthiness of politicians in general. In this case, the scandal-ridden exemplar fails the representativeness filter – Richard Nixon is not Newt Gingrich. But compared to Nixon, Gingrich now seems more trustworthy than he otherwise would, reflecting a contrast effect due to changes in the standard, as shown in the right-hand panel of Figure 2 (Schwarz & Bless, 1992b).

< Figure 2 >

In the scandal example, the inclusion/exclusion operations are driven by the categorical relationship between the context information (Nixon) and the target (politicians in general vs. Gingrich), which is one of many variables bearing on the representativeness filter. Any specific politician is a member of the superordinate category "politicians in general" and can hence be included in that representation, unless he or she fails other filter tests. Lateral categories (Nixon vs. Gingrich), on the other

hand, are mutually exclusive. Hence, exemplar-category assimilation and exemplar-exemplar contrast are a common finding. Note, however, that assimilation and contrast effects can only be observed if the information that enters into the representation of the target or the representation of the standard differs in valence from other information used in constructing these representations. For example, including a scandal-ridden exemplar in the representation of “politicians in general” will only hurt the trustworthiness of the group when the exemplar’s misdeeds are worse than the misdeeds of other exemplars included in this representation; similarly, the exemplar will only help Newt Gingrich when the misdeeds of other exemplars used in constructing a representation of the standard are less despicable.

2.4 Size of Context Effects

The IEM’s predictions about the size of assimilation and contrast effects follow directly from its representational assumptions and the set size principle of models of information integration (for reviews see Anderson, 1981; Wyer, 1974). We first consider the size of *assimilation effects*. Not surprisingly, including a piece of contextual information in the representation of the target has a more pronounced impact the more extreme its evaluative implications are. In terms of the above example, the negative impact of including a scandal-ridden politician in the representation of the group increases with the severity of the scandal. In addition, the size of assimilation effects increases with the amount of contextual information added to the representation of the target. Hence, including three scandal-ridden politicians in the representation is worse than including only one. Conversely, the influence of a given piece of accessible information decreases with the amount and extremity of other information included in the representation of the target; the top panel of Figure 3 illustrates this aspect. For example, the more trustworthy politicians are included in the representation, the lower the impact of adding an untrustworthy one.

< Figure 3 >

The size of *subtraction-based contrast effects* follows the same logic. The higher the extremity and the larger the amount of information that is excluded from the representation of the target, the larger the resulting contrast effect. Excluding a particularly untrustworthy politician from the representation of the group results in a more favorable group judgment than excluding a less extreme exemplar; similarly, excluding several untrustworthy exemplars is better for the group than excluding only one. Conversely, the impact of excluding a given piece of information decreases with the amount and extremity of other information in the representation, consistent with the set size principle.

Finally, the size of *comparison-based contrast effects* follows the same logic as the size of

assimilation effects, except that the rules of the set size principle now apply to the representation formed of the standard. On the one hand, the extremity of the standard, and the size of the resulting contrast effects, is a function of the amount and extremity of the information used in constructing its representation. Conversely, the impact of a given piece of information used in constructing the standard decreases with the amount and extremity of other information used in this construction; the bottom panel of Figure 3 illustrates this aspect. We return to these issues when we consider the empirical evidence (for a more detailed discussion see Bless, Schwarz, & Wänke, 2003).

3. Beyond Mere Accessibility: Determinants of Information Use

Having reviewed the basic logic of the IEM, we now turn to the available evidence and focus on variables that influence how a given piece of accessible information is used. These variables can be organized in terms of three general filters, as discussed above, and our discussion of these filters follows the flow of the model shown in Figure 1.

3.1 The “Aboutness” Filter: Why Does It Come to Mind?

The first filter acknowledges that individuals are usually motivated to form accurate representations of the world; they hence attempt to avoid contamination by irrelevant information that may be brought to mind by incidental influences (for discussions see Kunda, 1999; Strack & Hannover, 1996; Wilson & Brekke, 1994). Accordingly, accessible information must pass a first filter to be used in constructing a representation of the target: “Is this coming to mind because it is my response to the target or is it merely brought to mind by some irrelevant influence?” In most cases, individuals will assume that their thoughts are “just their own spontaneous reaction to the stimulus” (Higgins, 1996, p. 150), making it likely that the information passes this filter. This lay intuition is consistent with the basic dynamics of accessibility in everyday life: what is most likely to come to mind is knowledge related to one’s current situation, goals and concerns, and the target in the focus of one’s attention (Förster & Liberman, 2007). When individuals become aware that information may come to mind for the “wrong” reason, it does not pass this filter and is excluded from the representation formed of the target.

Empirical support for this rationale comes primarily from conceptual priming studies, which manipulate the accessibility of trait concepts in an ostensible “first” study and assess their impact on the impression formed of an ambiguous target in a “second” study. Drawing on individual differences in participants’ memory for the priming episode, Lombardi and colleagues (1987; see also Liberman, Förster, & Higgins, 2007; Newman & Uleman, 1990) observed contrast effects in impression formation

when participants could spontaneously recall the primes at the end of the study, but assimilation effects when they could not. Presumably, participants who were able to recall the primes were more likely to be aware of their potential influence. Experiments that manipulated awareness support this conclusion. Varying the subtlety of the priming manipulation, Martin (1986) observed that subtle priming procedures elicited assimilation effects on the impression formed of the target person, whereas blatant priming procedures elicited contrast effects. Holding the priming procedure itself constant, Strack and colleagues (1993) did or did not ask participants at the end of the “first” study to list the words they learned. As shown in Figure 4, they obtained assimilation effects on the impression formed when participants were not reminded of the primes, but contrast effects when they were. Throughout, participants drew on the primed concepts in forming an impression when they could consider these concepts part of their spontaneous reaction to the target, but not otherwise.

< Figure 4 >

3.1.1 Awareness of an Influence

Numerous variables can influence the likelihood that individuals become aware of a potential contextual influence (for a review see Wilson & Brekke, 1994). One of them is the subtlety of the priming procedure (Martin, 1986). Awareness is particularly likely when the priming episode is poorly disguised and transparently related to the target; conversely, it is particularly unlikely when the primes are presented subliminally (e.g., Bargh & Pietromonaco, 1982). While contrast effects can nevertheless be observed under subliminal priming conditions (e.g., Stapel & Blanton, 2004; Winkielman, Coleman, & Schwarz, 1994), their emergence under these conditions reflects the operation of other filters, rather than an influence of awareness. The likelihood that people become aware of an unwanted influence further increases with the extremity of the prime (e.g., Moskowitz & Skurnik, 1999) and its salience in the context in which it is presented, and decreases with the fluency with which the primes can be processed (e.g., Greifeneder & Bless, 2009). Moreover, individuals are more likely to become aware of an irrelevant influence when the contextual information is externally presented rather than internally generated (e.g., Mussweiler & Neumann, 2000).

Note, however, that awareness that some information may have been brought to mind by a contextual variable does not necessarily imply that the information entails the risk of an “undue” influence. In this regard, the reviewed priming experiments differ markedly from natural situations: the priming procedures and the target evaluation are introduced as unrelated studies, which implies that one should not influence the other. In daily life, conversations build on the common ground established by previous utterances, which should be taken into account rather than ignored. Information brought to mind

by a previous utterance is therefore less likely to be perceived as coming to mind for the “wrong” reason (Schwarz, 1996). In addition, any information brought to mind as part of answering a question is self-generated rather than externally presented, further reducing the likelihood that it is perceived as a potentially unwanted influence (Mussweiler & Neumann, 2000). As a result, awareness of the priming episode reliably produces contrast effects in priming experiments, whereas awareness of the content of a preceding question fails to do so in survey interviews (Schwarz, 1996) and many other situations; what is crucial is not awareness per se, but awareness of an unwanted influence.

3.1.2 Contrast Effects

As the reviewed experiments illustrate, awareness of an unwanted influence results in contrast effects. This was first observed by Martin (1986; see also see also Martin & Shirk, 2007; Martin, Seta, & Crelia, 1990), who proposed a set/reset model that traces assimilation as well as contrast to changes in the representation of the target. According to his account, the primed concepts are included in the representation of the target when perceivers are not aware of an influence, resulting in an assimilation effect. When perceivers are aware of an influence, the primed concepts are excluded from the representation, which should eliminate the assimilation effect. In doing so, however, perceivers may find it difficult to distinguish “between their reaction to the priming task and their reaction to the target” (Martin et al., 1990, p. 28) and may exclude information that was actually brought to mind by the target rather than the prime. This overcorrection results in contrast effects relative to a control that was never exposed to the primes. The IEM shares these assumptions and treats Martin’s (1986) reset effect as a subtraction effect; it further assumes that subtraction effects can be elicited by many other variables, not addressed in the set/reset model. In addition, the IEM assumes that information that is excluded from the representation of the target may be used in constructing a representation of the standard, which may affect judgments of all targets to which the standard is applied.

Whereas changes in mental representations play a key role in the set/reset model (Martin, 1986) as well as the IEM, other models assume that awareness of an unwanted influence can elicit corrections that are not associated with changes in the mental representation of the target or standard (cf. Strack, 1992; Strack & Hannover, 1996; Wegener & Petty, 1995, 1997; Wilson & Brekke, 1994). These models suggest that perceivers essentially ask themselves “How may this have influenced me?” and then correct their judgment on the basis of a relevant naïve theory. For example, when asked to rate the weather in the Midwest after having rated the weather in Hawaii, perceivers may become aware that Hawaii may bias their assessment of Midwestern weather. To correct for this influence, they may adjust their rating upward (“I’d give the Midwest a 3, but perhaps that’s only because Hawaii is so much better, so lets make it a 5”).

Such theory-driven corrections occur at the output stage and do not require assumptions about changes in the underlying representations. They are particularly likely when there is no untainted information on which a representation could be based or when constructing an alternative representation seems especially burdensome. We would assume, for example, that theory-driven corrections are most likely when an unwanted influence is perceived *after* an initial judgment has already been made, whereas changes in target representation are more likely when an unwanted influence is perceived *prior* to judgment formation. This possibility awaits systematic testing.

3.2 The Representativeness Filter: Does It Describe the Target?

Information that passed the first filter (“Does it come to mind for the wrong reason?”) next needs to be assessed with regard to its relevance to the target of judgment: Does this information represent some relevant attribute of the target? Most of the variables that drive the emergence of assimilation and contrast effects are related to this second filter. When the answer is affirmative, the information is included in the representation of the target, resulting in an assimilation effect; otherwise it is excluded from the representation of the target and may be used in constructing a representation of the standard, resulting in a contrast effect. Numerous variables familiar from categorization research can influence these decisions; they include the fit between the context information and the target category (variously referred to as similarity, feature-overlap, and so on), the salience of category boundaries, the heterogeneity of the target category, and many others. Unfortunately, testing the causal influence of these variables always poses a methodological challenge: context information that is similar versus dissimilar to the target, for example, does not only differ with regard to its “fit” with the target category, but also differs in many other respects. Hence, we begin with a review of experiments that avoided this ambiguity by keeping the context information constant, varying its categorization by other means. Subsequently, we turn to the influence of category structure and address how the influence of contextual information changes when it is subordinate, lateral, or superordinate to the target category. Both of these bodies of research highlight the role of categorization processes in ways that are not contaminated by substantive differences in the context information. Having reviewed this work, we then turn to more messy variables that include changes in the attributes of the context information and note the parallels in the resulting effects. Finally, our discussion of the representativeness filter returns to the influence of contextual information on the interpretation of features of the target and revisits the trait priming phenomena discussed above.

3.2.1 Manipulating Representativeness Independent of Context and Target

The extent to which people perceive a piece of context information as representative of the target will usually depend on characteristics of the context information and the target. As noted, this makes it

difficult to isolate the role of categorization processes per se because different degrees of context-target fit are confounded with other attributes. To avoid this ambiguity, we developed procedures that allowed us to keep the context and target information constant, while explicitly manipulating their categorization through targeted questions (e.g., Bless & Schwarz, 1998; Bless, Schwarz, Bodenhausen, & Thiel, 2001; Stapel & Schwarz, 1998). Accordingly, these studies bear on the consequences of different categorizations of the same information; they are relatively silent, however, on the variables that would spontaneously elicit different categorizations (which we address later).

One of these studies took advantage of an ambiguity associated with the position of President of the Federal Republic of Germany. On the one hand, the German President is a formal figure head with limited power (comparable to the Queen in the UK) and is expected to stand above the daily fray of party politics; on the other hand, only career politicians with a long history in party politics ever reach this position. This allowed us (Bless & Schwarz, 1998) to ask participants different political knowledge questions about the highly respected politician who served as President at the time, Richard von Weizsäcker. Some were asked of which party von Weizsäcker “has been a member of more than 20 years”; others were asked which office von Weizsäcker holds “that sets him aside from party politics.” As the IEM predicts, participants’ subsequent evaluations of von Weizsäcker’s party were more positive when the knowledge question invited his inclusion in, rather than his exclusion from, the representation formed of his party. A similar ambiguity arose in American politics when Colin Powell, at the time the highly respected Chairman of the Joint Chiefs of Staff, decided to join the Republican party, but declined to run as its presidential candidate. This allowed Stapel and Schwarz (1998) to ask some participants whether they know which party Powell joined, but to ask others whether they know for which party Powell did not want to run. Again, participants evaluated the Republican party more favorably when the knowledge question invited Powell’s inclusion in, rather than his exclusion from, the representation formed of the party.

< Figure 5 >

In a related approach, Bless and Wänke (2000) presented all participants with the same list of favorable and unfavorable TV shows, which were moderately typical for TV shows in general. To manipulate participants’ perceptions of the shows’ typicality, some participants asked to select two shows that they considered “typically favorable”; others were asked to select shows that they considered “atypically favorable”; and yet others to select shows they considered “typically unfavorable” or “atypically unfavorable,” respectively. Because all shows were pretested to be moderately typical, participants’ selections were completely driven by their favorability; hence, participants always selected

the same two favorable (or unfavorable) shows, no matter whether they were asked to select “typical” or “atypical” ones. Figure 5 shows the results. Classifying a show as “typical” invited its inclusion in the superordinate category “TV shows”, resulting in assimilation effects; hence, TV shows in general were rated more favorably when the question asked for the identification of “typically favorable” rather than “typically unfavorable” ones. Conversely, classifying a show as “atypical” invited its exclusion from the superordinate category, resulting in contrast effects; in this case, TV shows in general were rated less favorably when the question asked for the identification of “atypically favorable” rather than “atypically unfavorable” shows.

As a final example, consider the influence of ad hoc categorizations on the evaluation of consumer products (Wänke, Bless, & Schwarz, 1999). All participants were asked to evaluate a bottle of wine and this target of judgment was always presented in the same context, comprised of lobster, cigarettes, and a TV guide. To manipulate the categorization of these products, some participants were asked which products belonged to the category food, whereas others were asked which products need to be sold within a short time. The correct answer to the first question is "wine and lobster," resulting in an ad hoc category that includes these products and a remaining ad hoc category that includes "cigarettes and TV-guides." The correct answer to the second question is "lobster and TV-guides," resulting in an ad-hoc-category that includes these products and a remaining category that includes "wine and cigarettes." As predicted, the target product “wine” was evaluated more favorably when assigned to an ad hoc category with lobster rather than with cigarettes; the evaluations of control participants, who received no categorization question, fell in between.

In combination, these categorization experiments show that the impact of a given piece of context information depends on its use; merely knowing what comes to mind is not sufficient to predict the direction of its impact. Judgment models that focus solely on which features are rendered accessible by the context lack a mechanism that accounts for a central prediction of the IEM: the *same* information can elicit assimilation as well as contrast effects, depending on the categorization processes that determine its use in forming a representation of the target or standard.

3.2.2 Category Structure

One of the major, and most robust, determinants of information use is the categorical relationship between contextual information and the target, which bears directly on the extent to which context information can be included in the representation of the target. First, the context information can be subordinate to the target; for example, a scandal-ridden politician (i.e., an exemplar of the general category “politicians”) may come to mind when a person evaluates the trustworthiness of politicians in

general (i.e., a superordinate target category). As already seen (Figure 2), subordinate information is usually included in the representation of superordinate targets (unless other filter operations require exclusion), resulting in assimilation effects, here in form of lower trustworthiness of politicians in general (Schwarz & Bless, 1992b). Second, the context information can be lateral to the target; for example, the target may be another specific politician, rather than politicians in general. Lateral categories are mutually exclusive, resulting in contrast effects, here in form of increased trustworthiness of other individual politicians (Figure 2; Schwarz & Bless, 1992b). Third, the context information can be superordinate to the target; for example, one may learn that a given target person is a member of the category “politicians”. As numerous stereotyping studies illustrate (cf. Fiske & Neuberg, 1990; Fiske, Lin, & Neuberg, 1999; Macrae & Bodenhausen, 2000), this invites the inclusion of general category knowledge in the representation of the exemplar, resulting in an assimilation of the exemplar to the category (unless other filter operations require exclusion).

Context information subordinate to the target. Unless other filter operations prompt exclusion, subordinate context information is included in the representation of superordinate targets, resulting in assimilation effects. We already discussed several examples, like the influence of a scandal-ridden politician on judgments of politicians in general (Schwarz & Bless, 1992b; Bless, Igou, Schwarz, & Wänke, 2000), the influence of highly respected politicians on their party (Bless & Schwarz, 1998; Stapel & Schwarz, 1998), and the influence of “typical” TV shows on evaluations of their genre (Bless & Wänke, 2000). The underlying logic is at the heart of attempts to change stereotypes (i.e., representations of high-level categories) by bringing atypical exemplars to mind (e.g., Bless et al., 2001; Bodenhausen, Schwarz, Bless, & Wänke, 1995; Kunda & Oleson, 1995, 1997; Weber & Crocker, 1983). Empirically, such attempts are often unsuccessful because exemplars that are atypical for the group fail other tests of representativeness, which prompts their exclusion (e.g., Bless et al., 2001); we return to this issue in a later section. The same logic also underlies the observation that evaluations of a brand (a superordinate category) are a function of its accessible products (i.e., subordinate exemplars; e.g., Loken & John, 1993; Keller & Aaker, 1992; Milberg, Park, & McCarthy, 1997; Wänke, Bless, & Schwarz, 1998).

However, the conceptual logic is not limited to exemplars and their membership categories. For example, Schwarz and colleagues (Schwarz et al., 1991; see also Strack, Martin, & Schwarz, 1988) asked survey respondents to report their marital satisfaction and their general life satisfaction in different question orders. When the general life satisfaction question preceded the marital satisfaction question, the answers correlated $r = .32$. Reversing the question order, however, increased the correlation to $r = .67$. This reflects that the marital satisfaction question brought marriage-related information to mind, which was included in

the representation formed of the superordinate target “my life.” Accordingly, happily married respondents reported higher, and unhappily married respondents reported low general life-satisfaction in the marriage–life than in the life–marriage order.

Consistent with the IEM’s assumptions about the size of context effects, such assimilation effects decrease with the amount of other information included in the representation of the target. In the life-satisfaction study (Schwarz et al., 1991), the correlation of marital satisfaction and life satisfaction dropped from $r = .67$ to $r = .43$ when questions about three different life domains (job, leisure time, and marriage) preceded the general life satisfaction question, thus bringing a more diverse range of relevant information to mind. Extending these findings to a natural context, Simmons, Bickart, and Lynch (1993) observed in an election study that the influence of earlier questions on subsequent political judgments decreased as the election neared, presumably because an increasing amount of relevant information became chronically accessible over the course of the campaign. Similarly, Bless and colleagues (2000) found that the negative impact of bringing a scandal-ridden politician to mind on judgments of politicians in general decreased with the number of other politicians included in the representation of the group, as shown in the left-hand panel of Figure 6.

< Figure 6 >

Context information lateral to the target. Lateral categories are mutually exclusive. For example, Newt Gingrich and Richard Nixon are both politicians, but Gingrich is not Nixon. Accordingly, context information that stands in a lateral relationship to the target cannot be included in the representation of the target. However, it may come to mind when the target is evaluated and may be used in constructing a standard, resulting in contrast effects. As already seen in Figure 2, thinking of a scandal-ridden politician is therefore beneficial for the trustworthiness of other specific politicians, although detrimental for the group in general (Schwarz & Bless, 1992b). The opposite effects of exemplars on judgments of their peers (lateral) and judgments of their group (superordinate) give rise to numerous asymmetries in public opinion, which we review below.

The size of the observed inter-exemplar contrast effects follows the set-size logic of the IEM. For example, adding a scandal-ridden politician to a standard that includes only three trustworthy politician should result in a more negative standard, and hence a more pronounced contrast effect, than adding the same politician to a standard that includes several six politicians. Empirically, this is the case as shown in the right-hand panel of Figure 6 (Bless et al., 2000).

Given that exemplars are mutually exclusive lateral categories, exemplar priming usually elicits contrast effects on judgments of other exemplars. This observation is central to the comparison component of Stapel's (2007) interpretation-comparison model. Note, however, that the crucial element is not the priming of an exemplar per se, but the categorical relationship between the exemplar and the target: exemplars elicit contrast effects on judgments of other exemplars (lateral targets), but assimilation effects on judgments of their group (a superordinate target). Moreover, when exemplars are thought about in terms of their traits, the accessible trait concepts may subsequently be used in interpreting ambiguous target information, as seen in numerous trait priming studies (e.g., Higgins et al., 1977; Srull & Wyer, 1979). This possibility is central to the interpretation component of the interpretation-comparison model (Stapel, 2007) and we return to it below. Finally, when the context and target exemplar are both assigned to the same superordinate category and little individuating information is available, perceivers may draw on general category information in judging the lateral exemplars. Such reliance on the superordinate category gives rise to assimilation effects (e.g., Brown, Novick, Lord, & Richards, 1992; Seta, Martin, & Capehart, 1979). From the perspective of the IEM, all of these processes are specific instantiations of more general mental construal processes that determine the representation of targets and standards.

A consideration of category structure also sheds new light on the observation that models in the psychophysical judgment tradition (e.g., Parducci, 1965; Ostrom & Upshaw, 1968; Volkman, 1951) consider contrast “the default option because it seems more robust and explainable than assimilation” (Suls & Wheeler, 2007, p. 17). Studies in this tradition address how one stimulus affects judgments of another, lateral stimulus. The resulting contrast effects parallel the observation of inter-exemplar contrast reviewed above; would the researcher ask for judgments of the average weight or brightness of the superordinate category, an equally robust assimilation effect would be obtained.

Context information superordinate to the target. As a final possibility, accessible context information may stand in a superordinate relationship to a subordinate target. For example, the context may bring a general social category to mind of which the target is a member. Unless other filter operations prompt exclusion, this relationship entails a categorization of the target as a member of the superordinate category, which licenses the inclusion of general category knowledge in the representation of the target (Smith, 1995), resulting in assimilation effects. This is the familiar case of stereotyping effects, which reflect that information about the superordinate category is included in the representation of the target exemplar (for reviews see Fiske et al., 1999; Kunda 1999; Macrae & Bodenhausen, 2000). Consistent with the set size principle of the IEM, these assimilation effects are more pronounced, the less other, individuating information about the target is accessible. Of course, numerous other variables can influence

this categorization process, undermining the otherwise observed assimilation effect. Before we review these variables, it is worth noting the implications of category structure for familiar public opinion phenomena.

Implications. As our discussion illustrates, the categorical relationship between context information and the target of judgment is a very general and powerful determinant of information use. On the one hand, subordinate context information can be included in the representation of superordinate targets and superordinate context information can be included in the representation of subordinate targets. Both of these inclusion operations result in assimilation effects on the respective target judgment; the size of these effects follows the set-size principle, here applied to the representation of the respective target. On the other hand, lateral context information cannot be included in the representation of the target but can be used in constructing a standard, resulting in contrast effects. The size of these comparison-based contrast effects also follows the set-size principle, but here applied to the representation of the standard. These regularities have important implications.

Most importantly, the same piece of context information can have opposite effects, depending on its categorical relationship to the target of judgment. This is at the heart of many asymmetries in public opinion. For example, Americans distrust Congress but trust their own representative (Erikson, Luttbeg, & Tedin, 1988). This follows directly from the observation that any scandal-ridden member of Congress can be included in the representation formed of Congress, but serves as a standard relative to which one's own representative looks rather trustworthy. Hence, the misbehavior of their peers is good for individual politicians, but bad for any superordinate category to which they belong – be it their party, Congress, or the political class as a whole (Bless et al., 2000; Schwarz & Bless, 1992b; Stapel & Schwarz, 1998). Similarly, all minorities – including women, gays, and racial-ethnic groups – report that discrimination against their group is a serious problem; yet, they also report that their own personal experience is more benign (Glynn, Herbst, O'Keefe, & Shapiro, 1999). In representative samples, such an asymmetry should not be observed – after all, the best estimate of the experience of a group as a whole is the average of the individual experiences of its members. However, the asymmetry again follows from the logic of the IEM. Extreme cases of discrimination are more accessible than less extreme ones. These memorable cases are included in the representation of discrimination against the group, resulting in reports of high discrimination. Yet, for individual reports, the same accessible cases result in an extreme standard, relative to which most members' own experiences pale, giving rise to the observed asymmetry.

These dynamics also point to divergences in the interests of individuals and the groups to which

they belong. Much like a crook hurts his party, a highly respected and trustworthy politician helps it – but only at the expense of his peers, who suffer from comparisons with their respected colleague (Stapel & Schwarz, 1998) and benefit from comparisons with a crook (Schwarz & Bless, 1992b). Similarly, having a “star” in one’s department is good for the image of the department (a superordinate category), but bad for every individual faculty member who falls short of the standard set by the highly accessible star (Wänke, Bless, & Igou, 2001). In these cases, little-known individuals enjoy a benefit: lacking individuating information about them, perceivers turn to their category membership to arrive at a judgment. This gives them the opportunity to benefit from the impact of the “star” on the category, whereas their better-known peers suffer from the comparisons that individuated representations enable. Unfortunately, this advantage reverses when the highly accessible exemplar is a crook. In this case, little-known individuals suffer from the crook’s impact on the category representation, whereas his better known peers benefit from the standard the crook provides.

While category structure is a particularly robust determinant of information use, cognitive and social psychologists have identified numerous other variables that influence how a given piece of information is categorized. The IEM holds that *any* variable that influences categorization also influences the emergence of assimilation and contrast effects. We now turn to some of these variables.

3.2.3 Typicality, Similarity, and Feature Overlap

Not surprisingly, perceived similarity or typicality is a major determinant of categorization. Exemplars that seem typical for their superordinate category are more likely to be included in the category representation than atypical ones; by the same token, exemplars that are similar to one another are more likely to be assigned to the same category than dissimilar exemplars. In both cases, perceived similarity is a function of feature overlap and increases with the proportion of shared attributes (Tversky & Gati, 1978). While typical exemplars are likely to be included in representations formed of their superordinate categories, their impact on subsequent category judgments is relatively limited: given large feature-overlap, the evaluative implications of a typical exemplar are redundant with the category information. “Atypical” exemplars, on the other hand, are less likely to be included; but *if* included, they provide new information about the category.

Implications for stereotype change. These dynamics received considerable attention in models of stereotype change, where researchers hope that including an atypical exemplar in the representation of the category will attenuate stereotyped group perceptions (for reviews see Hewstone, 1994; Kunda, 1999; see also Lord & Lepper, 1999; Smith & Zarate, 1992). In consumer psychology, the same logic has been

applied to brand perception (for reviews see Bless & Greifeneder, 2008; Loken, 2006). While a review of this literature is beyond the scope of this chapter, the IEM draws attention to two frequently overlooked risks. First, trying to change stereotypes by exposing perceivers to an atypical exemplar can backfire, making the group seem all the more stereotypical. This is expected when the atypical exemplar is used in constructing a standard of comparison rather than a representation of the group. Second, even when stereotype change is successful, it may come at a cost to the exemplar. While the exemplar's inclusion in the representation of the group attenuates stereotypical perceptions of the group, it is also likely to increase stereotypical perceptions of the exemplar. This parallels our previous discussion of the diverging interests of groups and their members.

Methodologically, these possibilities are difficult to test with the procedures commonly used in stereotyping research, which usually rely on manipulating either the attributes of the exemplar or the attributes of the category. As noted above, such procedures necessarily confound categorization processes with attributes of the context and/or target information. Avoiding this complication, Bless and colleagues (2001) presented all participants with the same description of a moderately atypical exemplar. To manipulate the exemplar's categorization, they asked some participants questions that drew attention to typical attributes. In this case, the exemplar was included in the representation of the superordinate category, resulting in less stereotypical perceptions of the group in general (an assimilation effect), as shown in Figure 7. However, other participants were asked questions that drew attention to atypical attributes of the exemplar. In this case, the exemplar was excluded from the category and used in constructing a standard, resulting in more stereotypical perceptions of the group in general (a contrast effect). Hence, accessible atypical exemplars can help or hurt the perception of their group, depending on their use (see also Kunda & Oleson, 1997; Maurer, Park, & Rothbart, 1995; Wänke, Bless, & Wortberg, 2003). These inclusion/exclusion operations were also reflected in judgments of the exemplar itself, as shown in Figure 7. Including the exemplar in the representation of the group resulted in more stereotypical perceptions of the exemplar, whereas excluding the exemplar from the representation of the group resulted in less stereotypical perceptions of the exemplar.

< Figure 7 >

In combination, this pattern of findings highlights an unfortunate conflict: including an atypical exemplar in the representation of the group attenuates stereotyping of the group, but increases stereotyping of the exemplar that brings the desired group change about; conversely, excluding an atypical exemplar from the representation of the group attenuates stereotyping of the exemplar, but increases stereotyping of the group. As in our preceding discussion of the diverging interests of individuals and the

groups to which they belong, one cannot improve the perception of one without hurting the other.

Similarity and dissimilarity testing. As Mussweiler and colleagues (2003, 2007; Mussweiler & Strack, 1999) emphasized, perceived similarity is not only a function of the actual attributes of two entities, but also a function of what the perceiver is looking for. Consistent with the assumptions of confirmatory information search, perceivers who test a hypothesis of similarity are likely to search for similar attributes, whereas perceivers who test a hypothesis of dissimilarity are likely to search for dissimilar attributes. As in the preceding cases, similarities give rise to assimilation, whereas dissimilarities give rise to contrast. For example, Mussweiler, Rüter and Epstude (2004) observed assimilation effects on self-evaluations when participants searched for similarities between the self and a comparison other, but contrast effects when they searched for dissimilarities. From the perspective of the IEM, these differential search foci are likely to simultaneously affect the representations formed of the target *and* of the standard, which gives these search processes particular power. By definition, similarities are features that are shared by the self and the other and can hence enter into both representations; while their inclusion in the representation of the self results in assimilation, their simultaneous inclusion in the representation of the other results in a standard that is similar to the self, thus also attenuating any contrast that may otherwise be observed. Conversely, dissimilarities imply that some feature X applies to the self, whereas some feature non-X applies to the other. Including feature X in the representation of the self again elicits assimilation toward X; simultaneously including feature non-X in the representation of the other results in a standard that is dissimilar to the self with regard to X, further enhancing the judgment that the self is high on X. Accordingly, similarity and dissimilarity searches are particularly powerful instantiations of the mental construal processes underlying assimilation and contrast effects in general.

3.2.4 Category Heterogeneity, Mutability, and Category Boundaries

Heterogeneity and mutability. Categories differ in heterogeneity. People assume, for example, that members of a natural category (e.g., birds) are more similar to one another than members of an artifactual composite category (e.g., things in a house). The perceived internal homogeneity or heterogeneity of a category, in turn, constrains the range of information that can be included in the category representation (e.g., Hilton & von Hippel, 1990; Lambert, Chasteen, Payne, & Shaffer, 2004; Lambert & Wyer, 1990). All else equal, a given piece of information is therefore more likely to result in assimilation effects in judgments of heterogeneous target categories (reflecting inclusion), but in contrast effects in judgments of homogeneous target categories (reflecting exclusion). Similarly, target categories that are perceived as highly mutable allow for the inclusion of a more varied set of information than less mutable target categories, giving rise to assimilation effects in the former and contrast effects in the latter

case (e.g., Stapel & Koomen, 2001).

Boundaries. Most category boundaries are malleable and their perception is itself subject to contextual influences, as the example of temporal categories may illustrate. Strack, Schwarz, and Gschneidinger (1985) asked participants to recall a positive or negative life event that happened either recently or more than five years ago. Recent events resulted in an assimilation effect on later judgments of current life satisfaction, whereas distant events resulted in a contrast effect. This reflects that recent events could be included in the representation of “my life now,” whereas distant events could not, and hence served as a standard of comparison. In follow-up experiments (reported in Schwarz & Strack, 1999), freshmen were asked during their first month at college to recall a positive or negative life event that happened “during the last two years.” Replicating the earlier findings, these recent events resulted in assimilation effects on current life satisfaction. Other freshmen were given the same task, except for a small addition to the instructions: They were asked to recall a positive or negative event that happened “during the last two years, that is, before you came to the university.” This addition drew attention to an otherwise ignored category boundary and invited them to segment the stream of life into their high school time and college time. Under this condition, a contrast effect emerged, with positive memories of one’s high school time resulting in negative evaluations of one’s current life. Findings of this type illustrate the malleability of construal processes and highlight how minor variations in question wording can elicit opposite downstream effects.

In some cases, category boundaries are marked by perfectly superficial features, like the similarity or dissimilarity of the names given to products of the same brand. In one study (Wänke, Bless, & Schwarz, 1998), participants learned about the cars produced by an Italian manufacturer before evaluating the brand’s newest model, a car named Milano. When the brand’s other models were also named for Italian cities (with names like Firenze or Siena), the new Milano was evaluated in line with the brand’s image, reflecting an assimilation effect. Conversely, when the manufacturer’s other cars were named for geometrical figures (with names like Circle or Triangle), the new Milano was contrasted to the brand’s image. Thus, name continuation or discontinuation was sufficient to influence the categorization of the new model and hence the emergence of assimilation or contrast effects.

In sum, this selective review illustrates a core assumption of the IEM: *any* variable that can influence the categorization of information, can also determine the direction of context effects.

3.2.5 Making Sense of the Target

Since the initial demonstration of trait priming effects (Higgins et al., 1977; Srull & Wyer, 1979), social psychologists have extensively studied the impact of concept accessibility on the interpretation of

ambiguous information, usually relying on a limited set of trait concepts and minor variations of the ambiguous target descriptions used in the original studies. This work showed that ambiguous information is interpreted in terms of the applicable concept that is most accessible at the time of encoding; for example, Donald's conviction that he will excel at everything he does will be perceived as evidence of admirable "confidence" or annoying "conceitedness", depending on which of these two applicable trait concepts is more accessible (Higgins et al., 1977). Such effects are not observed when the accessible trait concept is not applicable to the behavior; when the behavior is not ambiguous; or when the perceiver is aware of a possible influence of the priming episode, as discussed above, in the context of the IEM's "aboutness" filter. For comprehensive reviews of this literature see DeCoster & Claypool (2004), Higgins (1996), Förster and Liberman (2007), and Wyer and Srull (1989). Not surprisingly, priming effects on the interpretation of ambiguous behaviors result in assimilation effects on the evaluation of the person to which these behaviors are attributed – after all, the behavior one interprets is indeed the behavior of the target and hence included in the target representation; thus, Donald is liked more when perceived as confident rather than conceited.

Trait concepts can be rendered accessible through direct exposure to the trait term (e.g., Higgins et al., 1977), exposure to behaviors that exemplify the trait (e.g., Srull & Wyer, 1979) or exposure to persons that exemplify the trait (e.g., Herr, 1986). The latter case is of particular interest because exposure to an exemplar can elicit assimilation as well as contrast effects, depending on how perceivers think about the exemplar. For example, Philippot, Schwarz, Carrera, de Vries, and van Yperen (1991) presented participants with a letter matrix that contained the names of either well-known hostile (e.g., Hitler) or well-known kind (e.g., Mother Theresa) individuals. Some participants were instructed to identify the names of "hostile" (or "friendly") people in this matrix. When these participants subsequently read an ambiguous description of Donald (taken from Srull & Wyer, 1979), they perceived Donald as more hostile when their letter matrix contained the names of hostile rather than friendly exemplars; this replicates the familiar assimilation effect of trait priming. However, other participants were merely asked to identify "hidden" names or the names of "famous" individuals. These participants perceived Donald as less hostile when their letter matrix contained the names of hostile rather than friendly exemplars; this replicates the lateral-level contrast effects discussed above – Donald is not Hitler and compared to Hitler, he is not very hostile. In short, exposure to exemplars fosters assimilation effects when the exemplar brings the associated trait concept to mind, provided that the concept is applicable to subsequent ambiguous information. However, exemplars are not necessarily thought about in terms of their associated traits; when looking for "hidden names" or "famous people", one may miss that Hitler is also "hostile". But

when later asked to rate Donald's hostility, the previously primed exemplar Hitler may come to mind, providing an extreme standard that elicits a contrast effect.

Much as exposure to exemplars can sometimes render traits accessible, exposure to traits can sometimes bring exemplars to mind. Accordingly, Mussweiler and Damisch (2008) observed that exemplars that represented the traits "aggressive" or "intelligent" were recognized faster when the respective trait was primed than when it was not. Once exemplars come to mind, however, they may further influence later judgments by eliciting contrast effects (Mussweiler & Damisch, 2008). Related work by Stapel and colleagues (e.g., Stapel, Koomen, & van der Pligt, 1996, 1997; Stapel & Koomen, 1998a, 1998b) further illuminated the complexities of trait and exemplar priming. Consistent with the knowledge-accessibility literature (Higgins, 1996), Stapel's (2007) interpretation-comparison model of assimilation and contrast effects assumes that "accessible knowledge may be used as an interpretation frame that gives meaning to and makes sense of stimuli—a 'pull' towards assimilation" (Stapel, 2007, p. 150) In contrast to traits, exemplars are assumed to serve as standards of comparison when other exemplars are evaluated, consistent with the lateral category structure that characterizes this constellation. These effects are particularly pronounced when other variables, like the exemplar's distinctiveness, further discourage its inclusion in the representation formed of other targets (Stapel, 2007; Stapel & Winkielman, 1998), consistent with the assumptions discussed earlier. Given that interpretation-based influences are only expected when "there is something to be *interpreted*, that is, when the target stimulus is *ambiguous*" (Stapel, 2007, p. 155), much of this work has followed the tradition of the Donald paradigm (Higgins et al., 1977; Srull & Wyer, 1979), limiting the exploration of interpretation based assimilation effects to a special case of person perception. Future research may fruitfully broaden the scope.

3.3 Conversational Relevance: Is This Part of the Common Ground?

The IEM's final filter acknowledges that people do much of their thinking in a social context, which involves communication with others. This is almost always true for social judgment research, which typically involves some question-answer sequence designed to provide insight into participants' thoughts. Thinking in a social context involves more than the inside-the-head processes that have been the focus of most social cognition research (for discussions see Clark & Schober, 1992; Hilton, 1995; Schwarz, 1994, 1996). To ensure mutual understanding, communicators need to attend to the recipient's likely knowledge and the common ground established in the conversation when they interpret the other's utterances and design their own contributions (Clark, 1985; Grice, 1975; Sperber & Wilson, 1986). These conversational processes can influence the representation formed of the target and standard, and hence the

emergence of assimilation and contrast effects. Conversational influences have found limited attention in judgment research but are likely to contribute to some familiar phenomena, as discussed below.

In addition, people may hesitate to communicate judgments that may seem socially undesirable in the given context (for a review see DeMaio, 1984). Such social desirability effects presumably reflect that a privately held judgment is “edited” before it is publicly communicated (Strack & Martin, 1987); hence, they are beyond the scope of the present discussion. We note, however, that the “edited” public version of one’s private judgment may become part of the representation of the target, influencing later judgments downstream (for a review see McCann & Higgins, 1992).

3.3.1 Common Ground and the Construction of Targets: Avoiding Conversational Redundancy

The previously discussed representativeness filter pertains to whether a given piece of information is descriptive of the target and should hence be included in its representation. Even when this question is answered affirmatively, the information may nevertheless not be used in forming a target representation when its use would violate conversational norms. One relevant conversational norm holds that speakers should respect the common ground by providing information that the recipient needs and not reiterating information that the recipient already has (a derivative of Grice’s, 1975, maxim of quantity; for reviews see Schwarz, 1994, 1996).

A previously discussed question order experiment illustrates this point. Recall that life-satisfaction and marital satisfaction correlated $r = .32$ when the life-satisfaction question preceded the marital satisfaction question; however, this correlation increased to $r = .67$ when the question order was reversed (Schwarz et al., 1991; see also Haddock & Carrick, 1999; Strack et al., 1988). As discussed earlier, this assimilation effect reflects that the preceding marital satisfaction question brought marriage-related information to mind, which respondents used in forming a representation of their lives in general (a superordinate target). In another condition of the same study, both questions were explicitly placed in the same conversational context, thus evoking the norm of non-redundancy. This was accomplished by a joint lead-in to both questions: “Now we would like to learn about two areas of life that may be important for people’s overall well-being: happiness with marriage and happiness with life in general.” Subsequently, both satisfaction questions were asked in the marriage–life order. With this lead-in, the correlation dropped from the previously obtained $r = .67$ to $r = .18$, indicating that respondents deliberately disregarded information that they had already provided in response to the marital satisfaction question when making a subsequent general life-satisfaction judgment, despite its high accessibility in memory. Presumably, they interpreted the general question as if it referred to aspects of their life that they had not yet reported on. Supporting this interpretation, a condition in which the general question was reworded in

this way (“Aside from your marriage, which you have already told us about, how satisfied are you with your life in general?”) resulted in a nearly identical correlation of $r = .20$.

Paralleling these differences in correlation, respondents who were induced to disregard their marriage in evaluating their life-as-a-whole reported higher life satisfaction when they were unhappily married, and lower life satisfaction when they were happily married, than respondents who were not induced to exclude this information. Thus, contrast effects were obtained when conversational norms elicited the exclusion of marital information from the representation formed of one’s life, despite its substantive relevance to the judgment and a categorical relationship between context and target that usually elicits assimilation effects.

On theoretical grounds, we can assume that these effects are moderated by individuals’ attention to the conversational context. If so, numerous variables that are unrelated to the topic of judgment, but influence attention to the ongoing conversation, may moderate the emergence of assimilation and contrast effects. Empirically, this is the case. For example, individuals in interdependent cultures are more sensitive to conversational variables than individuals in independent cultures (for reviews see Oyserman, Coon, & Kemmelmeier, 2002; Oyserman & Lee, 2008a). Accordingly, a conceptual replication of the above question order experiment found that Chinese participants spontaneously showed contrast effects, even in the absence of a joint lead-in; German participants, on the other hand, showed assimilation effects, replicating the earlier findings (Haberstroh, Oyserman, Schwarz, Kühnen, & Ji, 2002). Moreover, experimental inductions of independence or interdependence produced parallel effects (Haberstroh et al., 2002). Any other variable that affects sensitivity to conversational context, like high versus low power (Gruenfeld, Keltner, & Anderson, 2003), should show a parallel influence, providing a promising avenue for future research into social determinants of information use.

3.3.2 Common Ground and the Construction of Standards: Compared to What?

Conversational processes also influence the construal of standards. As numerous jokes of the “compared-to-what?” type illustrate, evaluative judgments can only be meaningfully interpreted when we understand the speaker’s frame of reference. We consider two implications of this observation.

Is this part of what we’re talking about? Numerous judgment models in the psychophysics tradition (e.g., Helson, 1964; Ostrom & Upshaw, 1968; Parducci, 1965; Volkman, 1951; Wedell, 1996) emphasize that targets are evaluated relative to a standard set by the distribution of contextual stimuli. Some models assume that the standard influences the actual “private” perception of the stimulus (e.g., Helson, 1964), whereas others assume that the standard primarily influences the use of the response scale (e.g., Volkman, 1951; Ostrom & Upshaw, 1968); yet other models allow for both influences (e.g.,

Parducci, 1995). From the perspective of the IEM, it is worth noting that experimental tests of these models usually involve the evaluation of lateral stimuli, for which the IEM predicts the emergence of contrast effects. Consistent with this prediction, contrast effects are the common finding in this literature (for an excellent review see Wedell, Hicklin, & Smarandescu, 2007). What is often overlooked, however, is the extent to which conversational processes influence the construal of standards in such experiments.

A classic study by Brown (1953) illustrates this point. Like numerous others, Brown observed that the perception of weights was contrasted against a heavy context weight. However, this contrast effect was only obtained when participants were handed each weight and asked to make a judgment. When the experimenter merely asked participants to move a tray of comparable weight “out of the way,” no contrast effect emerged on subsequent weight judgments. Presumably, the tray was perceived as extraneous to the task and hence not included in the representation of the standard used for this task given (see also Zellner, Rohm, Bassetti, & Parker, 2003). Note, however, that it remains unclear whether the tray failed to affect how heavy the target stimulus “felt” or whether participants merely corrected for the tray’s influence when they reported their judgment, given that the tray was not part of the stimulus set deemed relevant to the task. While the distinction is important, experimental procedures that rely on explicit reports are ill equipped to answer it.

In a related vein, Schwarz, Münkler, and Hippler (1990) observed that contrast only emerged when the contextual exemplars were linked to the relevant dimension of judgment. They asked participants to judge how “typically German” a number of beverages are (wine, coffee, and milk) and presented these beverages in the context of either highly typical (beer) or a highly atypical (vodka) context exemplar. Contrast effects emerged when participants were asked to estimate how frequently Germans drink beer or vodka. Note that the frequency of consumption is relevant to the national typicality of a beverage, thus linking the context question to the typicality dimension. However, contrast effects were not observed, when participants estimated the caloric content of beer or vodka. Thus, merely rendering beer or vodka accessible was insufficient to prompt their use in the construction of a standard.

In sum, potentially applicable accessible information may not be used in constructing a standard when it is perceived as falling outside the shared understanding of what is relevant to a given task. While this, by itself, is not surprising, it has important implications for the use of contextual information when the target and context are assigned to different categories.

Category-specific standards. The statement “Bobby is tall” conveys different height information when Bobby is a preschooler than when Bobby is a basketball player. By the same token, previous

exposure to an adult basketball player is unlikely to affect judgments of the tallness of a preschooler (much like Brown's tray did not affect judgments of his weights). In both cases, the target's category membership specifies an applicable frame of reference, which informs representations of the target and constrains the range of context information that is appropriate in forming a standard. Knowledge of the category usually entails knowledge of the applicable frame of reference and cooperative communicators take shared category knowledge into account; this is what allows them to describe a 4-foot preschooler as "tall," and a 6-foot basketball player as "short," without being accused of misrepresenting the truth.

The shifting-standard model proposed by Biernat, Manis, and their colleagues highlights the implications of these processes (for reviews see Biernat, 2003; 2005; Biernat & Manis, 2007; Biernat Manis, & Nelson, 1991). It assumes that target judgments are made relative to category-specific standards and emphasizes that different category assignments are associated with shifts in the applicable standard. The influence of category-specific standards is pronounced when judgments are made along subjectively defined dimensions like "tallness", where the scale is anchored by relevant exemplars. Shifting-standard effects are not obtained when scales are defined in objective units (like centimeters or inches), which carry their own category-independent frame of reference. We conjecture that shifting-standard effects are attenuated or eliminated when people are aware that the relevant category knowledge is not part of the common ground, e.g., when they speak with a foreigner, who may not share the stereotype, or a person from a different occupation, who may not share category expertise. This possibility, and its potential downstream impact on the target and standard representations formed in a conversational context, provides a promising avenue for future research.

3.3.3 Inferences from Research Procedures

Finally, it is worth noting that many apparently "formal" aspects of a study's procedure can convey information that influences participants' information use. Consistent with the Gricean maxims that govern the conduct of conversation in daily life, participants usually assume that all "contributions" of the researcher to the ongoing conversation are relevant to their task, unless marked otherwise. The researcher's contributions include many features of questionnaire lay-out, question sequencing or task administration that are merely selected for convenience or for methodological reasons, unrelated to their potential meaning in context (for reviews see Bless, Strack & Schwarz, 1993; Schwarz, 1994, 1996). Nevertheless, participants draw on these features to determine the meaning of the researcher's questions and the nature of their task, with downstream effects on their information use and the emergence of assimilation and contrast effects. Two examples may illustrate this point.

Graphical lay-out. As discussed above, explicit lead-ins to related questions can evoke the norm of conversational redundancy (Schwarz et al., 1991); in the same marriage-life question order, the observed correlation of both questions dropped from $r = .67$ without a joint lead-in to $r = .18$ with a joint lead-in. Follow-up studies (Schwarz, 1996) showed that the graphical lay-out of self-administered questionnaires can have the same influence. When the marital satisfaction and life-satisfaction questions were presented in separate boxes, with a black frame drawn around each question, they correlated $r = .59$; when both questions were presented in a joint box, with one frame drawn around both questions, the correlation dropped to $r = .24$. Much like the joint lead-in used in the initial studies, the latter lay-out emphasized the relatedness of both questions, prompting respondents to avoid redundancy in their answers. Unfortunately, few researchers are aware that such presumably “formal” characteristics of their questionnaires can influence participants’ question interpretation and information use, even to the extent of turning assimilation effects into contrast effects.

Presentation format. Similarly, Abele and Petzold (1998) observed that the order in which stimuli were presented influenced participants’ inferences about the comparisons of interest. In their study, participants were exposed to a set of stimulus persons allegedly drawn from two occupations and made judgments of each individual presented. Depending on conditions, all persons from the same occupation were presented together (blockwise presentation) or persons from both occupations were presented in a random order (mixed presentation). Abele and Petzold assumed that a mixed presentation format conveys that differences *between* the occupations are of interest; if so, participants’ should take each person’s occupation into account, resulting in an assimilation effect on the perception of the respective individual. Conversely, a blockwise presentation format may convey that differences *within* the occupation are of interest; if so, taking the person’s occupation into account would not be particularly informative – after all, this feature is shared by all members of the occupation. Nevertheless, the occupation is highly accessible and may be considered in constructing a standard, resulting in contrast effects on the perception of the individual. Their results were consistent with these predictions.

Similarly, Wedell, Parducci, and Geiselman (1987; see also Martin & Seta, 1983) compared the influence of a sequential or simultaneous presentation format on the evaluation of individuals’ facial attractiveness. Replicating numerous earlier studies, the same face was rated more favorably when it followed a less attractive faces in a sequential format, reflecting a contrast effect. When the faces were presented in pairs, however, the same face was rated less favorably when presented simultaneously with a less attractive face, reflecting an assimilation effect. The authors attributed this assimilation effect “to a failure to separate the individual stimulus from other stimuli that are simultaneously present” (Wedell et

al., 1987, p. 231). This failure may reflect that the simultaneous presentation format conveyed that the two stimuli are to be considered together, thus inviting their shared categorization in an ad hoc category. As Abele and Petzold's (1998) findings suggest, the interest inferred from a simultaneous presentation format may have shifted again, had the study included an additional categorization variable, crossed with the presentation format.

To date, research into the emergence of context effects in social judgment has paid little attention to the role of conversational processes. The limited available evidence suggests, however, that their systematic investigation will advance our understanding of human judgment in a social context as well as our sensitivity to what our research procedures convey (for reviews see Hilton, 1995; Schwarz, 1994, 1996).

3.4. Coda

Before leaving the discussion of the IEM's assumptions about information use, some caveats are called for that pertain (a) to the proposed filters and (b) to the difference between external context stimuli and their internal representation. *First*, to impose order on a large number of variables that can affect information use, the IEM organizes them with regard to three broad filter questions: Does this information come to mind for the wrong reason? Is it representative of the target? Is its use appropriate in the current context? As readers will have noted, many variables can bear on several of these filter questions under different conditions and the operation of a given variable can not always be confidently traced to a single filter. Moreover, while the sequence in which we presented these filters makes for a parsimonious decision tree, the model entails no claim that people will work through these issues in exactly this sequence. Finally, future research may uncover variables that are best conceptualized by introducing additional filters. In either case, however, the model holds that *any* variable that elicits the inclusion of contextual information in the representation of the target results in assimilation effects, whereas *any* variable that elicits the exclusion of contextual information results in contrast effects.

Second, our discussion of mental construal processes reiterates a core theme of social psychology: To understand people's response to a situation, their subjective construal of the situation is more important than the situation's objective features. This insight is often neglected in the discussion of context effects, where the attributes of what is presented to participants receive more attention than participants' own construal and use of the information. When predicting whether a given context stimulus exerts an assimilative or contrastive influence, we therefore need to determine which information is brought to mind *internally* and how this information is *used*.

4. Processing Variables: Cognitive Capacity, Motivation, and Processing Style

The specific processes reviewed above are likely to be moderated by other variables known to influence information processing in general. This section addresses some of the more likely candidates. Our selective review highlights the role of perceivers' processing capacity and motivation and differences in processing style.

4.1 Processing Capacity and Motivation

As numerous studies in diverse research domains illustrate, how much attention and effort people devote to a judgment task can profoundly affect the outcome (for reviews see Fiske & Taylor, 2008; Chaiken & Trope, 1999; Eagly & Chaiken, 1993). In general, systematic processing increases with the perceiver's motivation and the available cognitive capacity. This can affect the processes central to the IEM in two ways. First, the IEM's filter operations require an assessment of accessible information in terms of the filter questions to determine the information's proper use. This requires processing resources. How resource intensive the filter processes are is likely to depend on the specific filter and the variable to which it is applied, as discussed below. Second, the subsequent use of information in constructing representations of the target and standard also requires resources. Models of associative processing suggest that the inclusion of accessible information in the representation of the target may be less resource sensitive than its exclusion (for a discussion see Strack & Deutsch, 2004), although the available evidence may often reflect differences at the filter application stage rather than the mental construal stage. Future research will need to separate these possibilities. Both of these aspects converge on the prediction that, *ceteris paribus*, the likelihood of assimilation effects increases, and the likelihood of contrast effects decreases, with decreasing processing motivation and capacity. The available evidence is compatible with this prediction.

As discussed, blatant priming procedures (Martin, 1986) fail the first filter ("Why does it come to mind?") and elicit contrast effects because participants become aware of a possible undue influence. Such contrast effects are not observed when participants' processing capacity is impaired by a secondary task (Martin et al., 1990; see also Meyers-Levy & Tybout, 1997; Moskowitz & Skurnik, 1999). This observation may reflect interference with the filter application or with the correction process. In general, the capacity needed to recognize a potential undue influence should decrease with the salience of the influence.

Turning to the second filter ("Does it describe the target?"), the available evidence suggests that many, but not all, assessments of the representativeness of context information are resource intensive. For

example, assessing the typicality of an exemplar for its superordinate category requires resources and atypical features may be missed when the perceiver is distracted or insufficiently motivated. Hence, moderately atypical exemplars are more likely to be included in the representation of their group when processing resources are low rather than high (e.g., Yzerbyt, Coull, & Rocher, 1999). By the same token, such targets are more likely to be represented in terms of their category membership rather than their individuating attributes when processing motivation or capacity is low, a standard finding of stereotyping research (e.g., Bodenhausen, 1990; Neuberg & Fiske, 1987; for reviews see Fiske et al., 1999; Macrae & Bodenhausen, 2000). Resource constraints should be less relevant when the exemplar is highly atypical or when an atypical feature is highly salient for other reasons. Conversely, lateral categories are mutually exclusive and few resources may be needed to recognize this. Hence, contrast effects have been observed even when the primed exemplar is presented subliminally and the judgment must be made quickly (e.g., Winkielman et al., 1994; Stapel & Blanton, 2004). The numerous variables relevant to the representativeness filter vary widely in the likelihood that nonrepresentativeness will be noted in the absence of detailed processing, suggesting that the effects of processing constraints may be highly dependent on the variable at hand. A systematic exploration of these complexities provides a promising avenue for future research.

The third filter (“Is this information part of the common ground?”) pertains to the conversational context of information use. Monitoring the common ground and recognizing potential violations of conversational norms requires attention to the ongoing conversation. Accordingly, these processes are likely to be impaired by low processing capacity or motivation. Compatible with this conjecture, contrast effects that reflect the avoidance of conversational redundancy are more likely under conditions that motivate high attention to the common ground, like chronic or temporary interdependence (Haberstroh et al., 2002). Similarly, pragmatic inferences from research procedures, like the presentation format (e.g., Abele & Petzold, 1998), should be resource sensitive. To date, direct evidence bearing on these issues is not available.

In addition, processing motivation and capacity are likely to influence the size of context effects, consistent with the set-size assumption of the IEM. *Ceteris paribus*, bringing more information to mind requires more effort and the amount of accessible information used in constructing mental representations is a key determinant of the size of assimilation and contrast effects (see Bless et al, 2003, for a more detailed discussion).

As a result, numerous variables that are themselves unrelated to the target may influence the

emergence and size of assimilation and contrast effects through their influence on processing motivation and capacity. These variables include individual difference variables, like need for cognition (Cacioppo & Petty, 1982), need for closure (Webster & Kruglanski, 1994) or need for validity (Kruglanski & Webster, 1996), as well as situational influences, like time of day (circadian rhythms; Bodenhausen, 1990), time pressure, distraction, secondary tasks, and the relevance of the topic (Petty & Cacioppo, 1986). The indirect impact of such variables, mediated by their effect on processing motivation and capacity, should be pronounced when noticing a filter violation requires detailed attention to the information at hand, but negligible when potential violations are easy to detect.

4.2 Differences in Processing Style

In addition to motivation and capacity, numerous other variables can influence the extent of detail-oriented processing. In general, any variable that fosters the formation of more fine-grained representations at a lower level of abstraction should increase the likelihood of contrast effects; conversely, any variable that fosters the formation of more abstract and less differentiated representations should increase the likelihood of assimilation effects. We first review research that directly isolated these variables by inducing a local versus global processing style and subsequently turn to variables known to have a similar influence on processing style, including affective states, environmental problem signals, and cultural and situational differences in individualism/collectivism.

4.2.1. Local versus Global Processing

A given stimulus can be represented at different levels of abstraction; for example, a dog may be represented as an “animal,” a “dog,” or a specific exemplar (“Ben’s dog Duke”). As noted in our discussion of category structure and boundaries, superordinate abstract categories allow for the inclusion of a broader range of information than subordinate, more concrete categories. Hence, a reasoning style that fosters the formation of more abstract representations should increase the likelihood of assimilation effects, whereas a reasoning style that fosters the formation of more concrete, lower-level representations should increase the likelihood of contrast effects. Empirically, this is the case. In a particularly compelling demonstration, Förster, Liberman, and Kuschel (2008) induced either a global processing style (associated with forming abstract representations) or a local processing style (associated with forming concrete representations) through preceding tasks, thus manipulating processing style independently of the attributes of the target and context information. As expected, subsequent evaluation tasks showed assimilation effects when a global processing style was induced, but contrast effects when a local processing style was induced. For example, participants were presented with a map of their home town

and were asked to look at it as a whole (global processing) or to look at the details (local processing). Subsequently, participants worked on a person perception task that included a trait priming manipulation and an ambiguous person description (adopted from Wyer & Srull, 1979). The evaluation of the target person reflected assimilation effects when a global processing style was induced, but contrast effects when a local processing style was induced.

Numerous other variables, from psychological distance (Liberman, & Trope, 1998; Trope, Liberman, & Wakslak, 2007) to regulatory focus (Förster & Higgins, 2005) and hemispheric activation (Förster et al., 2008), can similarly influence the level of abstraction at which a stimulus is represented. As reviewed next, one of the most powerful of these variables is whether the person perceives the current situation as benign or problematic.

4.2.2 Cognitive Tuning: The Influence of Moods and Environmental Problem Signals

As James (1890) noted, human cognition stands in the service of action. We may therefore assume that individuals' thought processes are tuned to meet the requirements of their goal pursuits in a given context; numerous findings are compatible with this assumption (for reviews see Schwarz, 2002, Smith & Semin, 2004). When things go wrong, attention shifts to a lower level of abstraction (Vallacher & Wegner, 1986) and information is processed more systematically and with more attention to the details at hand; when things go smoothly, people are more likely to rely on general knowledge structures that served them well in the past (Bless & Schwarz, 1999; Schwarz, 1990, 2002). Any variable that can signal a "benign" or "problematic" situation can elicit these differences in processing style; these variables include the person's own apparent affective response to the situation, metacognitive experiences and bodily sensations, as well as environmental cues (for reviews see Schwarz, 2002; Schwarz & Clore, 2007). The resulting differences in processing style have been observed with a broad range of tasks. For example, compared to happy individuals, sad individuals represent behaviors at a lower level of abstractness (e.g., Beukeboom & Semin, 2006) and are more likely to focus on local rather than global features (e.g., Gasper & Clore, 2002). Moreover, sad individuals are more likely to engage in systematic message elaboration in persuasion situations (e.g., Bless, Bohner, Schwarz, & Strack, 1990), to elaborate on individuating information in impression formation tasks (e.g., Bless, Hamilton, & Mackie, 1992) and to attend to the specifics of a behavioral description, whereas happy individuals are more likely to rely on heuristic cues (e.g., Worth & Mackie, 1987), category based stereotypes (e.g., Bless, Schwarz, & Wieland, 1996; Bodenhausen, Kramer, & Süsner, 1994) and general scripts (e.g., Bless, Clore, et al., 1996). Other "problem" cues, like low processing fluency (e.g., Song & Schwarz, 2008) or even the color of the paper

on which information is presented (e.g., Soldat, Sinclair, & Mark, 1997), have similar effects (for a review see Schwarz & Clore, 2007).

In combination, these findings indicate that “problematic” situations are associated with more extensive, effortful, and detail-oriented processing than “benign” situations. Both, more extensive processing and the construction of more concrete and differentiated mental representations, should foster the emergence of contrast effects. While this prediction is consistent with the findings reviewed in the previous two sections, direct experimental tests of the role of cognitive tuning variables in the emergence of assimilation and contrast effects are sparse. This area is ripe for investigation.

4.3 Individualistic versus Collectivistic Mind Sets

A growing body of research in cultural psychology shows that chronic differences in individualism/collectivism (independence/interdependence) are associated with different processing styles (for a review see Oyserman et al., 2002), which can also be observed when these different interpersonal orientations are temporarily induced through priming procedures (for a review see Oyserman & Lee, 2007, 2008a). Consistent with the logic of situated cognition, different cultural orientations require different cognitive procedures for their efficient execution (for a theoretical discussion see Oyserman & Lee, 2008b; Oyserman & Sorensen, 2009). The accumulating evidence indicates that an individualist orientation is associated with procedures that facilitate focus on an isolated stimulus and its unique attributes, pulling the stimulus apart from the field. In contrast, a collectivist orientation is associated with procedures that facilitate the identification of relationships, emphasizing the embeddedness of a stimulus in its field. These differences have been observed on a wide variety of social (e.g., Haberstroh, et al., 2002) and nonsocial tasks, including performance on memory tasks (e.g., Kuhnen & Oyserman, 2002; Oyserman, Sorensen, Reber, & Chen, 2009), Navon tasks (e.g., Kuhnen & Oyserman, 2002; Oyserman et al., 2009), and Stroop tests (e.g., Oyserman et al., 2009).

We may therefore expect that a collectivist orientation, associated with attention to the relationship between a stimulus and its context, fosters the emergence of assimilation effects, whereas an individualist orientation, associated with a focus on the distinctness of the stimulus, fosters the emergence of contrast effects. The limited available evidence is compatible with these predictions (for reviews see Oyserman & Lee, 2008a, 2008b; Oyserman & Sorensen, 2009). Similarly, Ahluwalia (2008) observed that the perceived fit between a brand (superordinate category) and a brand extension (subordinate exemplar) was higher for participants with a collectivistic (interdependent) rather than individualistic (independent) orientation, resulting in more pronounced assimilation effects. Paralleling this observation, East Asians

have been found to be more likely to assimilate brand extensions to the brand than Westerners (Monga & John, 2007).

4.4. Other Mindsets

As the above discussion illustrates, preceding tasks and other contextual variables can influence which of several applicable cognitive procedures people apply to subsequent context and target information, consistent with the logic of procedural priming (for an overview see Smith, 1994). While our discussion focused on variables that are likely to affect the abstractness and inclusiveness of the resulting target representations, other lines of research showed similar carry-over effects for other procedures. For example, preceding tasks can induce an interpretation or a comparison mindset that influences whether later context information is used in interpreting information about the target, giving rise to assimilation effects, or in constructing a standard, giving rise to contrast effects (for a review see Stapel, 2007). In a particularly compelling demonstration, Stapel and Komen (2001) showed that priming participants with words like “interpretation” increased the likelihood that an ambiguous target was assimilated to a context exemplar, whereas priming participants with words like “comparison” increased the likelihood that an ambiguous target was contrasted to the exemplar. This and related experiments show that mindset manipulations can override “the ‘classic’ assimilative trait priming and contrastive exemplar priming effects” (Stapel, 2007, p. 155). Similarly, Mussweiler and his colleagues observed that preceding tasks can induce a focus on similarities or dissimilarities that carries over to subsequent tasks (for a review see Mussweiler, 2007). For example, participants who were asked to detect similarities between two pictures subsequently searched for similarities between a target and a standard, resulting in assimilation effects; conversely, participants who focused on dissimilarities between the pictures subsequently searched for dissimilarities between a target and a standard, resulting in contrast effects (Mussweiler, 2001).

In sum, findings of this type highlight that the construction of targets and standards is not only a function of the attributes of the target and context information itself, but also of the procedures that participants bring to the task. When several procedures are applicable, the one most likely to be used is the one that is most accessible at the time, e.g., because it has been used for a preceding task. Accordingly, extraneous variables can influence the mental representations formed in ways that cannot be predicted on the basis of either the target or the context information alone.

5. “Assimilation *or* Contrast” versus “Assimilation *and* Contrast”

Much of our discussion has focused on the conditions under which contextual information elicits *either* assimilation *or* contrast effects, implying that assimilation and contrast effects are mutually

exclusive. In contrast, others have suggested that assimilation and contrast effects can occur simultaneously and that the observed change in judgment is the net effect of both opposing influences (cf. Abele & Gendolla, 1999; Petzold, 1992). Both assertions are correct, but reflect different levels of analysis.

The IEM conceptualizes how accessible information is used in constructing representations of targets and standards. It holds that a given piece of information can either be used in constructing a representation of the target, resulting in an assimilation effect, or a representation of the standard, resulting in a contrast effect. Under this logic, the *same piece of information* cannot simultaneously result in assimilation and contrast effects on judgments of the *same target* along the *same dimension*. Hence, at the IEM's level of analysis, which focuses on features used in the respective mental representations, assimilation and contrast effects are mutually exclusive. However, any given target has numerous features and accessible context information can give rise to assimilation effects on the assessment of one feature, but contrast effects on the assessment of the other feature. A later overall evaluation of the target that includes both features would then reflect the net effect of both processes, which depends on their respective relative size.

For example, exposure to a scandal-ridden conservative politician may increase the accessibility of knowledge pertaining to the category "conservatives," which may guide the interpretation of ambiguous policy statements of a target politician. This would result in a perception of the target as more conservative than would otherwise be the case (assimilation). At the same time, the target may seem particularly trustworthy by comparison to his peer (contrast). The overall judgment of a voter who values trustworthiness but prefers liberal policies, would then reflect the net effect of these assimilation and contrast effects on different attributes of the target. As another example, consider an academic whose colleague has won a Nobel prize. As discussed earlier, the Nobel laureate will improve the perception of his department (assimilation), but hurt the perception of his peers (contrast). By the same token, the self-evaluation of his office neighbor is likely to suffer from comparison with the "star", but to benefit from the shared membership in a highly respected department. While this self-evaluation would again reflect the assimilation effect initially elicited by the "star", it is worth spelling out the full set of inferences: (i) the contrast reflects a direct comparison with the star (lateral category), whereas the assimilation effect reflects (ii) the inclusion of the star in the representation of the department (superordinate category) and (iii) the subsequent use of one's own (subordinate category) membership in the department as an attribute in self-evaluation. One may be tempted to describe the first effect as a "direct" contrast effect and the latter as an "indirect" assimilation effect, but following the full sequence of implied inferences is usually

more informative and draws attention to the many variables that derail the assumed process in different ways.

< Figure 8 >

In related work, Wänke, Bless, and Igou (2001) brought to mind a political star and assessed the consequences on the evaluation of other politicians. Not surprisingly, other politicians were evaluated less favorably (contrast), conceptually replicating the impact of the scandal-ridden politician on other politicians (Bless et al., 2000; Schwarz & Bless 1992b). This contrast effects was eliminated, however, when a preceding knowledge question drew attention to the shared party membership of target and star; presumably because the star had a positive impact on the (superordinate) party, which in turn influenced evaluations of the (subordinate) exemplar, thus countering the otherwise observed contrast between two (lateral) exemplars. Addressing this assumption directly in a second study, recipients were presented with a star in the form of a top-of-the-line product (a high-end toaster). As illustrated in Figure 8, the introduction of the star decreased the evaluation of another (average) model of the same brand (contrast) when the peripheral features of the two products differed (color, font, and design of the advertisement), rendering the shared category membership less salient. However, this contrast effect was eliminated when peripheral cues in the presentation emphasized that both products were produced by the same brand, highlighting the shared category membership. In this case, the brand image improved by the star was used for constructing the representation of the target. Moreover, in line with the IEM predictions, the star also exerted contrast effects on products of *another* brand. As theoretically predicted, the latter contrast effects were independent of the presentation format because products of different brands do not share a superordinate category membership.

Note also that the logic underlying this discussion is not limited to the opposing influence of assimilation and contrast effects. A happily married woman with a poor job who meets a divorced classmate with an outstanding career may subsequently be more satisfied with her family life, but less satisfied with her job. When asked for a judgment of general life-satisfaction, her answer may again reflect the net effect of both effects, in this case the net effect of two contrast effects.

Finally, a methodological caveat is called for. While several of our experiments are consistent with the rationale illustrated by these examples (e.g., Bless et al., 2000; Stapel & Schwarz, 1998; Wänke et al., 2001), the conclusions are based on mean differences between conditions involving many participants. This renders it difficult to determine whether the observed effects are indeed “within-person” effects, as our above examples assume (see Wänke et al., 2001, for correlational within-subjects analyses that avoid some of these methodological caveats). Alternatively, the mean results may reflect “between-person”

effects, with the judgments of some participants showing contrast in response to one feature and the judgments of other participants showing assimilation in response to another feature. These issues await systematic investigation). On theoretical grounds, we assume that a consideration and integration of multiple features requires relatively high processing motivation and capacity and that most people, most of the time will terminate the judgment process before these more complex issues arise.

6. Concluding Remarks

This chapter presented the IEM as an integrative framework for conceptualizing the emergence, direction, size, and generalization of context effects in feature-based judgment. The model allows for a coherent conceptualization of the effects that have been identified by the major research traditions in this area, namely, psychophysics research that focused on the distribution of contextual stimuli (e.g., Parducci, 1984; Thibaut and Kelly; 1959; Volkman, 1951); attitude research that focused on categorization processes (e.g., Herr et al., 1983; Sherif & Hovland, 1961; Tajfel, 1959); and person perception research that focused on knowledge accessibility effects (e.g., Higgins et al., 1977; Srull & Wyer, 1979). Moreover, the IEM's predictions are consistent with more recent models that illuminated specific component processes, like Biernat and Manis' (2007) shifting-standard model, Mussweiler's (2007) selective accessibility model, and Stapel's (2007) interpretation-comparison model, which have advanced our understanding of assimilation and contrast effects.

When we first presented the IEM nearly two decades ago (Schwarz & Bess, 1992a), the evidence bearing on unique predictions of the model was rather limited. In the meantime, our empirical tests of the IEM have focused on its core assumption, namely, that assimilation and contrast effects are a function of information *use*. This assumption implies that the *same* context information can result in either assimilation or contrast effects, depending on whether it is used in constructing a representation of the target or a representation of the standard. Accordingly, our research attempted to manipulate information use, while holding the context information itself constant (e.g., Bless et al., 2001; Schwarz & Bless, 1992b; Wänke et al., 1998, 2001). Recent research that manipulated the procedures perceivers apply to a fixed set of context information (e.g., Förster et al., 2008; Stapel & Komen, 2001) further highlights the importance of information use. In combination, these lines of research provide converging evidence for the information-use logic, which also accommodates numerous target and context related variables that have been identified as determinants of assimilation and contrast in earlier work. What renders research in this area complex are not the simple mental construal principles at the heart of assimilation and contrast effects, but the numerous variables that can influence how a given piece of information is used. While

future research will undoubtedly uncover many additional variables that influence the direction and size of context effects, we are hopeful that the general mental construal principles of the IEM will provide a useful framework for their conceptualization.

7. References

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Figure Captions

Figure 1. The Inclusion/Exclusion Model.

Figure 2. Judgments of trustworthiness of politicians in general and of specific exemplars as a function of thinking about a political scandal. Higher scores reflect higher trustworthiness. Data from Schwarz and Bless (1992b).

Figure 3. Size and direction of context effects as a function of categorization and amount of competing information. (X = context information; I_n = other information entering into target representation, E_n = other information entering into standard representation).

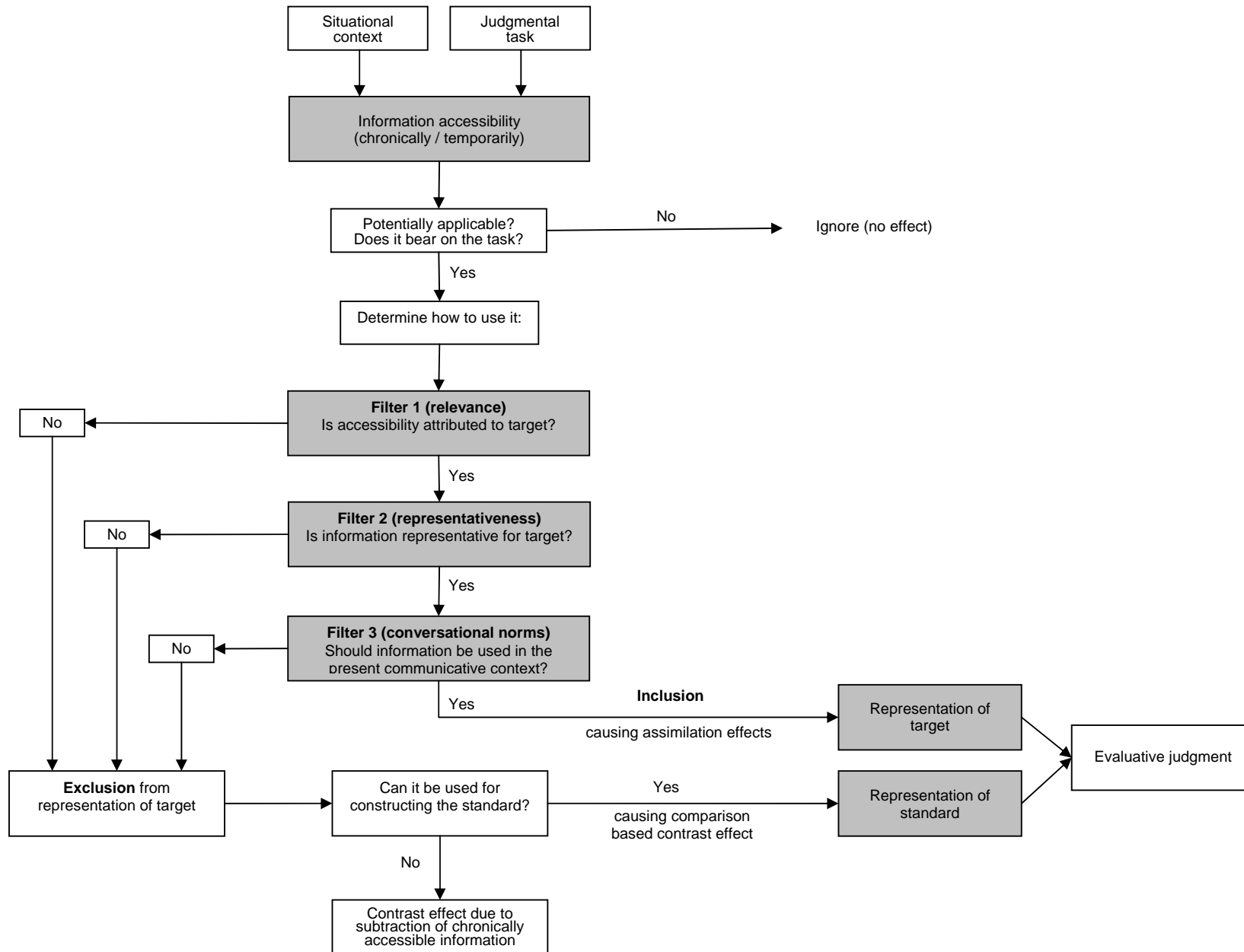
Figure 4. Target ratings as a function of valence of priming and reminding of the priming episode. Higher Scores reflect more positive evaluations. Data from Strack, Schwarz, Bless, Kübler, and Wänke (1993).

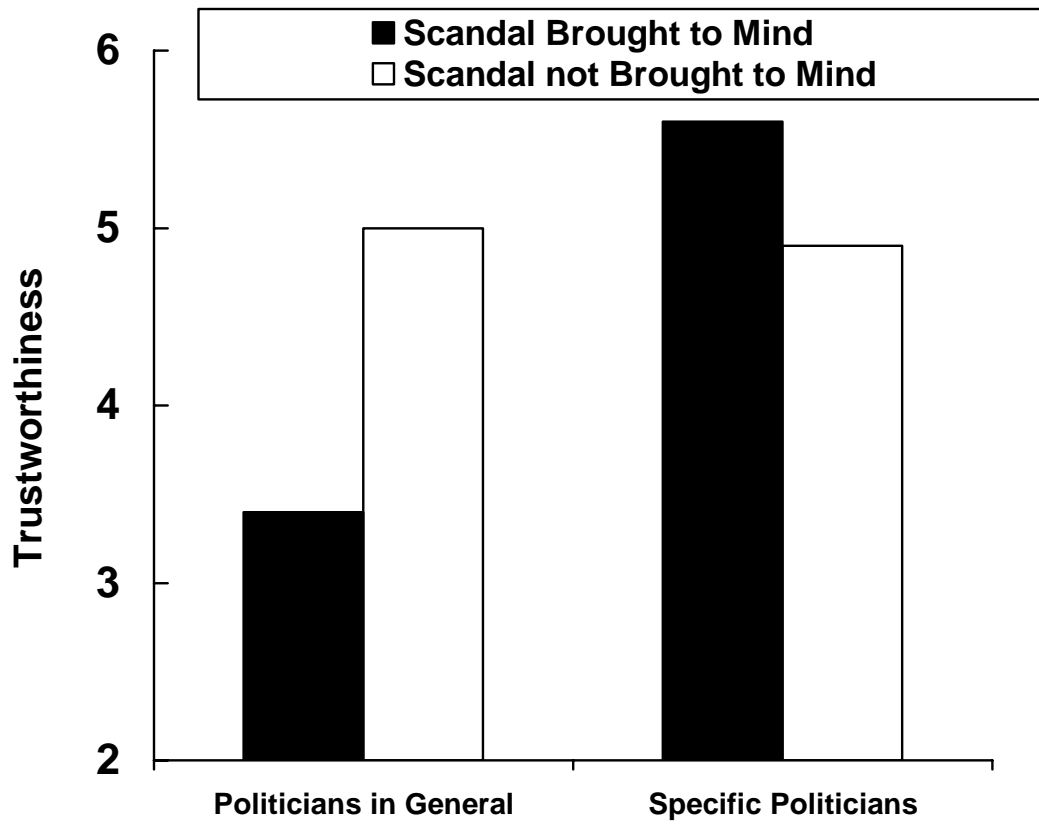
Figure 5. Evaluation of television programs in general as a function of the valence of television shows brought to mind and their manipulated typicality. Higher scores reflect more positive evaluations. Data from Bless and Wänke (2000).

Figure 6. Evaluations of trustworthiness of politicians in general and in specific as a function of a scandal activation and amount of additional activation. Higher scores reflect higher trustworthiness. Data from Bless, Igou, Schwarz, and Wänke (2000).

Figure 7. Stereotypic evaluations as a function of target and categorization of the stereotype-inconsistent exemplar. Higher scores reflect more stereotypic evaluations. Data from Bless, Schwarz, Bodenhausen, and Thiel (2001).

Figure 8. Evaluations of the standard product of the same or different brand as function of advertising the top-of-the-line product. Higher scores reflect more positive evaluations. Data from Wänke, Bless, and Igou (2001).





**Context Information "X"
Causes Strong Assimilation**

Target: l₁ l₂ l₃ **X**

Standard: E₁ E₂ E₃

**Context Information "X"
Causes Weak Assimilation**

Target: l₁ l₂ l₃ l₄ l₅ l₆ **X**

Standard: E₁ E₂ E₃

**Context Information "X"
Causes Strong Contrast**

Target: l₁ l₂ l₃

Standard: E₁ E₂ E₃ **X**

**Context Information "X"
Causes Weak Contrast**

Target: l₁ l₂ l₃

Standard: E₁ E₂ E₃ E₄ E₅ E₆ **X**

