7

Assimilation and Contrast as Comparison Effects: A Selective Accessibility Model

THOMAS MUSSWEILER

Human information processing does not take place in an isolated ether. Rather, the judgments we make, the feelings we experience, and the behaviors we engage in are situated in a rich psychological context, which includes context stimuli that are immediately present, remembered, or constructed on the spot. Much of the research in psychology over the past 50 or so years has examined how this psychological context shapes our judgments, feelings, and behaviors. This research has described two general context effects: assimilation and contrast. Our judgments, feelings, and behaviors may either be displaced toward (assimilation) or away from (contrast) context stimuli.

Over the decades, abundant demonstrations of both types of context effects have accumulated. Sometimes judgments, feelings, and behaviors are assimilated toward the psychological context; at other times they are contrasted away from this context. Evidence demonstrating assimilative and contrastive context effects is particularly plentiful in the realm of human judgment. Here, contrast is apparent in the fact that a target person may be judged to be less hostile in the context of extremely hostile others (e.g., Adolf Hitler) than in the context of extremely peaceful others (e.g., the Pope; Herr, 1986) or that the self may be judged to be less competent in the context of a competent other than in the context of an incompetent other (Morse & Gergen, 1970). Assimilation, on the other hand, is apparent in the fact that the same target quantity (e.g., length of the Mississippi river) may be judged to be longer in the context of a high rather than a low numeric standard (Tversky & Kahneman, 1974) and that the self may be judged to be more competent in the context of a competent rather than an incompetent other (e.g., Brewer & Weber, 1994; Pelham & Wachsmuth, 1995; Suls, Martin, & Wheeler, 2002).

Similar context effects have also been demonstrated for affective reactions. Research on emotional contagion (Hatfield, Cacioppo, & Rapson, 1992), for

example, has demonstrated that sometimes our feelings are assimilated toward those of a comparison other (Neumann & Strack, 2000), so that we feel better in the context of a happy rather than a sad context person. At other times, however, our feelings are contrasted away from a comparison other, so that we feel worse in the context of a happy rather than a sad person (Englis, Vaughan, & Lanzetta, 1981). Finally, recent research on automatic behavior effects has demonstrated that our behaviors may also be assimilated toward or contrasted away from contextual information (Bargh, Chen, & Burrows, 1996; Chartrand & Bargh, 1999; Dijksterhuis et al., 1998). This evidence demonstrates that the psychological context many influence judgment, feelings, and behavior in an assimilative or a contrastive manner.

A COMPARISON PERSPECTIVE ON CONTEXT EFFECTS

How can these diverging context effects be explained? Why do our judgments, feelings, and behaviors depend on the contexts in which they arise? Why are our judgmental, affective, and behavioral reactions toward the very same target stimulus so strikingly different depending on their context? What are the psychological mechanisms that underlie these diverging context effects?

One possible answer to these questions emphasizes the role of comparison processes. In fact, there are ample conceptual and empirical reasons to believe that comparison processes critically contribute to context effects in judgment, affect, and behavior. A salient context can only influence reactions toward a target, if a relation between context and target is established (Brown, 1953). This necessity equally applies to judgments, feelings, and behaviors. In order to influence target judgments, for example, the hostility of a set of comparison others (Herr, 1986) has to be related to the target in some way. Similarly, in order to influence one's own feelings, the affective state of a target other (Neumann & Strack, 2000) somehow has to be related to the self. And, by the same token, in order to influence one's behavior, the actual (Chartrand & Bargh, 1999) or imagined (Dijksterhuis et al., 1998) behavior of others somehow has to be related to the self. Comparison processes are a primary way to establish such relations. In this respect, comparisons may be the crucial mechanism in forming the essential link between the psychological context on the one hand, and judgments, feelings, and behaviors on the other.

This possibility is further supported by a host of findings emphasizing how naturally and spontaneously comparisons arise in social information processing. Whenever information is perceived, processed, or evaluated—it seems—this information is compared to a salient context, norm, or standard. Even the mere perception of a physical object involves a comparison with a pertinent standard (Helson, 1964). The perceived size of a target circle, for example, critically depends on whether the target is surrounded by a set of large or small circles, as is evident in the classic Ebbinghaus illusion (Coren & Enns, 1993). Similarly, the perceived weight of a target object depends on whether it is presented with a set of heavy or light objects (Brown, 1953). The proclivity to engage in comparisons is so

much part and parcel of human information processing that even stimuli that are not consciously perceived because they are presented subliminally are compared to a pertinent standard (Dehaene et al., 1998). This tendency toward comparative information processing is remarkably robust. For one, comparisons are engaged even if they are not explicitly asked for. When processing information about another person, for example, people spontaneously compare this person to themselves (Dunning & Hayes, 1996). Similarly, when processing information about themselves, people spontaneously compare themselves to another person (Festinger, 1954; Mussweiler & Rüter, 2003). Recent evidence suggests that this tendency to make spontaneous comparisons when processing information about a given target goes so far that people even use comparison standards that—phenomenologically—are not even there, because they were presented subliminally (Mussweiler & Englich, 2005; Mussweiler, Rüter, & Epstude, 2004a). In addition, the leaning toward comparative processing is so robust that comparisons are even engaged with standards that—from a normative perspective—are unlikely to provide useful information about the target. In one study demonstrating this robustness (Gilbert, Giesler, & Morris, 1995), for example, participants compared their own performance in a task to a salient other, even if this person clearly constituted an inappropriate standard (Goethals & Darley, 1977) because he had received additional training in the critical ability.

Taken together, this body of evidence suggests that comparisons are naturally and spontaneously involved whenever context information is processed. Together with the above-mentioned theoretical arguments that emphasize the potential role of comparisons in assimilative and contrastive context effects, this empirical evidence suggests that comparison processes may be the driving force behind context effects on judgment, affect, and behavior. Comparisons are a primary way to relate context stimuli to the target stimulus, which is a logical necessity for context effects to occur in the first place. Furthermore, comparisons are spontaneously engaged whenever context information is processed. Given their logical necessity and spontaneous engagement, it seems natural to examine to what extent comparison processes can be used to explain assimilative and contrastive context effects in general. Comparisons can lead to assimilation as well as contrast (e.g., Brewer & Weber, 1994; Pelham & Wachsmuth, 1995), so that they may well be the psychological mechanism that produces assimilative and contrastive context effects. To understand how comparisons contribute to assimilative and contrastive context effects, one has to take a closer look at the psychological mechanisms that underlie comparisons.

COMPARISON PROCESSES: SIMILARITY AND DISSIMILARITY TESTING

More specifically, to understand how comparisons contribute to assimilation and contrast one has to examine their informational underpinnings (Mussweiler, 2001a, 2001b, 2003; Mussweiler & Strack, 2000a, 2000b). Starting from this general assumption, we have developed and tested a selective accessibility model

of comparison consequences (for an overview, see Mussweiler, 2003) that integrates basic principles of social cognition research.

The Selective Accessibility Mechanism

To make a comparison between a given target and a salient standard, judges have to obtain relevant information about target and standard. This specific knowledge is best obtained by an active search for information, which often takes the form of a hypothesis-testing process in which judges relate their stored knowledge regarding the target to the judgmental task at hand (Trope & Liberman, 1996). Such hypothesis-testing processes are often selective in that they focus on one single hypothesis that is then evaluated against a specific criterion (Sanbonmatsu, Posavac, Kardes, & Mantel, 1998; see also Klayman & Ha, 1987; Trope & Lieberman, 1996). Rather than engaging in an exhaustive comparative test of all plausible hypotheses, judges often limit themselves to the test of a single focal hypothesis. This is also likely to be the case for hypothesis-testing processes during comparison.

In the case of comparative information processing, two hypotheses can be distinguished. Judges can either test the possibility that the target is similar to the standard or they can test the possibility that the target is dissimilar from the standard. Which of these hypotheses is tested depends on the overall perceived similarity of the target and the standard. As an initial step in the selective accessibility mechanism, judges engage in a quick assessment of target and standard (Smith, Shoben, & Rips, 1974) in which they briefly consider a small number of salient features (e.g., category membership, salient characteristics) to determine whether both are generally similar or dissimilar. The outcome of this screening is a broad assessment of similarity. Although such an assessment is by itself too general to be used as the basis for target evaluation, it is sufficient to determine the specific nature of the hypothesis that is then tested. The hypothesis-testing mechanism thus focuses on the possibility that is suggested by the initial holistic assessment. If this assessment indicates that the target is generally similar to the standard, judges will engage in a process of similarity testing and test the hypothesis that the target is similar to the standard. If the initial assessment indicates that the target is dissimilar from the standard, however, judges will engage in a process of dissimilarity testing and test the hypothesis that the target is dissimilar from the standard.

The literature on hypothesis testing further suggests that once a hypothesis is selected, it is often tested by focusing on hypothesis-consistent evidence (Klayman & Ha, 1987; Snyder & Swann, 1978; Trope & Bassok, 1982; Trope & Lieberman, 1996). Applied to the case of hypothesis testing in comparative information processing, this suggests that judges selectively generate information that is consistent with the focal hypothesis of the comparison. If judges test the hypothesis that the target is similar to the standard, for example, they will do so by selectively searching for standard-consistent target knowledge—evidence indicating that the target's standing on the judgmental dimension is indeed similar to that of the standard. By the same token, if judges test the hypothesis that the target is

dissimilar from the standard, they do so by selectively searching for standard-inconsistent target knowledge—evidence indicating that the target's standing differs from that of the standard. This selectivity in the acquisition of judgment-relevant knowledge about the target has clear informational consequences. The mechanism of similarity testing selectively increases the accessibility of standard-consistent target knowledge, whereas dissimilarity testing selectively increases the accessibility of standard-inconsistent target knowledge. This selective accessibility effect constitutes the core informational consequence of comparison (see Figure 7.1).

To the extent that the target knowledge that became accessible during the comparison forms the basis for subsequent judgments, feelings, and behaviors, these psychological reactions will reflect the implications of this knowledge. If standard-consistent target knowledge forms the basis, then judgment, feelings, and behavior are assimilated toward the standard. If standard-inconsistent knowledge forms the basis, then judgment, feelings, and behavior are contrasted away from the standard.

Supporting Evidence in Judgment, Feelings, and Behavior

From this perspective, whether judges engage in the alternative comparison processes of similarity or dissimilarity testing critically determines comparison consequences. The informational focus that judges take during the comparison—whether they focus on similarities or differences—determines whether their psychological reactions are assimilated toward or contrasted away from the standard.

Direct support for the critical effect that judges' informational focus on similarities versus differences has on the direction of comparison consequences stems from a series of studies that manipulated participants' informational focus during a comparison. In the first of these studies, I directly manipulated participants'

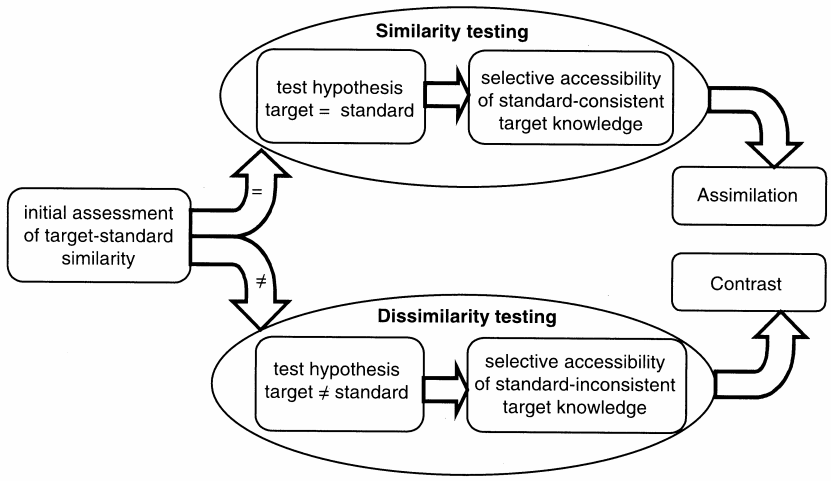
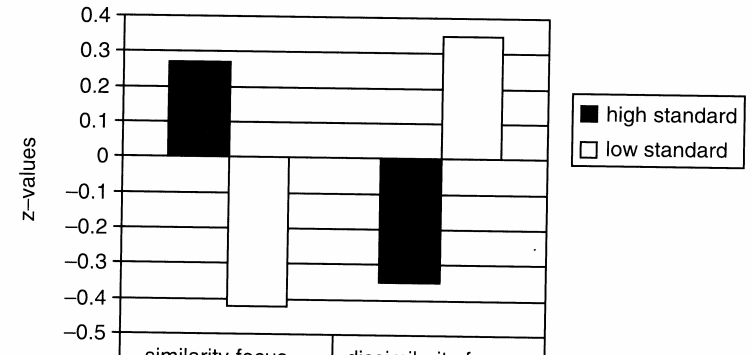


FIGURE 7.1 The selective accessibility mechanism (from Mussweiler, 2003).

informational comparison focus and examined how this manipulation influenced judgmental comparison consequences (Mussweiler, 2001a). To do so, I used a procedural priming task (for an overview, see Smith, 1994)—a task in which participants' tendency to rely on a particular processing style is strengthened by engaging them in this type of processing in a preceding unrelated task. More specifically, I induced participants to focus either on similarities or on differences, via a picture comparison task. Participants were given sketches of two scenes and were asked to either list all the similarities or all the differences they could find for the two pictures. Doing so sets participants' minds on either of these two alternative processing styles, so that they apply the same informational focus to a subsequent comparison task. Participants who focused on similarities between the two pictures also focus on similarities between target and standard in a subsequent comparison that is otherwise unrelated to the picture comparison task. In the context of this study, participants were asked to engage in a social comparison, in which they compared themselves with a social standard who was either high or low on the critical dimension of adjustment to college (Mussweiler, 2001a). Subsequent to this comparison, participants evaluated their own adjustment to college. Consistent with a selective accessibility perspective on comparison consequences, self-evaluations critically depended on whether participants were induced to focus on similarities or differences (see Figure 7.2). Judges who were primed to focus on similarities and to thus engage in similarity testing assimilated self-evaluations toward the standard. These judges evaluated their own adjustment to college to be better after a comparison with a high rather than a low standard. Judges who were primed to focus on differences and to thus engage in dissimilarity testing, on the other hand, contrasted self-evaluations away from the standard. These judges evaluated their own adjustment to college to be worse after a comparison with a high rather than a low standard.



	similarity focus	dissimilarity focus
■ high standard	0.27	−0.35
□ low standard	−0.42	0.35

FIGURE 7.2 Self-evaluations of adjustment to college after comparison with a high versus low standard by similarity versus dissimilarity focus (from Mussweiler, 2001a).

More recently, similar judgmental consequences of a focus on similarities versus differences were demonstrated for sequential performance judgments in sports (Damisch, Mussweiler, & Plessner, 2006). In this series of studies, a focus on similarities versus differences was again directly induced via the picture comparison task. Results demonstrated that judgments about the athletic performance of a target athlete are assimilated toward the performance of the preceding athlete under conditions that foster similarity testing, and contrasted away from the preceding performance under conditions that foster dissimilarity testing. These findings demonstrate that whether judgments are assimilated toward or contrasted away from a context stimulus depends on whether judges focus on similarities or differences between context and target.

Extending this initial work on judgmental comparison consequences, more recent evidence shows similar effects in the realm of affect and behavior. Epstude and Mussweiler (2006), for example, demonstrated that whether participants' affective state was assimilated toward or contrasted away from a comparison other depended on a focus on similarities versus differences, which was induced using Mussweiler's (2001a) picture comparison task. Participants who were primed on similarity testing felt better after exposure to a series of pictures of faces with an emotionally positive expression than after exposure to faces with an emotionally negative expression. This is an assimilation effect. For participants who were primed on dissimilarity testing, however, the reverse pattern occurred, which corresponds to a contrast effect. In much the same way, behavioral context effects also depend on whether participants are induced to focus on similarities or differences. Specifically, it has been demonstrated that participants who are induced to focus on similarities assimilate their behavior toward a set of context stimuli, whereas participants who are induced to focus on differences contrast their behavior away from the exact same stimuli (Haddock, Macrae, & Fleck, 2002). More specifically, judges who focused on similarities among a set of supermodels behaved unintelligently. That is, they assimilated their behavior toward the behavior that is stereotypically associated with supermodels (an assimilation effect). Judges who focused on differences between the models, however, behaved more intelligently and thus contrasted their behavior away from the context stimuli. Taken together, these findings demonstrate that how a given context influences judgment, affect, and behavior critically depends on whether judges focus on similarities or differences. This is consistent with the assumption that similarity and dissimilarity testing are crucial mechanisms that underlie assimilation and contrast effects.

Furthermore, recent evidence (Mussweiler, Rüter, & Epstude, 2004b) demonstrates that assimilative and contrastive comparison consequences are often accompanied by traces of the two alternative selective accessibility mechanisms of similarity and dissimilarity testing. In one study, for example, participants who were asked to evaluate their own athletic abilities were confronted with either moderate or extreme comparison standards of athletic ability. For example, participants were either confronted with the moderately low standard Bill Clinton or with the extremely low standard Pope John Paul. They then evaluated a number of core athletic abilities, such as the number of sit-ups they can perform and the time

they need to run 100 meters. Consistent with evidence in the social judgment literature (Herr, 1986), participants assimilated their self-evaluations to the moderate standards and contrasted them away from the extreme standards. Subsequent to these assimilative and contrastive comparisons, we assessed participants' focus on similarities versus dissimilarities. To do so, we used a picture comparison task, similar to the one I had previously applied to *induce* a focus on similarities versus differences (Mussweiler, 2001a), to *assess* these alternative informational foci. Specifically, participants were asked to compare two pictures that were unrelated to the preceding social comparison and to indicate how similar these pictures are. If assimilation is indeed produced by an informational focus on similarities and contrast results from a focus on dissimilarities, then these respective foci should carry over to the picture comparison. Participants who assimilated self-evaluations toward the moderate standards because they selectively focused on similarities to these standards should also focus on similarities between the two pictures; participants who contrasted self-evaluations away from extreme standards because they selectively focused on dissimilarities should also focus on dissimilarities between the two pictures. Consistent with these expectations, our results demonstrate that participants rated both pictures to be more similar after comparing themselves with a moderate rather than an extreme social comparison standard (see Figure 7.3). That is, judgmental assimilation was accompanied by a general informational focus on similarities, whereas judgmental contrast was accompanied by a general focus on differences.

In examining how a different moderator influences the emergence of judgmental assimilation and contrast, Stapel and Koomen (2005) provide a conceptual replication of this finding. These researchers demonstrated that judges tend to assimilate self-judgments toward a social standard if they are in a cooperative context. In a competitive context, however, judges tend to contrast self-judgments

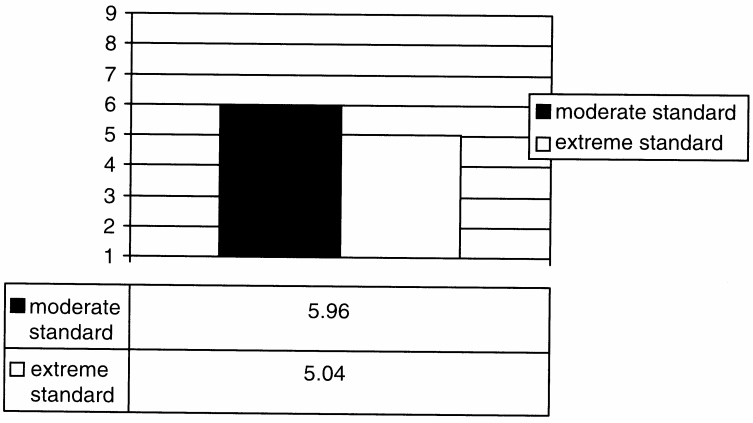


FIGURE 7.3 Similarity focus (judgments of similarity in picture comparison task) subsequent to social comparison with a moderate (assimilation) versus extreme (contrast) standard (Mussweiler et al., 2004a).

away from a social comparison standard. Using our picture comparison task (Mussweiler, 2001a; Mussweiler et al., 2004b), Stapel and Koomen demonstrate that the cooperative contexts in which assimilation occurred are accompanied by a similarity focus, whereas the competitive contexts are accompanied by a difference focus.

Taken together, these findings demonstrate that the alternative informational foci on similarities versus dissimilarities are closely associated with assimilative and contrastive context effects on judgment, affect, and behavior. Inducing participants to focus on similarities versus differences determines whether they assimilate their judgments, feelings, and behaviors toward context stimuli or whether they contrast away from the context. Vice versa, assimilating toward the context induces participants to focus on similarities, whereas contrasting away from the context induces them to focus on differences. This intimate link between assimilation versus contrast on the one hand, and similarity versus dissimilarity focus on the other, suggests that assimilative and contrastive context effects are produced by the two alternative selective accessibility mechanisms of similarity and dissimilarity testing.

This conclusion is further supported by research examining what specific target knowledge is activated in the case of assimilation versus contrast to context stimuli. From a selective accessibility perspective, assimilation versus contrast is ultimately produced by differences in the accessibility of target knowledge. Specifically, similarity testing increases the accessibility of knowledge indicating that target and standard are similar on the critical dimension. Dissimilarity testing, however, selectively increases the accessibility of knowledge, which indicates that target and standard are dissimilar on the critical dimension. Consistent with this assumption, recent evidence demonstrates that conditions that lead to assimilation versus contrast influence the accessibility of target knowledge in diverging ways. One of these studies (Mussweiler & Bodenhausen, 2002) made use of the fact that in the context of spontaneous social comparison, assimilation is more likely to occur if the self and the standard belong to the same social category, whereas dissimilarity testing is more likely if both belong to different categories. If these divergent judgmental consequences are indeed produced by the selective accessibility mechanisms of similarity and dissimilarity testing, then social comparisons with intracategorical versus extracategorcial standards should render divergent sets of standard-consistent versus standard-inconsistent self-knowledge accessible. This was indeed the case. In a variant of a lexical decision task (Dijksterhuis et al., 1998)—a task assessing the accessibility of a critical concept by examining how fast participants are in responding to words that are or are not associated with this concept—standard-consistent self-knowledge was more accessible after a spontaneous comparison with an ingroup member than after a comparison with an outgroup member.

Using standard extremity as a moderator for assimilation versus contrast, this finding was conceptually replicated by Smeesters and Mandel (2006). These researchers built on previous studies demonstrating that exposure to moderate context stimuli leads to judgmental assimilation, whereas exposure to extreme stimuli leads to contrast (Herr, 1986; Mussweiler et al., 2004a, 2004b). If these

divergent consequences are also produced by the selective accessibility mechanisms of similarity and dissimilarity testing, then exposure to moderate versus extreme standards should again render divergent sets of standard-consistent versus standard-inconsistent self-knowledge accessible. In fact, this is what Smeesters and Mandel demonstrate. Exposure to moderately thin versus heavy models renders standard-consistent self-knowledge accessible, whereas exposure to extremely thin versus heavy models renders standard-inconsistent self-knowledge accessible. For the realm of judgmental assimilation and contrast, these studies demonstrate that standard-consistent knowledge is more accessible in assimilative situations, whereas standard-inconsistent knowledge was more accessible in contrastive situations.

Similar evidence has been gathered for affective and behavioral assimilation and contrast. For example, using an emotional contagion paradigm—a paradigm in which the affective state of an observed person spontaneously transfers to the observer—Epstude and Mussweiler (2006) demonstrate that in situations that promote affective assimilation, standard-consistent self-knowledge is more accessible. In situations that promote affective contrast, however, standard-inconsistent knowledge is particularly accessible. In much the same way, situations that lead to behavioral contrast also appear to involve a selective increase in the accessibility of standard-inconsistent knowledge. For example, exposing participants to an extremely intelligent standard like Albert Einstein not only leads to behavioral contrast so that participants behave less intelligently. It also renders self-knowledge indicating low intelligence accessible (Dijksterhuis et al., 1998). In a lexical decision task that assessed the specific accessibility of self-related knowledge, judges who had been exposed to Albert Einstein responded faster to words associated with low intelligence (e.g., stupid, dumb). Thus, judgmental, affective, and behavioral assimilation versus contrast appear to be accompanied by a selective increase in the accessibility of standard-consistent versus standard-inconsistent target knowledge.

In summary, the described body of evidence is consistent with the notion that assimilation and contrast in judgment, affect, and behavior are produced by the two alternative selective accessibility mechanisms of similarity and dissimilarity testing. Inducing judges to focus on similarities leads to assimilation in judgment, affect, and behavior, whereas inducing judges to focus on differences leads to contrast. Furthermore, assimilation is accompanied by a generalized focus on similarities, whereas contrast is accompanied by a focus on differences. Finally, in situations that promote assimilation, standard-consistent target knowledge is particularly accessible, whereas in situations that promote contrast, standard-inconsistent knowledge is accessible. These findings demonstrate that assimilation is closely associated with a focus on similarities and accessibility of standard-consistent knowledge, whereas contrast is closely associated with a focus on differences and accessibility of standard-inconsistent knowledge. The selective accessibility mechanisms of similarity and dissimilarity testing may thus well be the psychological mechanisms that underlie assimilation and contrast effects in a variety of domains.

The Ubiquity of the Selective Accessibility Mechanism

Assimilation and contrast can be obtained under different conditions. One particularly salient differentiation involves the spontaneity in the use of context information. Sometimes judges are explicitly induced to use salient context information; at other times, they use this information spontaneously, without being explicitly asked to do so. Does this difference in the antecedents of context use influence the direction of the resulting effect or its underlying mechanisms? From a selective accessibility perspective, context effects result from a comparison between the target and salient context information. As a consequence, the question about potential differences between explicit and spontaneous use of context information translates into a question about potential differences between explicit and spontaneous comparisons.

On theoretical grounds there seems little reason to assume that either the underlying mechanisms or the consequences of explicit versus implicit comparisons differ. This is primarily the case because the spontaneous versus explicit comparison distinction pertains to an early processing stage in which it is determined whether context information is to be used at all. The subsequent processing stage in which context knowledge is related to the target, however, is the critical one at which the selective accessibility mechanisms of similarity and dissimilarity testing operate and that is thus ultimately responsible for assimilation and contrast. Whether a given context is explicitly provided or whether it is spontaneously used is extraneous to the subsequent process of relating the context to the standard. Whatever the source of a context, judges have to relate its features to those of the target to carry out a comparison. There is no a priori reason to believe that this comparison takes different forms depending on the source of the context. Keeping this distinction between different processing stages in mind, selective accessibility is thus likely to play a role no matter whether a context is explicitly provided or spontaneously selected.

Consistent with this reasoning the previously described empirical support for the selective accessibility mechanism actually stems from paradigms which have examined explicit as well as spontaneous comparisons. In some studies (Mussweiler & Strack, 2000a) participants were explicitly asked to compare a given target to a context standard. In other studies (e.g., Damisch et al., 2006; Mussweiler & Bodenhausen, 2002; Smeesters & Mandel, 2006) they were simply asked to judge a piece of context information before the critical target judgment without asking for or implying a comparison. In still other studies, participants were subliminally exposed to context information while forming a target judgment (Mussweiler & Englich, 2005; Mussweiler et al., 2004a). In all of these cases, the resulting effects of context information as well as the psychological mechanisms that produced them were exactly the same. No matter whether judges were explicitly asked to compare their athletic abilities to those of Bill Clinton (Mussweiler & Strack, 2000a) or whether they were subliminally presented with his name while thinking about their athletic abilities (Mussweiler et al., 2004a), they assimilated self-evaluations toward him. Similarly, no matter whether judges were explicitly asked to compare the average price of a midsize car to a numeric

standard (Mussweiler & Strack, 2000c), or whether this standard was subliminally presented while thinking about car prices (Mussweiler & Englich, 2005), the accessibility of standard-consistent knowledge was selectively increased. These findings clearly show that explicit and spontaneous comparisons typically involve the same mechanisms and lead to the same effects.

This is also demonstrated by a recent set of studies that examined assimilation and contrast as consequences of exposure to moderate versus extreme context information, as well as the psychological mechanisms that underlie these effects (Smeesters & Mandel, 2006). In these studies, participants were exposed to ads that involved models who were moderate versus extremely thin versus heavy. Participants first rated the quality of these ads on some peripheral dimensions. Then they either evaluated their own physical appearance, or worked on a task that assessed the accessibility of self-knowledge that indicates thinness versus heaviness. In this paradigm, participants were thus neither explicitly asked to use the given context information (i.e., the models) nor were they instructed to compare these models to themselves in any way. Nevertheless, the results that were obtained in this spontaneous comparison paradigm again perfectly matched onto previous findings on the judgmental consequences of explicit comparisons with moderate and extreme standards (Mussweiler et al., 2004a; Mussweiler & Strack, 2000a). Furthermore, the demonstrated selective accessibility effect in the activation of self-knowledge was also perfectly in line with selective accessibility effects that result for explicit comparisons (e.g., Mussweiler & Strack, 2000a). Taken together, these findings from a variety of different paradigms suggest that explicit and spontaneous comparisons typically involve the same psychological mechanisms and yield the same consequences.

One recent set of studies suggests that under specific conditions, however, an explicit comparison instruction may alter the nature of the comparison mechanism that would naturally occur. Specifically, it has been demonstrated that explicitly asking participants to compare themselves to a maximally extreme standard (e.g., Albert Einstein for intelligence) may induce them to focus more on similarities to this standard (Stapel & Suls, 2004). As is true for other inductions of a similarity focus (e.g., Häfner, 2004; Mussweiler, 2001a, 2001b; Mussweiler et al., 2004a), this fosters tendencies to assimilate even to extreme standards. It is important to note, however, that this possibility is not unique to explicit instructions that induce a similarity focus. Subtle influences can induce judges to focus on similarities even to extreme standards and consequently assimilate toward them in much the same way. For example, exposing participants to ads with extremely athletic models leads them to evaluate themselves as more athletic if the ad heading includes words that are associated with similarity (e.g., "same body—same feeling") so that participants are subtly induced to engage in similarity testing (Häfner, 2004).

In summary, the bulk of evidence clearly suggests that explicit and spontaneous comparisons typically involve the same psychological mechanisms and lead to the same effects. Depending on whether a focus on similarities or differences is induced, explicit and spontaneous comparisons can both lead to assimilation or contrast. Thus, it does not appear to matter whether judges are explicitly

asked to consider a specific context or whether they do so spontaneously. The resulting context effects are typically the same. Furthermore, in both situations, these context effects appear to be produced by the two alternative selective accessibility mechanisms of similarity and dissimilarity testing.

RELATION TO OTHER MODELS OF ASSIMILATION AND CONTRAST

On a general level, the selective accessibility framework is related to alternative social cognition perspectives on assimilation and contrast effects in a number of ways. This is the case, because in keeping with its sibling models, the selective accessibility model takes an informational perspective on assimilation and contrast. To understand how a given context influences judgments, feelings, and behavior, these models assume one has to examine the informational underpinnings of these psychological reactions. Such an informational approach is derived from the basic tenets of social cognition research (Higgins, 1996; Wyer & Srull, 1989).

In examining the relation between these different perspectives on assimilation and contrast, it is important to keep in mind a basic distinction between different processing stages that these different models primarily focus on. The selective accessibility mechanism focuses on the process of generating target knowledge in the light of and in comparison to accessible context knowledge. Other social cognition models of assimilation and contrast effects, on the other hand, focus on the use of accessible context knowledge in the process of forming a target evaluation. Whereas the selective accessibility framework is primarily concerned with mechanisms of knowledge activation, alternative social cognition models are primarily concerned with knowledge use. Clearly, to some extent both processing stages will work in tandem. Once a particular set of target knowledge has become accessible via the selective accessibility mechanism, the basic principles that underlie the effects of accessible knowledge (e.g., applicability; Higgins, Rholes, & Jones, 1977) also operate on this accessible knowledge.

This focus on different processing stages may stem from a primary interest in different types of knowledge. Whereas the selective accessibility model deals with knowledge that pertains directly to the target itself, alternative models have mostly focused on the use of context knowledge that does not directly pertain to the target itself. Although such context knowledge (e.g., knowledge about a comparison other) may be relevant for evaluations of the critical target (e.g., the self), it does not directly pertain to this target. Our research demonstrates that the primary determinant of assimilation and contrast effects is the specific target knowledge (e.g., self-related knowledge) that is generated in comparison to accessible context knowledge (e.g., a social comparison standard) rather than this context knowledge itself. This is, for example, apparent in the fact that in the context of comparative evaluation, judgmental consequences of exposure to a salient standard do not generalize to judgmental targets to which context knowledge would be applicable but which were not directly involved in the comparison process. For example,

comparing oneself to a given performance standard only influences judgments about one's own ability, not the ability of another person (Mussweiler & Strack, 2000c). Notably, this is the case although the given context knowledge is equally applicable to the self and the other judgmental target. Furthermore, it has been demonstrated that it is the changes in the accessibility of specific target knowledge rather than more generally applicable knowledge that correspond most closely to assimilative and contrastive context effects on judgment, affect, and behavior (e.g., Dijksterhuis et al., 1998; Epstude & Mussweiler, 2006; Mussweiler & Bodenhausen, 2002; Mussweiler & Strack, 2000a; Smeesters & Mandel, 2006). These findings suggest that the changes in the accessibility of target knowledge which are conceptualized in the selective accessibility mechanism may be the primary determinant of assimilative and contrastive context effects.

To amplify these distinctions, I will discuss similarities and differences between the selective accessibility model and the major social cognition perspectives on assimilation and contrast. In doing so, I will follow the differentiation between categorization models (e.g., Herr, 1986; Schwarz & Bless, 1992), processing stage models (e.g., Philippot, Schwarz, Carrera, de Vries, & van Yperen, 1991; Stapel, Koomen, & van der Pligt, 1997), and correction models (e.g., Martin, 1986; Strack, 1992; Wegener & Petty, 1997) of assimilation and contrast effects that was proposed by Ford and Thompson (2000).

Categorization Models

The basic tenet of categorization models of assimilation and contrast (e.g., Herr, 1986; Schwarz & Bless, 1992) is that the way in which accessible context knowledge influences target evaluations critically depends on how this knowledge is categorized relative to the target. In their inclusion/exclusion model, for example, Schwarz and Bless (1992) propose that target evaluations are assimilated toward accessible knowledge if this knowledge is included in the target category. If accessible knowledge is excluded from the target category, however, contrast is likely to result. As is true for other fundamental processes of forming a target evaluation on the basis of accessible knowledge, the inclusion/exclusion mechanism can in principle also operate on the target knowledge that was rendered accessible via the selective accessibility processes of similarity and dissimilarity testing. Because this knowledge pertains directly to the judgmental target itself, however, it will typically be included in the judgment-relevant target representation. Exclusion is thus rarely likely to play a role for selective accessibility. As a consequence, target evaluations will typically be consistent with the implications of the target knowledge that was rendered accessible via the selective accessibility mechanism.

On a more general level, the basic assumption that the judgmental effects of accessible context knowledge principally depend on how this knowledge is categorized is also of central importance for an understanding of the selective accessibility mechanisms of similarity and dissimilarity testing. Similarity testing is more likely to occur if the target and the standard are ascribed to the same category, whereas dissimilarity testing is more likely to be engaged if they belong

to different categories. The mechanisms that are responsible for the development of assimilation in knowledge use thus appear to have similar effects on knowledge activation. Many of the factors that have been found to determine whether context information will be included or excluded in the target category, such as feature overlap (Herr, Sherman, & Fazio, 1983) and category width (for a detailed discussion, see Schwarz & Bless, 1992), are thus also likely to influence whether judges engage in similarity or dissimilarity testing. At the same time, similarity/dissimilarity testing and inclusion/exclusion are clearly distinct processes because both are concerned with different processing stages (knowledge activation vs. use) and focus on different types of knowledge (specific target knowledge vs. general context knowledge).

Correction Models

The basic assumption of correction models (e.g., Martin, 1986; Strack, 1992; Wilson & Brekke, 1994; Wegener & Petty, 1997) is that how accessible knowledge influences target judgments depends on whether judges perceive this knowledge as biasing their judgment and whether they attempt to correct for this bias. If accessible knowledge is not seen as a biasing or contaminating factor, it will be used as a basis for the judgment so that evaluations are consistent with the implications of this knowledge. If, however, judges perceive their judgments to be contaminated by accessible knowledge, they will attempt to counteract this influence by either trying to ignore this knowledge ("resetting"; Martin, 1986) or by adjusting their evaluation in a way that compensates for the perceived bias (Strack, 1992; Wegener & Petty, 1997). In this case, target judgments will typically be inconsistent with the implications of accessible knowledge or go in the direction opposite to the perceived bias. Such correction mechanisms play a minor role in selective accessibility mechanisms. Because the critical knowledge that is rendered accessible via the selective accessibility mechanism directly pertains to the target itself and was self-generated by the judges, it is unlikely to be seen as contaminated (Mussweiler & Neumann, 2000; Mussweiler & Strack, 1999). As a result, judges will typically not engage in corrective attempts, so that judgments, feelings, and behaviors are by default consistent with the implications of accessible knowledge.

Processing Stage Models

Processing stage models, as a third perspective on assimilative and contrastive effects of accessible knowledge (e.g., Philippot et al., 1991; Stapel & Koomen, 2001; Stapel et al., 1997) assume that whether target evaluations are assimilated toward or contrasted away from accessible context knowledge depends on the processing stage at which this knowledge exerts an influence. If accessible knowledge is used to interpret target information in the encoding stage, then assimilation will result. If accessible knowledge is used as a reference point in the judgment stage (a process labeled "comparison"), however, then contrast is more likely to occur. From this perspective, the net judgmental effect that accessible knowledge has on target evaluations depends on whether conditions that promote or hinder

the interpretation and reference point mechanisms are in place. For accessible knowledge to have an assimilative effect on the interpretation of target information, for example, this information has to be ambiguous. Unambiguous target information requires no interpretation, so that the mechanism that leads to assimilation is incapacitated (Stapel et al., 1997). For accessible knowledge to be used as a reference point, on the other hand, it has to be distinct (Brown, 1953; Helson, 1964) and relevant for target evaluation (Stapel et al., 1997). Assimilation is thus most likely to be the net effect of accessible knowledge if the target information is ambiguous and accessible knowledge is indistinct and irrelevant. Contrast, on the other hand, is most likely to result if target information is unambiguous and accessible knowledge is distinct and relevant.

The contrastive reference point mechanism that operates at the judgment stage also plays a crucial role in determining the judgmental effects of selective accessibility by determining the net judgmental outcome on subjective judgment scales (Mussweiler & Strack, 2000a; see Mussweiler, 2003, for a more detailed discussion). The assimilative interpretation mechanism, on the other hand, is quite distinct from the selective accessibility mechanism. For one, it specifies the process of applying accessible context knowledge to given target knowledge rather than processes of searching and activating novel target knowledge. Furthermore, the interpretation mechanism is assumed to have solely assimilative effects, whereas selective accessibility can produce assimilation or contrast, depending on whether similarity or dissimilarity testing are engaged. Finally, target ambiguity plays less of a role in the selective accessibility mechanism. Although an ambiguous target may allow for more flexibility in the hypothesis-testing mechanism of selective accessibility, similarity and dissimilarity testing can also be engaged for unambiguous targets. In principle, however, the interpretation mechanism could well operate in addition to mechanisms of selective accessibility. Just as the interpretation of given target knowledge is influenced by accessible context knowledge, this may also be the case for the interpretation of the target knowledge that was generated through a selective accessibility mechanism. To the extent that some of the knowledge participants seek and activate is ambiguous, accessible context knowledge may well unfold its interpretive effects. As is apparent from this discussion, the selective accessibility mechanism is both distinct from and related to alternative models of assimilation and contrast.

ASSIMILATION AND CONTRAST AS COMPARISON EFFECTS

In the present chapter, I have proposed that comparison processes critically contribute to assimilation and contrast effects in judgment, affect, and behavior. Abundant evidence demonstrates that comparisons are spontaneously engaged whenever people process information. In fact, comparisons appear to occur so naturally that they are even engaged with standards that are clearly irrelevant (Gilbert et al., 1995; Tversky & Kahneman, 1974) or—at least phenomenologically—not even there (Mussweiler et al., 2004a). Given this apparently inescapable leaning

toward comparative information processing, it seems natural to assume that the context information that produces assimilation and contrast is spontaneously used for comparison. From this perspective, comparison processes are at the core of assimilative as well as contrastive context effects.

The assumption that comparisons may be responsible for assimilative as well as contrastive context effects is somewhat in conflict with previous accounts of the direction of comparison effects. Oftentimes, it is assumed that comparison leads to contrast (e.g., Schwarz & Bless, 1992; Stapel et al., 1997). In fact, the terms comparison and contrast are often used interchangeably. The present perspective, however, suggests that comparisons may lead to assimilation as well as contrast. The evidence I have presented clearly demonstrates that a comparison does not inevitably lead to either of these directionally opposing effects. Whether a comparison leads to assimilation or contrast depends on which type of comparison process is engaged. Similarity testing leads to assimilation, whereas dissimilarity testing leads to contrast. As a consequence, any factor that induces judges to focus on similarities between target and context information fosters assimilative context effects. By the same token, any factor that induces judges to focus on differences fosters contrast. Thus, a broader perspective on comparison processes seems to be in place. Comparison consequences appear to be more variable than is often assumed.

Notably, this is the case for explicit as well as spontaneous comparisons. It has been claimed that "implicit comparisons typically lead to contrast, whereas explicit comparisons may lead to assimilation or contrast" (Stapel & Suls, 2004, p. 873). Clearly, this assumption is inconsistent with abundant evidence demonstrating that, just as explicit comparisons, spontaneous (i.e., implicit) comparisons can lead to assimilation as well as contrast (e.g., Mussweiler & Bodenhausen, 2002; Mussweiler et al., 2004a, 2004b; Smeesters & Mandel, 2006; Wilson, Houston, Etling, & Brekke, 1996). No matter whether judges are explicitly asked to compare a target to salient context information, or whether they use this information spontaneously, can comparisons lead to assimilation and contrast? In fact, recent research clearly shows that the same factors that lead to assimilation and contrast in explicit comparisons determine the direction of spontaneous comparison effects in an identical way (e.g., Mussweiler et al., 2004a; Smeesters & Mandel, 2006). Whether a comparison leads to assimilation or contrast thus depends on the type of comparison process that is engaged (i.e., similarity or dissimilarity testing), not on whether the comparison is explicitly asked for or spontaneously evoked.

The fact that comparisons can lead to assimilation as well as contrast emphasizes that, in order to truly understand the nature of context effects in judgment, affect, and behavior, one has to distinguish between the resulting effect and the psychological process that produced it. "Comparison contrast" is just as likely to occur as "comparison assimilation." Keeping this in mind allows for the examination of the role that comparison processes play in both types of context effects. Such a comparison perspective on assimilation and contrast not only provides for a parsimonious account of context effects in judgment, affect, and behavior; it also builds on one of the fundamental properties of the human psyche, namely the essential relativity of social information processing.

ACKNOWLEDGMENTS

Our research described in this chapter was supported by a grant from the German Research Foundation (DFG). We would like to thank the members of the Würzburg Social Cognition Group for stimulating discussions of this work.

REFERENCES

Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology, 71*, 230–244.

Brewer, M. B., & Weber, J. G. (1994). Self-evaluation effects of interpersonal versus intergroup social comparison. *Journal of Personality and Social Psychology, 66*, 268–275.

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

Chartrand, T. L., & Bargh, J. A. (1999). The Chameleon effect: The perception–behavior link and social interaction. *Journal of Personality and Social Psychology, 76*, 893–910.

Coren, S., & Enns, J. T. (1993). Size contrast as a function of conceptual similarity between test and inducers. *Perception and Psychophysics, 54*, 579–588.

Damisch, L., Mussweiler, T., & Plessner, H. (2006). Olympic medals as fruits of comparison? Assimilation and contrast in sequential performance judgments. *Journal of Experimental Psychology: Applied, 12*, 166–178.

Dehaene, S., Naccache, L., Le Clec'H, G., Koechlin, E., Mueller, M., Dehaene-Lambertz, G., et al. (1998, October 8). Imaging unconscious semantic priming. *Nature, 395*, 597–600.

Dijksterhuis, A., Spears, R., Postmes, T., Stapel, D. A., Koomen, W., van Knippenberg, A., & Scheepers, D. (1998). Seeing one thing and doing another: Contrast effects in automatic behavior. *Journal of Personality and Social Psychology, 75*, 862–871.

Dunning, D., & Hayes, A. F. (1996). Evidence of egocentric comparison in social judgment. *Journal of Personality and Social Psychology, 71*, 213–229.

Englis, B. G., Vaughan, K. B., & Lanzetta (1981). Conditioning a counter-empathetical emotional response. *Journal of Experimental Social Psychology, 18*, 375–391.

Epstude, K., & Mussweiler, T. (2006). What you get is what you see? Comparisons influence the social induction of affect. *Manuscript submitted for publication*.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117–140.

Ford, T. E., & Thompson, E. P. (2000). Preconscious and postconscious processes underlying construct accessibility effects: An extended search model. *Personality and Social Psychology Review, 4*, 317–336.

Gilbert, D. T., Giesler, R. B., & Morris, K. A. (1995). When comparisons arise. *Journal of Personality and Social Psychology, 69*, 227–236.

Goethals, G. R., & Darley, J. M. (1977). Social comparison theory: An attributional approach. In J. M. Suls & R. L. Miller (Eds.), *Social comparison processes: Theoretical and empirical perspectives* (pp. 259–278). Washington, DC: Hemisphere.

Haddock, G., Macrae, C. N., & Fleck, S. (2002). Syrian science and smart supermodels: On the when and how of perception-behavior effects. *Social Cognition, 20*, 469–479.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1992). *Emotional contagion*. New York: Cambridge University Press.

Häfner, M. (2004). How dissimilar others may still resemble the self: Assimilation and contrast after social comparison. *Journal of Consumer Psychology, 14*, 187–196.

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

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

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

Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 133–168). New York: Guilford Press.

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

Klayman, J., & Ha, Y.-W. (1987). Confirmation, disconfirmation, and information in hypotheses testing. *Psychological Review, 94*, 211–228.

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

Morse, S., & Gergen, K. J. (1970). Social comparison, self-consistency, and the concept of self. *Journal of Personality and Social Psychology, 16*(1), 148–156.

Mussweiler, T. (2001a). "Seek and ye shall find": Antecedents of assimilation and contrast in social comparison. *European Journal of Social Psychology, 31*, 499–509.

Mussweiler, T. (2001b). Focus of comparison as a determinant of assimilation versus contrast in social comparison. *Personality and Social Psychology Bulletin, 27*, 38–47.

Mussweiler, T. (2003). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review, 110*, 472–489.

Mussweiler, T., & Bodenhausen, G. (2002). I know you are but what am I? Self-evaluative consequences of judging ingroup and outgroup members. *Journal of Personality and Social Psychology, 82*, 19–32.

Mussweiler, T., & Englich, B. (2005). Subliminal anchoring: Judgmental consequences and underlying mechanisms. *Organizational Behavior and Human Decision Processes, 98*, 133–143.

Mussweiler, T., & Neumann, R. (2000). Sources of mental contamination: Comparing the effects of self-generated versus externally-provided primes. *Journal of Experimental Social Psychology, 36*, 194–206.

Mussweiler, T., & Rüter, K. (2003). What friends are for! The use of routine standards in social comparison. *Journal of Personality and Social Psychology, 85*, 467–481.

Mussweiler, T., Rüter, K., & Epstude, K. (2004a). The man who wasn't there: Subliminal social comparison standards influence self-evaluation. *Journal of Experimental Social Psychology, 40*, 689–696.

Mussweiler, T., Rüter, K., & Epstude, K. (2004b). The ups and downs of social comparison: Mechanisms of assimilation and contrast. *Journal of Personality and Social Psychology, 87*, 832–844.

Mussweiler, T., & Strack, F. (1999). Hypothesis-consistent testing and semantic priming in the anchoring paradigm: A selective accessibility model. *Journal of Experimental Social Psychology, 35*, 136–164.

Mussweiler, T., & Strack, F. (2000a). The "relative self": Informational and judgmental

consequences of comparative self-evaluation. *Journal of Personality and Social Psychology*, *79*, 23–38.

Mussweiler, T., & Strack, F. (2000b). Consequences of social comparison: Selective accessibility, assimilation, and contrast. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 253–270). New York: Plenum.

Mussweiler, T., & Strack, F. (2000c). The use of category and exemplar knowledge in the solution of anchoring tasks. *Journal of Personality and Social Psychology*, *78*, 1038–1052.

Neumann, R., & Strack, F. (2000). "Mood contagion": The automatic transfer of mood between persons. *Journal of Personality and Social Psychology*, *79*, 211–223.

Pelham, B. W., & Wachsmuth, J. O. (1995). The waxing and waning of the social self: Assimilation and contrast in social comparison. *Journal of Personality and Social Psychology*, *69*(5), 825–838.

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

Sanbonmatsu, D. M., Posavac, S. S., Kardes, F. R., & Mantel, S. P. (1998). Selective hypothesis testing. *Psychonomic Bulletin and Review*, *5*, 197–220.

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

Smeesters, D., & Mandel, N. (2006). Positive and negative media effects on the self. *Journal of Consumer Research*, *32*, 576–582.

Smith, E. E., Shoben, E. J., & Rips, L. J. (1974). Structure and process in semantic memory: A featural model for semantic decisions. *Psychological Review*, *81*, 214–241.

Smith, E. R. (1994). Procedural knowledge and processing strategies in social cognition. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (2nd ed., Vol. 1, pp. 99–152). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Snyder, M., & Swann, W. B. (1978). Hypothesis-testing processes in social interaction. *Journal of Personality and Social Psychology*, *36*, 1202–1212.

Stapel, D., & Koomen, W. (2001). Let's not forget the past when we go to the future: On our knowledge of knowledge accessibility effects. In G. Moswoitz (Ed.), *Cognitive social psychology: The Princeton symposium on the legacy and future of social cognition* (pp. 229–246). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Stapel, D., & Koomen, W. (2005). Competition, cooperation and the effects of others on me. *Journal of Personality and Social Psychology*, *88*, 1029–1038.

Stapel, D., Koomen, W., & van der Pligt, J. (1997). Categories of category accessibility: The impact of trait versus exemplar priming on person judgments. *Journal of Experimental Social Psychology*, *33*, 44–76.

Stapel, D., & Suls, J. (2004). Method matters: Effects of explicit versus implicit social comparisons on activation, behaviour and self-views. *Journal of Personality and Social Psychology*, *87*, 860–875.

Strack, F. (1992). The different routes to social judgments: Experiential versus informational strategies. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgment* (pp. 249–275). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Suls, J., Martin, R., &. Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect? *Current Directions in Psychological Science*, *11*, 159–163.

Trope, Y., & Bassok, M. (1982). Confirmatory and diagnostic strategies in social information gathering. *Journal of Personality and Social Psychology*, *43*, 22–34.

Trope, Y., & Liberman, A. (1996). Social hypothesis testing: Cognitive and motivational factors. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 239–270). New York: Guilford Press.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185*, 1124–1130.

Wegener, D. T., & Petty, R. E. (1997). The flexible correction model: The role of naive theories of bias in bias correction. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 141–208). San Diego, CA: Academic Press.

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

Wilson, T. D., Houston, C., Etling, K. M., & Brekke, N. (1996). A new look at anchoring effects: Basic anchoring and its antecedents. *Journal of Experimental Psychology: General, 4*, 387–402.

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