

14

Let's Not Forget the Past When We Go to the Future: On Our Knowledge of Knowledge Accessibility

Diederik A. Stapel

University of Groningen

Willem Koomen

University of Amsterdam

Modern social psychology has witnessed several transformations of its subject matter. The past decades have witnessed the waxing and waning of research on cognitive dissonance and consistency theories (1950s and 1960s), and attribution research (1960s and 1970s). The latest – and perhaps most productive – transformation of social psychology's object of inquiry announced itself with the advent of the social cognition movement in the late 1970s. Philosophers of science, such as Kuhn, Lakatos, and Latour, have emphasized the ways in which scientific theories and practices are bounded by the social context in which they have been developed. Every so often, each field of science redefines and recategorizes its topics of inquiry. What is hot now was not so hot then. An advantage of the existence of fads and fashions in scientific inquiry is that each new trend stimulates a host of new research directions and methodologies. A potential disadvantage is that scientific trends define themselves not only by suggesting that some questions ("How do people process unexpected information?") are more interesting than others ("How do people learn social norms and values?"), but also by implying that certain empirical findings are more interesting than others.

One of the aims of this chapter is to demonstrate that, at present in the domain of knowledge accessibility research, a bias may be detected. Knowledge accessibility research investigates when, how, and in what direction activated mental representations may affect memory and judgment (see Higgins, 1996; Sedikides & Skowronski, 1991). Within the current social cognition movement, knowledge accessibility research has been preoccupied primarily with understanding the impact of accessible knowledge on categorization and interpretation processes. Investigations of the effects of activated knowledge on other psychological processes, such as response generation and judgment construction, are relatively rare. Therefore, generalizations that are based on social-cognitive knowledge accessibility research are often overgeneralizations. More specifically, results from

experiments designed to test the impact of a particular type of accessible information (i.e., traits) on a particular type of cognitive process (i.e., interpretation) guide theories about the impact of accessible information on impression formation in general (e.g., Sedikides & Skowronski, 1991).

Following both Gigerenzer's (1991) argument that scientists' tools and methods often shape their theories and Griffin and Ross' (1991) concept of "egocentric construal processes," we argue that researchers examining knowledge accessibility effects are not aware of the restrictions in their research designs and seem to be unable to make appropriate allowances for the possibility that other research perspectives may come to different conclusions than they do. In this chapter, we hope to show how different theoretical perspectives come to dramatically different conclusions by confronting the social cognition approach to knowledge accessibility effects with investigations of context effects in psychophysical, comparative, and social judgment.

KNOWLEDGE ACCESSIBILITY

A recurring theme in social psychology research is that a primary determinant of how people understand and evaluate new stimuli is their past knowledge (Sedikides & Skowronski, 1991). People understand the world by relating what they are currently experiencing to the knowledge they have previously accumulated. However, not all previous experiences or stored knowledge will affect the impression formation process to the same extent. Research on knowledge accessibility suggests that an important determinant of whether knowledge is used in the understanding and evaluation of social stimuli is the relative accessibility of that knowledge. How one understands and evaluates the world is, at least in part, a function of the kind of knowledge that is accessible during the impression formation process. Of course,

accessibility per se is not sufficient. Accessible knowledge guides our impressions only when that knowledge is applicable to the stimulus information: Ruminations about Chinese food are unlikely to affect our assessment of our brother's newborn daughter. Given the applicability of multiple cognitive structures, however, the cognitive structure that is most accessible is most likely to act as an escort to interpretation and evaluation. When we have just finished reading Melville's *Moby Dick* and ruminations about dangerous and enigmatic huge sea mammals are foremost on our minds, we are more likely to identify "a speck on the horizon" (see Bruner, 1957a, p. 41) as a whale rather than a ship or drilling platform. What we see is often directly related to what is on the top of our minds. The same target stimulus can be associated with different responses depending on what kind of knowledge is cognitively activated during the impression formation process.

Knowledge accessibility research has excelled in demonstrating that all sorts of cognitive structures may exert an influence on all components of the impression formation process. Thus, knowledge accessibility may determine which stimuli are given attention, how those stimuli are encoded, the way in which they are stored in and retrieved from memory, and how they are evaluated and judged. Furthermore, accessible cognitive structures such as trait concepts (adventurous, friendly) social categories (professors, introverts), scripts (going to a restaurant, getting a Ph.D.), procedures (solving problems, considering alternatives), goals (I want to become rich), specific event memories (an accident in Chicago, a trip through the southwest), specific person exemplars (Richard Nixon, Marilyn Monroe), specific object exemplars (a tennis ball, an apple), expectancies (Gordon is a nice guy), attitudes (I like Ike), stereotypes (women are from Venus, men are from Mars), and actual (I am achievement oriented) and desired (If only I could be like Serena) self-states may all be applied when forming an impression or constructing a judgment of a target stimulus. In other words, *accessibility* is an important theoretical construct in many of social psychology's subdomains (for reviews, see Eiser, 1990; Higgins, 1989c; 1996; Schwarz & Bless, 1992a; Sedikides & Skowronski, 1991; Stapel, 1997; Strack, 1992a; Wyer & Srull, 1989). But what role do these accessible knowledge structures play in the perception of our social worlds? Do they act as rose-colored glasses, such that everything is painted in the same color and is given the same meaning as the accessible cognitive structures? Or are they typically used as an anchor, as a frame of reference to which everything else is compared? What is the direction of knowledge accessibility effects? When does knowledge

accessibility result in assimilation (impressions shift toward the activated knowledge)? When does it yield contrast (impressions shift away from the activated knowledge)?

When one examines the relevant literature in an attempt to answer these questions, one answer presents itself: It depends on the kind of literature one looks at. Different literatures give different explanations for the occurrence of assimilation and contrast. Depending on the theoretical meta-perspective from which one looks at the impact of accessible knowledge on impression formation processes, either assimilation or contrast is portrayed as the typical or standard effect.

In today's social psychology, research that focuses on the ways on which cognitive structures such as stereotypes and expectancies affect the construal, evaluation, and recall of social stimuli constitutes the dominant perspective (see Griffin & Ross, 1991). However, besides this dominant perspective, there exists a more classic and therefore relatively dormant perspective in social psychology that focuses not on the *interpretative* but on the *comparative* processes that may be instigated by cognitively activated information. These two perspectives come to different conclusions when it concerns the direction of knowledge accessibility effects. Specifically, investigations of knowledge accessibility effects that take an information-processing perspective, and thus tend to emphasize the ways in which accessible knowledge affects the categorization or encoding of social stimuli, often conclude that assimilation is the most typical knowledge accessibility effect. Conversely, investigations that are rooted in studies of psychophysics and comparative judgment, and thus are especially interested in the ways in which accessible knowledge affects the representation of the comparison standards that are used in the construction of social judgment, tend to portray contrast as the most natural context effect.

In the following pages we discuss the dominant (social cognition) and dormant (social judgment) approaches to the study of knowledge accessibility effects in more detail. We tell a tale of two histories. In doing so, we hope to come to an understanding of why social cognition researchers often conclude that the standard knowledge accessibility effect is assimilation, whereas social judgment researchers often concur that the most natural effect of contextually activated information is contrast.

THE DOMINANT HISTORY: CATEGORY ACCESSIBILITY

When one attempts to put a theoretical construct in a

historical context, every point of departure is arbitrary. However, we cannot be accused of recklessness when we write that the dominant approach to the study of knowledge accessibility effects probably received its major impetus from Bruner's (1957b) article "On Perceptual Readiness." In this article, Bruner took up Bartlett's (1932) notion that one of the fundamental processes of perception is the connection of stimulus information with some stored category. Bruner proposed that the readiness with which a person classifies information in terms of a particular category is an indicator of the accessibility of that category. Thus, Bruner introduced a novel notion with which one could describe the role of expectancies and motivations on perception – the notion of *category accessibility*. Bruner defined *accessibility* as the ease or speed with which a given stimulus input is coded in terms of a given category under varying conditions. The greater the accessibility of stored categorical knowledge, the more likely it would be used to categorize stimulus information even when the stimulus information was impoverished or distantly related. As accessibility of the stored category increased, stimulus information would be more easily and swiftly recognized as a member of the category.

As Higgins (1989c) wrote in his review of knowledge accessibility effects, a significant implication of Bruner's notion of accessibility is that the likelihood that people will apply a certain category when interpreting a stimulus is not a function solely of the match between features of the target stimulus and the activated category. Instead, other factors, such as expectancies, needs, motivations, or attitudes, can increase the likelihood that a particular category rather than an alternative will be applied during the interpretation process. Once a particular category is applied, features missing in the target stimulus that are part of the accessible category are filled in.

An early demonstration of how category accessibility affects the ways in which people go beyond the information given appears in an experiment by Bruner, Busiek, and Minturn (1952). These investigators were interested in how the perception of objects in a particular category tends to be distorted toward (assimilated) the most typical object in that class. They designed an experiment to demonstrate how accessible category labels affect perception. In that experiment, they presented participants line-drawn figures in brief flashes on a projection screen. Some participants were told before each figure was shown that the drawing was of a particular object ("I am going to show you a figure resembling a pine tree"). Other participants were instructed that the drawing resembled "either a pine tree or a trowel." Still others

were given no specific instructions. In every case, the participants were asked to reproduce the figure. The result was a clear tendency to assimilate the figure to the typical instance suggested by the category label that was activated in the instructions. Bruner, Postman, and Rodrigues (1951) showed how this same kind of assimilation tends to operate in the perception of color. When respondents were asked to adjust a color wheel to match an ambiguously colored object that was shaped like and presented as a *tomato*, the match had much more red in it than if the object were objectively colored in the same ambiguous hue, but its shape and label activated the category *lemon*.

Although Bruner introduced the term *category accessibility* in the late 1950s, in social psychology the use of this construct as a psychological variable did not bear fruit until the 1970s. Not surprisingly, this resurgence of the concept of accessibility coincided with the coming of the social cognition movement. Bruner's description of accessibility effects has an undeniable cognitive flavor: Accessible constructs are readily used in the processing (e.g., encoding, storage, retrieval) of information. Thus, in the mid-1970s, several studies demonstrated that, once a target stimulus is encoded, interpreted as an instance of a particular category, the implications of this encoding become relatively accessible and are therefore more likely to be used as a basis for subsequent judgments about the target than the original information. For example, Ross, Lepper, and Hubbard (1975) found that, once a person has constructed an explanation of an event involving himself or another person, this construction, rather than the information that has stimulated it, is used to predict the likelihood of future events. Similarly, Carlston (1980) showed that, once a judgment of a stimulus person has been made on the basis of all kinds of information, this judgment is subsequently used as a basis for later inferences about the person independent of the information on which the judgment was originally based. The findings of both the Carlston and Ross et al. studies suggest that the most accessible cognitions about an object or event (i.e., those that have been acquired and used most recently) have a major influence on future judgments. Or as Srull and Wyer (1979) wrote: "When individuals are asked to judge themselves or another person, they are unlikely to perform an exhaustive search of memory for all cognitions that have implications for this judgment. Rather, they are likely to base their judgment on some subset of these cognitions that is most readily accessible" (p. 1660). The most straightforward evidence for this claim came from studies employing what could be called the *unrelated-task paradigm*. In these studies, it was demon-

strated that simply activating a construct in one task was capable of increasing the accessibility of the construct sufficiently to give it precedence when participants categorized the behavior of a target person in a subsequent, ostensibly unrelated task. One article can be considered seminal in its use of the unrelated task paradigm.

Higgins, Rholes, and Jones (1977) invited participants to participate in two tasks. Participants were first required to perform a "perception" task that involved exposure to a number of different trait concepts as part of a Stroop task. In one condition, participants were exposed to synonyms of the trait *adventurous*, whereas other participants were exposed to synonyms of the trait *reckless*. In an ostensibly unrelated subsequent study on "reading comprehension," participants were given an ambiguous behavioral description of a stimulus person (Donald) that could be interpreted as either adventurous or reckless. It was found that participants who had had prior exposure to the *adventurous* concept perceived the stimulus person as more adventurous, whereas participants who had had prior exposure to the *reckless* concept perceived the stimulus person as more reckless. Similar effects were found in a subsequent and well-cited paper by Srull and Wyer (1979). These investigators also performed the unrelated-task paradigm to demonstrate that the surreptitious activation of trait concepts (hostile, friendly) may guide the interpretation of an ambiguous stimulus (friendly/hostile Donald) and induce assimilation.

The assimilation effects reported in the Higgins et al. and Srull and Wyer studies have been replicated in many subsequent studies in which person judgments are preceded by trait priming (see Higgins, 1989c, 1996). However, the general hypothesis that accessible knowledge may guide interpretation processes has also been corroborated using knowledge other than trait concepts (see Higgins, 1996; Sedikides & Skowronski, 1991). Next, we give some prominent examples of such findings in a discussion of assimilative interpretation effects of accessible stereotypes, attitudes, moods, and emotions.

Stereotypes

Stereotyping is the use of beliefs about a social group (stereotypes) in judgments of this group or its members. The traditional and predominant view, implicit if not explicit, in stereotyping research is that stereotypes lead to stereotyping. That is, stereotypes color the meaning of behavior such that the denotation and connotation of an accessible stereotype serve as a helmsman in the impression formation process. Hence, one of the most robust

findings (Kunda & Thagard, 1996, p. 294) in the literature on stereotyping and social categorization is that judgments of individual group members tend to be assimilated toward the implications of the group (or the category mean) on dimensions relevant to the stereotype. For example, Sagar and Schofield (1980) showed that a shove was viewed as more violent when performed by an African American.

Banaji, Hardin, and Rothman (1993) found that judgments of an ambiguous person description may be assimilated toward the implications of an accessible stereotype given that the target person is a member of the stereotyped group. Accessible stereotype-relevant knowledge is used in the interpretation of stimuli only if the social category of the target matches the activated stereotype. Thus, although the trait *dependent* is applicable to the interpretation of an ambiguously dependent target person, cognitive accessibility of this trait only affects judgments of ambiguously dependent women but not men because dependence is stereotypical of women and not of men. Likewise, priming information about aggression affects judgments of ambiguously aggressive men but not of ambiguously aggressive women because aggression is stereotypical of men (Banaji et al., 1993).

Several investigations of the impact of activated stereotypes on person judgment have provided evidence suggesting that assimilation effects are most likely to occur when perceivers can use activated stereotypes in interpreting the target stimuli (see von Hippel, Sekaquaptewa, & Vargas, 1995). That is, stereotypes are most likely to exert an assimilative influence on target evaluations when they are activated prior to participants' encoding information about target behaviors (Park & Hastie, 1987). For example, a Hispanic defendant is more likely to be judged as guilty of a crime when his ethnicity is identified before the case evidence is received. If evidence is presented prior to information about the defendant's ethnicity, no assimilation effects are obtained (Bodenhausen, 1988).

Attitudes

A number of studies have suggested that accessible attitudes may have similar interpretation effects as accessible stereotypes (see Eagly & Chaiken, 1993; Fazio, 1986). For example, in a classic study by Hastorf and Cantril (1954), Princeton and Dartmouth fans viewed the same film of a hard-fought struggle between their respective teams. Despite the constancy of the objective stimulus, the opposing partisans' interpretations of what happened suggested two very different games. The Princeton fans' interpretations suggested a continuing

saga of Dartmouth atrocities, whereas the Dartmouth fans' interpretations suggested a hard-hitting contest in which both sides contributed equally to the violence. Accessible attitudes guide selective perception so one continues to see attitude objects in a manner congruent with one's attitude.

A famous study by Lord, Ross, and Lepper (1979) also showed how the interpretation of complex social stimuli is often assimilated toward people's (chronically accessible) attitudes. The authors recruited both proponents and opponents of capital punishment and asked them to read a mixed package of evidence about the deterrent effect of the death penalty. As predicted, both sides took comfort from the evidence in support of their own position and had no problem seeing the flaws in the evidence for the opposing view. In the end, both sides came away with their views on capital punishment strengthened and further polarized. Houston and Fazio (1989) showed that this biased interpretation phenomenon occurs primarily (and perhaps exclusively) for people whose attitudes are highly accessible (see also Fazio, 1986; Fazio & Williams, 1986).

Mood and Emotion

The relation between mood and judgments is also often understood in terms of accessibility effects on the interpretation of social stimuli as caused by the spreading activation from the activated construct (mood). The general idea is that moods may influence categorization by increasing access to similarly toned social categories (a positive mood activates positive categories; see Forgas & Bower, 1987) or by directly providing perceivers with information concerning their feelings toward the target stimulus ("When I feel good in the presence of this target, this means I like the target"; see Schwarz & Clore, 1996). Thus, when participants encounter a target stimulus that can be categorized in either positive or negative terms, their mood leads to categorization of the target in terms of the mood congruent category (see Forgas, 1995; Schwarz & Clore, 1996). In the domain of person perception, several studies have demonstrated that moods may guide the interpretation of ambiguous behavioral information. Forgas and Bower (1987) showed that participants who were in a positive mood tended to see more positive than negative behaviors in a person perception task, whereas the opposite was true for participants in a negative mood. Similarly, Martin (1986) showed that subtle exposure to mood-inducing statements such as "I feel good" versus "I feel bad" led to assimilation effects in ostensibly unrelated judgments of an ambiguous person description (see also Stapel &

Koomen, 2000).

Similar to the assimilation effects of general mood states, there is evidence that the interpretation of our social world may also be affected by the specific emotions we feel during impression formation. The possibility that emotions influence how we encode complex social stimuli is suggested by everyday experiences that we see people with whom we are in love as more attractive than people whom we hate, that the same dark alley looks more ominous when we are afraid than when we are not, and that foods that are usually appealing look unappetizing when we feel disgust. In a series of lexical decision studies, Niedenthal, Halberstadt, and Setterlund (1997) induced participants to feel happiness or sadness and then exposed them to a series of letter strings, some of which were words and some of which were not. The word lists used in the experiments included words related to happiness (e.g., *delight*), sadness (e.g., *gloom*), anger (e.g., *rage*), and love (e.g., *passion*), as well as neutral control words. The findings revealed assimilation effects. That is, happy participants were quicker in recognizing happy words, whereas sad participants were quicker in recognizing sad words. Patterns of facilitation for anger and love words did not vary by emotional state of the participant. In other words, the facilitation effects were emotion-specific and not due to the general induction of positive versus negative affect. Niedenthal et al. (1997) explained these findings in terms of emotions increasing the accessibility of constructs that have been associated with these emotions. When an individual experiences an emotion, information that is associated with the emotion is more likely to come to mind and influence subsequent information processing. When we are happy, constructs related to experiences of happiness will become activated, and therefore ambiguous or impoverished stimuli are more readily interpreted in terms that are congruent with these accessible constructs (see Forgas, 1995; Niedenthal et al., 1997; Schwarz & Clore, 1996).

IS ASSIMILATION THE DEFAULT?

As our review of investigations of the impact of accessible trait concepts, stereotypes, moods, emotions, and attitudes on categorization and interpretation processes shows, the social cognition approach to the study of social-psychological phenomena has documented abundant evidence for the notion that accessible knowledge is likely to result in assimilation effects. Reviews of the impact of expectancies (Neuberg, 1996), motivations, and goals (Gollwitzer & Moskowitz, 1996) on the interpretation of social stimuli have come to a similar conclusion. Accessible knowledge guides the interpreta-

tion of the social world and therefore assimilation is likely to ensue in social judgments.

The abundance of assimilation effects in studies of knowledge accessibility effects has led some authors to conclude that assimilation is the "basic effect of recent and frequent activation" (Higgins, 1989c, p. 78) and one of the more "fundamental" findings of modern social psychology (Sedikides & Skowronski, 1991, p. 170). Several researchers have argued that assimilation is the natural knowledge accessibility effect. Accessible knowledge is more likely to lead to assimilation than contrast in subsequent judgments (see Higgins, 1996; Martin, 1986; Martin, Seta, & Crelia, 1990; Schwarz & Bless, 1992a; Sedikides & Skowronski, 1991). For example, Schwarz and Bless (1992a) wrote that "information that appears as potentially relevant to the task may result in assimilation or in contrast effects, depending on whether it is included in, or excluded from, the temporary representation that the individual forms of the target category. We assume that the *default* operation is to include the apparently relevant information" (p. 239; italics added). Similarly, Martin, et al. (1990) contended that assimilation is the most natural effect because the processes underlying it involve only a few cognitive steps: "contrast involves more cognitive steps than does assimilation" (p. 29). And indeed, several studies have convincingly demonstrated that assimilation effects seem to be more easily obtained than contrast effects when participants are distracted, low in need for cognition, or unaware of the impact of the activated information (see Higgins, 1996; Martin et al., 1990). However, it should be noted again that most of the studies demonstrating that assimilation effects require less cognitive resources than contrast effects have looked at the impact of accessible knowledge from a predominantly cognitive perspective.

As Mervis and Rosch (1981) argued, one of the basic tenets of the cognitive or information processing perspective in modern psychology is the belief that categorization is one of the most fundamental aspects of cognition. As an offspring of cognitive psychology, social cognition research has emphasized the question how social knowledge may affect social categorization processes. It has been shown convincingly how different kinds of accessible cognitive structures (e.g., traits, attitudes, stereotypes) may guide the interpretation of target information. As Carlston and Smith (1996) argued, given that the encoding or interpretation of a stimulus involves the integration of that material with existing knowledge, it makes sense that these processes will tend to be influenced by the particular subset of cognitions that is most accessible. Logically, the influence of information that is used to fill in features missing in the

target stimulus is assimilative. Hence, one may argue, a cognitive approach to the study of knowledge accessibility effects is likely to find interpretative assimilation effects.

We believe that, because of the success of the social cognition movement in general and category accessibility research in particular, studies that have looked at the impact of accessible knowledge on processes other than categorization and interpretation have been largely neglected in theorizing about the consequences of knowledge accessibility for social judgment. Influence of accessible knowledge on interpretation processes that take place in the encoding stage of the impression formation process has thus been generalized to statements about knowledge accessibility effects in general. Studies that demonstrate the context-bound and comparative nature of social judgment and focus on the impact of contextually activated information in the judgment stage of the impression formation process are seldom cited in reviews of knowledge accessibility effects (e.g., Higgins, 1989c, 1996; Sedikides & Skowronski, 1991; Wyer & Srull, 1989), rarely integrated with findings concerning interpretation effects (e.g., Herr, 1986; Philippot, Schwarz, Carrera, De Vries, & Van Yperen, 1991), and thus relatively dormant in the dominant social cognition paradigm.

THE DORMANT HISTORY: COMPARISON EFFECTS

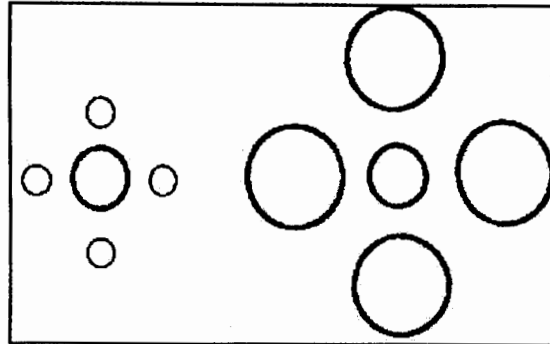
As everyday experience teaches us, there is no one-to-one relationship between people's objective circumstances and, for example, their levels of happiness and unhappiness. Of course, there are some kinds of events that we could expect would make almost anybody happy or upset, but we can all think of people who remain cheerful in the face of hardship and others who seem miserable despite no lack of both mental and material comfort. As demonstrated earlier, research on category accessibility effects suggests that when the same event makes one person happy and another unhappy, these persons may be categorizing the event differently. Social judgment research takes another approach and proposes that such judgmental differences may be the result of people *comparing* the target stimulus against different standards. Social judgment research focuses on the comparative nature of judgment. As Eiser (1990, p. 10) wrote in his review of the social judgment literature, "all judgments are comparative." That is, there is no judgment when there is no (implicit or explicit) comparison. Our feelings and evaluations are experienced and made contextually, and thus they are determined by their

relationships to other affects and judgments. To say that the Sears Tower is tall, heartbreak is horrible, and Einstein is intelligent is to say that other buildings are less tall, other feelings are less horrible, and other people are less intelligent. The comparative nature of judgment implies that the context in which a stimulus is embedded may provide a frame of reference when constructing a judgment of this stimulus. Thus, chronically or contextually activated information may not only serve as an interpretation frame, but also as a comparison standard during impression formation.

The first studies of how the context in which a stimulus is evaluated may act as a comparison standard in judgments of that stimulus were performed by researchers interested in psychophysical phenomena. Consider, for example, a task requiring participants to identify the intensity of a number of auditory tones that vary in their degree of loudness. Whether a tone is classified as *very loud* depends, among other things, on the other tones being judged in the experimental session. In the context of several relatively loud tones, a medium range tone is judged as louder than it would be in the context of several relatively quiet tones. This type of contextual influence is termed *comparison contrast* because judgments are contrasted away from the values in the surrounding context to which the target can be compared (Long, 1937). Beebe-Center (1929) demonstrated similar contrast effects in judgments of the pleasantness of visual stimuli. Participants rated particular colors as more pleasant if they were preceded by unpleasant colors than if they were preceded by more pleasant ones. Research on perceptual illusions has also convincingly shown that the context in which stimuli are presented may lead to comparison contrast effects in people's judgments. The perceptual illusion that is usually taken as the prototypical example of a perceptual contrast effect is the Ebbinghaus illusion (see Fig. 14.1). In the Ebbinghaus illusion, a central object that is seen in a context of surrounding larger objects appears to be smaller than a same-size central object that is perceived in a context of surrounding smaller objects (Coren & Enns, 1993).

Contemporary explanations of these and other contrast effects are based on the same notions that underlie Helson's (1964) adaptation level theory (see Coren & Enns, 1993; Eiser, 1990). This theory, and its many elaborations, make the assumption that the sensory magnitude of any stimulus is judged in a relative way, using the magnitude of the surrounding context stimuli as a comparison standard. People experience the pleasantness, size, weight, or color of a target as relative to the contextually activated information because they see the

Fig. 14.1. The Ebbinghaus illusion.



target in comparison with this information. Contextually activated information thus affects the representation of the reference points we use in constructing our judgments.

Comparison contrast effects have also been found for judgments of psychosocial stimuli. Most notably, perhaps, Sherif and Hovland (1953) applied principles of psychophysical and comparative judgment to the domain of attitudes. They assumed that, similar to the impact of context on target stimuli, people's *prior* attitudes may distort their perceptions of other people's attitudinal positions. In general terms, their theory assumes that a recipient's own attitudinal position serves as a judgmental standard or anchor that influences where along an evaluative continuum a communicator's advocated position is perceived to lie. Thus, people's attitudes can be treated as chronically accessible knowledge that is used as a reference point in the evaluation of social events. The "main prediction" (Eiser, 1990, p. 61) of the Sherif and Hovland model is that, for judges who have strong attitudes, their attitude is likely to act as an extreme comparison standard with which relevant information can be contrasted. Moderate or neutral attitudinal positions thus tend to be contrasted away from a judge's own attitude. A prominent example of this mechanism is given by a study of Vallone, Ross, and Lepper (1985). These investigators presented pro-Israeli and pro-Arab student partisans (as well as some neutral students) with excerpts from television news coverage of the "Beirut massacre" of 1984. Whereas the neutral students rated the broadcast summaries as being relatively unbiased, the partisans' ratings showed contrast away from the judges' (extreme) attitudes. Pro-Arab and pro-Israeli viewers alike were convinced that the other side had been favored by the media, that their own side had been treated unfairly, and that these biases in reporting had reflected the self-interests and ideologies of those responsible for

the program. Comparable effects have been found for criminal judgments (Pepitone & DiNubile, 1976), judgments of affect (Manis, 1967), emotional expressions (Tanaka-Matsumi, Attivissimo, Nelson, & D'Urso, 1995), and the physical attractiveness of others (Kenrick & Gutierrez, 1980).

The use of context information as a judgment anchor has also been demonstrated quite often in the domain of social comparison research, which investigates the relation between self- and other-judgments (Festinger, 1954a). A number of experiments have shown that people's self-perceptions are often contrasted against the surrounding context. When self-judgments are made in the context of others who perform much better than we do, our self-evaluations are likely to drop, whereas when such judgments are made in the context of others who perform worse, self-evaluations are probably augmented (see Brown, Novick, Lord, & Richards, 1992; Gilbert, Giesler, & Morris, 1995). This type of comparison contrast is illustrated by a well-known study of Morse and Gergen (1970). These investigators led participants to believe that they were interviewing for a position as a research assistant. Participants were asked to wait for the alleged interview in the company of another applicant – a confederate. In the "Mister Clean" condition, the confederate was impeccably well mannered and professional in all respects; in the "Mister Dirty" condition, the confederate was disheveled and slovenly. Compared with earlier appraisals of the self, the self-esteem of participants waiting with the undesirable confederate rose; the reverse was true for those who waited with the desirable confederate (see Suls & Wills, 1991; Wood, 1989).

Although there is a tendency in social cognition research to assume that assimilation is the basic effect in all types of accessibility-driven judgments, students of comparative judgment have argued that contrast is the most natural effect of contextually activated information. For example, Herr, Sherman, and Fazio (1983) wrote that "the predominant context effect in the social judgment literature is the contrast effect. It has often been noted that the judgment of a given target stimulus is inversely related to the values of the stimuli that accompany it" (p. 325). Similarly, Eiser (1990) argued that "the most predictable effect" of context stimuli on target judgments "is an effect known as contrast" (p. 11), and Brown et al. (1992) concurred that "it is well-established that judgments are influenced by the frame of reference that surrounding stimuli provide (Helson, 1964). The usual finding is a contrast effect: The judgment of a target stimulus is displaced away from the judgment of an anchor" (p. 717).

One way to remedy this paradox is to point at the

metatheoretical interests of the two approaches. Social cognition research is primarily concerned with issues of categorization and interpretation, whereas the social comparison/judgment approach primarily focuses on the context-bound and comparative nature of all sorts of social judgments. However, the observation that theoretical perspectives may create different empirical phenomena is not helpful when one is in search of a practical, psychological theory of assimilation and contrast effects – which we are. Thus again, we need to ask the inevitable question we posed before: When does knowledge accessibility result in assimilation? When does it yield contrast? Next we discuss how the dominant and dormant approach to knowledge accessibility effects have typically dealt with these questions.

APPROPRIATENESS AND EXTREMITY

Scientific reality is a little more complex than our tale of two histories may have suggested. Although the findings of experiments performed within the interpretative social cognition and the comparative social judgment paradigms have been taken to mean that accessible knowledge most typically results in assimilation and contrast, respectively, sometimes it is found that opposite effects occur. That is, both assimilation and contrast have been reported in both the social cognition and social judgment literatures. How have these "unnatural" (Srull, 1991) effects been accounted for? Typically in social cognition research an appropriateness and in social judgment research an extremity explanation is given.

Appropriateness

As Srull (1991) noted, within the social cognition paradigm "the standard interpretation" for the occurrence of contrast effects is that priming manipulations "become too salient, participants become aware of their possible biasing effects and they strategically attempt to counteract them" (p. 205). In accordance with this argument, several researchers began to consider the role of the perceived *appropriateness* of accessible information in the direction of knowledge accessibility effects (e.g., Bargh, 1992; Schwarz & Bless, 1992a; Strack, 1992a). Sometimes people are aware that a reliance on accessible information is inappropriate and that this may create a bias in their judgment. If people detect a bias, they are likely to instigate correction-for-bias processes to shift their judgments in a reverse direction. Thus, contrast effects can occur as a result of correcting for an expected assimilative effect (see Petty & Wegener, 1993; Wegener & Petty, 1995).

To examine the impact of appropriateness on knowledge accessibility effects, Martin (1986) examined what happens when trait concepts are primed blatantly rather than subtly. To increase the likelihood that the participants would associate trait activation with the priming task, the priming method blatantly activated the trait concepts. The participants were given a series of phrases and were asked to decide which of two personality traits they exemplified. They also indicated their choice by placing the number of the phrase under a column headed by the trait they selected. In the positive priming condition, *boldness* and *self-assurance* were primed. In the negative priming condition, *foolhardiness* and *egotism* were primed. Following this priming task, participants read ambiguous target person behaviors that were relevant to the activated trait concepts (see Higgins et al., 1977) and gave their impressions of the target person by rating him on scales bounded by the primed traits (e.g., reckless-adventurous). Martin (1986) found with this blatant priming task that participants rated the target person more positively in the negative conditions and more negatively in the positive conditions – a contrast effect.

Lombardi, Higgins, and Bargh (1987) found a similar awareness effect. They first exposed participants to a trait priming task and then asked them to form an impression of an ambiguous target person. Participants were divided into two groups; those who did and those who did not remember the primed constructs (measured through a free recall measure taken after the categorization task). A strong assimilation effect of priming was found among those participants who did not remember any of the primed constructs. However, a contrast effect was found among those participants who did remember one or more of the primed trait concepts. Using a slightly different paradigm, Newman and Uleman (1990) also found a contrast effect when the participants recalled blatantly primed trait concepts, whereas assimilation occurred when these concepts were activated more subtly and therefore not easily recalled. In a more direct test of the effect of memory for accessible knowledge on subsequent judgments, Moskowitz and Roman (1992) gave participants with either positive or negative trait-implicating sentences (e.g., "He knew he could handle most problems that would come up" [confident] versus "He knew he was the best and didn't hesitate to tell people about it" [conceited]) the instruction to either memorize these sentences or form an impression of the actor, reasoning that participants instructed to memorize these sentences would spontaneously infer the relevant traits (e.g., confident vs. conceited) outside of awareness, whereas those instructed to form impressions would

consciously infer these traits. After having been exposed to the trait-implicating sentences, all participants were asked to judge an ambiguous (confident/conceited) target description on relevant rating scales. Assimilation was found under memorization conditions and contrast was found under contrast conditions, thus supporting the hypothesis that consciously inferring trait primes is more likely to result in contrast than when such primes are inferred nonconsciously. Strack, Schwarz, Bless, Kübler, and Wänke (1993) reported similar results. These authors primed participants with either helpful or dishonest. Following a distractor task, the participants were or were not assigned to a reminding condition in which they were asked to remember information related to the primed words. All participants then were asked to judge a target person whose behavior could be interpreted as either helpful or dishonest. An assimilation effect of priming was found for the participants who were not reminded of the priming events prior to their target judgments. A contrast effect was found, however, for the participants who were reminded of the priming events (see Stapel, Koomen, & Zeelenberg, 1998).

In summary, as Higgins (1989c) wrote in his review of social cognition studies of knowledge accessibility effects, "results of these studies suggest that the basic effect of recent and frequent activation – assimilation of subsequent input to the more accessible construct – is more likely to occur if perceivers are not conscious of the priming events when processing subsequent input than if they are conscious" (p. 78-79). Experimental conditions that increase the likelihood of awareness of the priming events "are more likely to produce a contrast effect on judgment than an assimilation effect. ...And conversely, experimental conditions that increase the likelihood that participants' consciousness of a priming event will be suppressed ...increase the likelihood that an assimilation effect will be produced (e.g., Martin, 1986)" (p. 78-79).

Extremity

In classic studies of psychophysics and social judgment, the factor most frequently considered in the explanation of context (or knowledge accessibility) effects is the perceived extremity or distributional norm of activated information. Extreme context information is more likely to be used as an anchor with which a target stimulus is contrasted than moderate context information. As Hogarth and Einhorn (1992, p. 14) put it, "The bigger the anchor, the harder it will fall." As an illustration of the principle that stimuli close to an anchor tend to be assimilated, whereas those farther away tend to be contrasted, Sherif, Taub, and Hovland (1958) obtained

judgments, on a scale from 1 to 6, of a series of lifted weights ranging from 55 g to 141 g. The main manipulation consisted of the presentation of a standard anchor stimulus on alternate trials. The weight of this anchor ranged, depending on the condition, from 141 g to 347 g. Sherif et al. found that the heavier anchors produced contrast effects. However, with the 141 g anchor, the remaining stimuli were judged as heavier than in the no-anchor control condition – an assimilation effect.

The extremity of accessible knowledge as a moderator of assimilation and contrast effects also plays an important role in Sherif and Hovland's (1961) theory of attitudinal judgment. One of the key assertions of that theory is the assumption that attitude statements (e.g., "I like Ike") can be ordered along an evaluative continuum. Specifically, the location of people's preferred attitude position determines how they judge attitude statements. When a single statement or position advocated in a message is relatively close to the judge's attitude, assimilation occurs – the statement or position is seen as relatively close to the judge's own attitude anchor. When an attitude statement advocates a position that is relatively discrepant to a person's attitude, contrast occurs – the statement or position is perceived to be farther from the person's own attitude. Discrepancy is then overestimated, and the magnitude of this overestimation grows larger as discrepancy or extremity increases.

Herr (1986) imported these principles of psychophysical and attitudinal judgment to the domain of person perception and also demonstrated that when contextually activated information is extreme, contrast is more likely to follow, whereas assimilation is relatively likely to occur when activated information is moderate. Herr found that an ambiguous target person (friendly/hostile Donald) was judged as *hostile* when extremely friendly exemplars (e.g., Ghandi) were primed – a contrast effect. When context information was moderately extreme, assimilation was more likely: Donald was judged as relatively friendly when moderately friendly exemplars (e.g., Robin Hood) were primed. To explain these results, Herr suggested that target stimuli are more likely to be classified as belonging to the same category as primed exemplars when these exemplars are moderate. In this case, exemplar-target discrepancies are underestimated. Stimuli are less readily identified as members of the primed category when exemplars are extreme. When exemplars are different from the target, exemplar-target discrepancies are likely to be overestimated (see Herr et al., 1983; Kahneman & Miller, 1986; Manis, Nelson, & Shedler, 1988; Parducci & Wedell, 1990; Sherif & Hovland, 1961).

A study by Manis, et al. (1988) demonstrated the

importance of extremity in a study of laboratory-induced stereotypes. In that study, respondents were presented with vocabulary definitions that had presumably been obtained from the patients at two hospitals, Central Hospital and Metropolitan Hospital. They were to read each definition and indicate whether the patient who had produced it was schizophrenic. Extreme stereotypes were established by presenting the most disturbing definitions (e.g., "cushion: to sleep on a pillow of God's sheep") as deriving from one hospital, whereas the nonpathological definitions (e.g., "cushion: a device for comfort") were said to come from the other hospital. Moderate stereotypes were established by replacing some of the extreme definitions with midscale definitions. After this priming procedure, respondents judged a series of midscale pairs. One definition in each target pair was said to come from a patient at Metropolitan Hospital, the other from a patient at Central Hospital. The results reveal that moderate stereotypes led to assimilation; that is, target definitions that seemed to emanate from the more disturbed hospital population were regarded as more pathological than definitions that came from the less pathological hospital population. However, stereotypes that were extreme yielded contrast effects.

Problems for Appropriateness and Extremity Explanations

Both the social cognition and social judgment approaches to knowledge accessibility effects cannot account for all types of assimilation and contrast effects. On the one hand, the finding that the same priming stimuli (e.g., trait concepts such as *friendly* or *hostile*) may result in assimilation or contrast depending on the awareness or perceived appropriateness of these stimuli is difficult to explain in terms of differences in the extremity of the priming stimuli (Martin, 1986). On the other hand, findings of studies that show that whether assimilation or contrast occurs is a function of the extremity of contextually activated information, independent of whether this information is presented subtly (e.g., Herr, 1986) or blatantly (e.g., Manis et al., 1988), are difficult to reconcile with explanations in terms of the perceived appropriateness of the activated information for the task at hand.

However, some have argued that the impact of extremity on the direction of knowledge accessibility effects may be couched in appropriateness terms when one assumes that more extreme stimuli are more memorable (e.g., Carlston & Smith, 1996; Higgins, 1989c, 1996; Schwarz & Bless, 1992a; Strack, 1992a). As Higgins (1989c) noted when discussing Herr's (1986)

finding that clear contrast effect occurs when priming extreme rather than moderate person exemplars, "Because of the greater novelty and distinctiveness of the more extreme primes, it is more likely they would be better remembered, and thus remain in consciousness, up until the point of judgment than the moderate primes" (p. 114). Evidence that comparison contrast effects may also be affected using subliminally presented priming stimuli seems to make such redesignations of extremity effects into appropriateness effects less appropriate.

This evidence was provided by Bevan and Pritchard (1963), who demonstrated subliminal contrast effects in a sound perception task using a subliminal anchoring tone positioned below individual thresholds of sound detection. That is, participants judged the stimulus sounds to be louder when first presented with a non-audably soft anchor. This tendency toward contrast was only observed for stimulus values farthest away from the subliminal anchor. When the distance between the subliminal anchor and the stimulus series was decreased, assimilation effects were observed. These results are in correspondence more with an extremity rather than with an appropriateness account because, for the latter explanation, awareness of the prime stimulus is a prerequisite for the occurrence of contrast (see also Goldstone, Goldfarb, Strong, & Russell, 1962). Another set of findings that cannot be plausibly explained by corrective processes following awareness of accessible knowledge is reported in a recent article by Winkielman and Schwarz (1996), who subliminally primed participants with extreme exemplar information (e.g., names of big [e.g., "elephant"] vs. small [e.g., "ant"] animals) and found contrast effects when moderate exemplars (e.g., names of moderately sized animals) had to be judged.

Summary and Conclusion

In conclusion, our discussion of both social judgment and social cognition explanations of assimilation and contrast effects has taught us the following concerning the impact of accessible knowledge on judgment: Social judgment research, with its focus on the context-bound and comparative nature of social judgments, has primarily demonstrated that accessible knowledge may be used as a comparison standard when people are constructing their judgments. When sufficiently extreme, this standard typically yields a *comparison contrast* effect. Thus, when one has just watched a documentary about Albert Einstein before one is asked to judge the IQ of a student, this student will be judged relatively less intelligent because Einstein constitutes an extreme scale anchor. Assimilation is thought to occur when accessible knowledge is not

sufficiently extreme.

Social cognition research, on the other hand, with its focus on information processing and categorization strategies, has primarily shown how accessible information may guide the categorization and interpretation of target information, and thus yields interpretation assimilation effects. In this research tradition, contrast effects have typically been explained with reference to awareness of the potential biasing influence of recently activated information. Such "awareness of the influence" (Strack et al., 1993, p. 53) may render the use of the accessible information inappropriate and thus prompt respondents to correct their judgments in a direction opposite to the sensed influence, resulting in *correction contrast* effects.

In summary, previous research suggests that one may – at least – distinguish the following kinds of knowledge accessibility effects: interpretation assimilation (resulting from the use of accessible information as an interpretation frame), comparison assimilation (resulting from the use of accessible information as a moderate comparison standard), comparison contrast (resulting from the use of accessible information as an extreme comparison standard), and correction contrast (resulting from the feeling that accessible information may contaminate judgment). Because these different knowledge accessibility effects have largely been studied in two separate subdomains of social psychology research (i.e., social cognition and social judgment research), it is still quite unclear what features of a judgmental setting determine which of these effects is most likely to occur. Next we discuss a recently developed interpretation/comparison model of knowledge accessibility effects that tries to explain assimilation and contrast by integrating social cognition and social judgment paradigms.

INTEGRATING INTERPRETATION AND COMPARISON EFFECTS: THE INTERPRETATION/COMPARISON MODEL

Stapel, Koomen, and Van der Pligt (1996, 1997; see also Stapel et al., 1998; Stapel & Spears, 1996a, 1996b) were intrigued by the seemingly contradictory effects of accessible knowledge on person judgments. Whereas in social cognition research, the subtle priming of trait categories (e.g., *hostile* vs. *friendly*) typically led to assimilation in judgments of an ambiguous, friendly/hostile target person (e.g., Srull & Wyer, 1979), social judgment research found that the activation of person exemplars of these categories (e.g., Adolph Hitler vs. Shirley Temple) led to contrast in judgments of the exact same ambiguous stimuli (e.g., Herr, 1986). Why would

trait concept priming be more likely to result in assimilation, whereas person exemplar priming would be most likely to yield contrast effects?

Stapel, Koomen, and Van der Pligt (1996, 1997) argued that these priming techniques differ in the kind of information they activate and therefore in the role they play in impression formation. More specifically, based on the theoretical focus guiding social cognition versus social judgment research (interpretation vs. comparison), they postulated that, whereas primed trait concepts (e.g., *hostility*) are more likely to serve to interpret an ambiguous person description in the encoding stage of the impression formation process, primed person exemplars – if sufficiently extreme (e.g., Hitler) – are predominantly used as a comparison standard against which the evaluation of target persons is contrasted in the judgment stage. Thus, the distinction between the *interpretative* social cognition and *comparative* social judgment approach to the study of knowledge accessibility effects was linked to the judgmental consequences of two types of knowledge accessibility – trait concept priming and person exemplar priming. But *why* are accessible trait concepts less likely to be used as a comparison standard in person judgments than person exemplars? What determines whether accessible information is used as an interpretation frame (and results in assimilation) or as a comparison standard (and results in contrast)?

Interpretation Relevance and Target Ambiguity

The answer to the first part of the latter question is relatively straightforward. Obviously accessible information is only a guide to interpretation when there is something to be interpreted – that is, when the target stimulus is ambiguous rather than unambiguous (see Koomen, Stapel, Jansen, & In 't Veld, 1998; Stapel & Koomen, 1997; Stapel et al., 1997). Furthermore, to exert assimilative interpretation effects, information not only has to be cognitively accessible, but also applicable to interpretation of the target (Higgins, 1989c, 1996). Thus, when one is trying to form an impression of behavior that can be interpreted as persistent or stubborn (e.g., "She never changes her mind"), the accessibility of inapplicable constructs (e.g., *adventurous* vs. *reckless*) exerts no effect, whereas the accessibility of applicable constructs (*persistent* vs. *stubborn*) may yield assimilative interpretation effects (see Higgins et al., 1977; Srull & Wyer, 1979). Hence, important determinants of whether accessible information is likely to yield assimilative interpretation effects are the extent to which the information has interpretation relevance and the extent to which the target stimulus is ambiguous (see further Higgins, 1989c,

1996). However, as Herr's (1986) exemplar priming study illustrates, not all kinds of accessible information that are relevant to the interpretation of an ambiguous stimulus result in assimilative interpretation effects. When judgment of an ambiguous, friendly/hostile person is preceded by the priming of hostile person exemplars (e.g., Hitler), the activated information leads to contrast effects, although it possesses interpretation relevance. Thus, the question arises what features determine whether contextually activated information will spark comparison processes.

Distinctness and Comparison Relevance

Brown (1953) and Helson (1964) noted that stimuli that do not provide judges with information perceived as distinctive and relevant are not used as subjective standards for purposes of comparison.

Distinctness. The distinctness part of this notion suggests that when abstract trait concepts such as *lust*, *hostility*, or *beauty* are primed, they are perceived as less distinct than when specific prototypes and/or cultural icons that exemplify these categories are activated (e.g., Marilyn Monroe, Adolph Hitler, Cindy Crawford). A specific, prototypical exemplar or a concrete icon, such as a famous person, constitutes a distinct and separate entity with relatively clear object boundaries and is therefore more likely to be used as a comparison standard. An abstract trait concept or attribute with no clear object boundaries lacks the distinctness to be used as a comparison standard (see Wyer & Srull, 1989, p. 134). When abstract attributes such as trait concepts are relevant to interpretation of the target, however, they may exert their influence during encoding. Or, as Murphy and Zajonc (1993, p. 736) put it, such "diffuse" information "can 'spill over' onto unrelated stimuli."

Empirical evidence for the notion that whether assimilation or contrast occurs is dependent on the degree of distinctness of the activated information is provided by Martin and Seta (1983). These investigators asked participants to form impressions of two stimulus persons. Some participants were asked to read about both stimulus persons and then evaluate each, whereas others were asked to read about and evaluate one person and then read about and evaluate the other. Martin and Seta found that when participants formed their impressions simultaneously, the impression of the second person was assimilated toward that of the first. Thus, an assimilation effect occurred when the impression formation process of the first person was "unitized" with that of the second person, such that it served as an indistinct interpretation frame when an impression of that person was formed.

When participants formed their impressions sequentially, however, the impression of the second person was contrasted with that of the first. In other words, when the impression of the first person formed a distinct entity, it served as a comparison standard when judging the second person. Judgment order is thus one important way in which the distinctness of accessible information can be manipulated (see Stapel & Spears, 1996a; Stapel & Winkielman, 1997). As social cognition research has shown, when an object is explicitly evaluated or judged, associated attribute information is clearly connected and confined to this object (see Parducci & Wedell, 1990; Wyer & Srull, 1989). Explicitly evaluating an object renders its mental representation concrete and distinct rather than abstract and indistinct. As Parducci has noted in several reviews of the relevant literature, contextual stimuli are most likely to become objects of comparison when they are explicitly judged (e.g., Parducci & Wedell, 1990).

Comparison Relevance. The notion that context information is more likely to be used as a comparison standard when it has comparison relevance suggests that, when the task is to judge a target person, trait concepts may be perceived as not similar to the target category and therefore they will not be used as relevant comparison standards. Person exemplars, on the other hand, do belong to the same category as the target and can therefore be used as relevant anchors in person judgments. Objects that belong to the same category more readily invite comparison processes than objects that belong to dissimilar categories (see Brown, 1953; Manis, Biernat, & Nelson, 1991; Suls & Wills, 1991).

A classic demonstration of the effects of comparison relevance is provided by Brown (1953). Brown had participants rate a series of lifted weights, first singly and then with an anchor stimulus interpolated after every four stimulus weights. Brown manipulated the weight of this anchor stimulus. The crucial manipulation, however, was that for half of the participants the anchor stimulus was indistinguishable visually from the other stimuli presented, whereas for the remaining participants the anchor stimulus in fact consisted of the tray on which the stimulus weights had been passed to the participants by the experimenter. The dependent variable was the strength of the contrast effect produced by the different anchors. As predicted, Brown found the greatest contrast effect when participants were presented with an anchor similar to the other stimuli they had to judge. When participants had to lift a tray and judge it on the same scale as the other stimuli, the size of the effect diminished significantly. Brown (1953, p. 210) therefore concluded: "The anchor, to be effective, must be perceived as a member of the

same class of objects as the other weights."

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

Evidence for the Interpretation/Comparison Model

Several studies provide evidence for the previous claims. For example, Stapel, Koomen, and Van der Pligt (1997) asked respondents to form an impression of an ambiguous target stimulus, friendly/hostile Donald. Before they were exposed to the description of Donald, respondents were primed with names of animal exemplars or person exemplars. Half of the participants were primed with names of either extremely hostile or friendly persons (Dracula, Hitler vs. Ghandi, Mandela). The other half of the participants were exposed to names of either extremely hostile or friendly animals (Shark, Panther vs. Puppy, Bunny). As predicted, assimilation was found in the animal priming conditions, whereas contrast was found in the person priming conditions (see Table 14.1). Thus, this pattern of findings indicates that exposure to rather extreme exemplar primes may result in assimilation as well as in contrast effects. Which of these effects emerges depends on the comparison relevance of these exemplars (see Stapel & Koomen, 1997, for a similar finding with detergent brand names as primes rather than animals). Recently, Dijksterhuis et al. (1998) found that the differences between traits and persons exemplars may also determine whether priming yields assimilation or contrast in ideomotor behavior. Bargh, Chen, and Burrows (1996) showed that exposing individuals to a series of words linked to a particular stereotype may

Table 14.1: Mean ratings (SD) of ambiguously friendly/hostile Donald as a function of exemplar prime valence (friendly, hostile) and comparison relevance (relevant: person, irrelevant: animal).

Prime Type	Prime Valence	
	Friendly	Hostile
Comparison relevant	3.71 (.79)	4.50 (1.29)
Comparison irrelevant	4.22 (1.12)	3.50 (1.26)

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

influence behavior nonconsciously. Priming trait concepts influences subsequent behavior in an assimilative fashion. For example, participants who were subtly exposed to traits linked to the elderly stereotype (gray, old, wrinkle, ancient, wise) walked more slowly than participants who had not been primed with these words. Dijksterhuis et al. (1998) applied the interpretation/comparison perspective to the Bargh et al. studies. In several studies, the assimilative trait priming effects were replicated, but it was also found that activation of comparison relevant exemplars led to contrastive ideomotor effects. For example, Dutch participants walked faster when primed with a well-known exemplar of the elderly – the Dutch Queen Mother – who is over 80 years old. Similar effects have now been shown in the domains of attribution (Stapel & Spears, 1996a), stereotyping (Stapel & Koomen, 1998b), and expectancy (Stapel & Schwarz, 1998a), as well as in more applied settings such as responses to advertising (Stapel, Koomen, & Velthuisen, 1998), political judgments (Stapel & Schwarz, 1998b; Stapel & Spears, 1996b), and issues relevant for organizational decision making (Stapel & Koomen, 1998a).

The core of the interpretation/comparison model of knowledge accessibility effects focuses on the use of accessible information during impression formation. Distinct and comparison relevant information is more likely to be used as a comparison standard. Information that lacks these features is more likely to be used as an interpretation frame (cf. Trope, 1986; Wyer & Srull, 1989). The findings presented so far provide support for the notion that distinctness and comparison relevance may determine the direction of knowledge accessibility effects, but how do we know these assimilation effects are due to interpretation processes, whereas the contrast effects are due to comparison processes?

First, there are several studies that demonstrate the impact of the ambiguity of the target stimulus on knowledge accessibility effects. These studies demonstrate that accessible knowledge which lacks distinctness and comparison relevance (e.g., trait concepts or nonperson

exemplars) result in assimilation effects when the target is ambiguous but not when it is unambiguous. Thus, assimilative interpretation effects obtain only when judging a target requires interpretation (e.g., participants rate friendly/hostile Donald). No such assimilation effects emerge when the target stimulus is unambiguous and thus needs no interpretative efforts (e.g., participants rate one of their friends). Conversely, person exemplar priming results – when the exemplars are sufficiently extreme – in contrast effects that reflect the use of accessible information as a comparison standard when evaluating a target person. Accordingly, the emergence of such contrast effects is independent of whether the target requires interpretation. After extreme person exemplar priming, contrast effects obtain in judgments of both ambiguous and unambiguous targets (see Herr et al., 1983; Stapel & Koomen, 1997; Stapel et al., 1997).

Second, Stapel, Koomen, and Van der Pligt (1997) demonstrated that the time at which priming stimuli are presented is essential in the case of trait concept priming, but inconsequential in the case of person exemplar priming. In an experiment in which the effects of trait concept priming and person exemplar priming were compared, it was manipulated whether these priming stimuli were presented before participants were exposed to an ambiguous target description or after they had read and encoded this description. The findings show that whereas trait concept priming resulted in assimilation effects only when these concepts were primed before an ambiguous target was encoded, extreme person exemplar priming resulted in contrast independent of whether these exemplars were primed before or after encoding. Thus, whereas trait priming results in assimilation only when there is something to be interpreted, person exemplar priming results in contrast independent of whether interpretation has already taken place. This is consistent with the hypothesis that assimilation effects following trait concept priming are the result of interpretation processes, whereas contrast effects following extreme person exemplar priming are the result of comparative judgment processes (see Koomen et al., 1998; Stapel & Koomen, 1997; Stapel et al., 1997; Stapel & Winkelman, 1998).

Third, the importance of distinguishing between the interpretative and comparative effects of different types of accessible knowledge is demonstrated by showing the opposite impact of extremity manipulations on person exemplar versus trait concept priming (Stapel et al., 1997). The notion that trait concept priming may only affect the interpretation process, whereas person exemplar priming may also induce comparison processes, implies that varying the extremity of priming stimuli will

Table 14.2: Mean ratings (SD) of ambiguous friendly/hostile Donald as a function of prime type (trait concept, person exemplar), prime valence (friendly, hostile) and prime extremity (moderate, extreme).

Prime Extremity	Prime Type			
	Trait Concept		Person Exemplar	
	Friendly	Hostile	Friendly	Hostile
Moderate	4.35 (.88)	3.99 (.88)	4.73 (.98)	3.62 (.84)
Extreme	4.66 (.98)	3.59 (1.27)	3.73 (1.18)	4.64 (1.18)

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

lead to different effects when trait concepts are primed compared to when person exemplars are primed (see Table 14.2). As the extremity explanation of assimilation and contrast effects in social judgment research implies, extreme person exemplars (Hitler vs. Mandela when judging friendly/hostile Donald) may provide an extreme enough standard for comparative judgment processes to result in contrast. However, when primed person exemplars are only moderately extreme (Napoleon vs. Robin Hood), it is more likely that these contrastive effects on judgments of ambiguous targets are not strong enough to override the assimilative encoding effects that are the result of exemplars spontaneously activating the categorical dimension they exemplify (remember the effects of priming animal and detergent exemplars). This trade-off between interpretation and comparison processes is less likely to occur, however, when the priming stimuli are relatively indistinct and lack comparison relevance. Opposite to the consequences of extremity for comparison effects of person exemplar priming, extreme trait concept priming strengthens the assimilative consequences of interpretation processes. Priming moderately extreme trait concepts (*unfriendly* vs. *considerate*) leads to assimilation and priming extreme trait concepts (*cruel* vs. *sweet*) leads to even stronger assimilation (Koomen et al., 1998; Stapel & Koomen, 1997; Stapel et al., 1997; see also Manis et al., 1988; Skowronski, Carlston, & Isham, 1993). The impact of extremity of priming stimuli on the direction of their effects has also been investigated by Moskowitz and Skurnik (1999). Similar to Stapel and Koomen and their colleagues, Moskowitz and Skurnik investigated the impact of trait versus person exemplar priming on person judgments. In their studies, the impact of extremity on person exemplar priming effects was replicated. However, they reported contrast effects after priming moderate trait concepts (instead of assimilation effects, as shown by Manis, Skowronski, Stapel, and their colleagues). Such contrast effects seem to be especially likely when the trait primes overlap a great deal with the target behavior and thus are more likely to instigate correction processes (see previous section on appropriateness).

Summary and Conclusion

The concepts of *distinctness* and *comparison relevance* shed a new, integrative light on the divergent effects of interpretative and comparative knowledge accessibility effects as studied in the social cognition and social judgment literatures, respectively. They suggest that an important determinant of assimilation and contrast effects that has largely gone unnoticed in the literature is the kind of information that is made accessible during the impression formation process. More specifically, comparison contrast is more likely to be the result of knowledge accessibility when the accessible information is relatively more distinct, has more comparison relevance, and is sufficiently extreme to be used as an anchor with which targets can be contrasted in the judgment stage of impression formation. The less these three features apply, the more likely it is that assimilation rather than contrast will occur in social judgments.

Thus, our interpretation/comparison model of assimilation and contrast effects integrates the seemingly contradictory findings of studies of knowledge accessibility effects in the social cognition and social judgment literatures by emphasizing the differences in the kind of context stimuli used within these two research paradigms. Whereas in most social cognition studies, priming stimuli are typically (indistinct, comparison irrelevant) trait concepts, in social judgment studies, priming stimuli are mostly (distinct, comparison relevant) exemplars (see Eiser, 1990; Kahneman & Miller, 1986; Nario-Redmond, 1995). Most important perhaps, the interpretation/comparison model relates this distinction between these types of priming stimuli (e.g., traits vs. person exemplars) to the components of the impression formation process on which stimuli are thought to exert an effect (interpretation vs. comparison).

The interpretation/comparison model of assimilation and contrast extends previous theorizing on the components of the impression formation process on which knowledge accessibility may exert its effect. For example, Wyer and Srull's (1989) model of the role of memory and cognition in social judgments states that accessible

knowledge is more likely to be used during encoding when it consists of an indistinct attribute concept (e.g., a trait concept), whereas it is more likely to serve as an extreme comparison standard when a distinct attribute-object link (e.g., person exemplar) is activated (see also Philippot et al., 1991). Similarly, Trope's (1986) multiple-stage model of dispositional attribution processes implies that contextual knowledge has both an assimilative effect in behavior interpretation and a contrastive effect when it comes to constructing judgments about a particular person. In accordance with the present integration of interpretative and comparative knowledge accessibility effects, research testing Trope's model found that the relative strength of these assimilative and contrastive effects is affected by both target ambiguity and the order in which context and target information is presented (see Trope, Cohen, & Alfieri, 1991).

The interpretation/comparison model is also consistent with Schwarz and Bless' (1992a) inclusion/exclusion model of assimilation and contrast effects. It predicts assimilation when a primed construct is included in the target and contrast when the primed information is excluded from the target. Although research testing the inclusion/exclusion model has not focused specifically on the processes (interpretation vs. comparison) underlying assimilation and contrast effects, in inclusion/exclusion terminology, our perspective suggests that it can be extended as follows: Broader and less distinctive priming stimuli that lack comparison relevance (such as trait concepts) are likely to be included in and assimilated to an ambiguous target. Likewise, narrow and distinctive priming stimuli that do have comparison relevance (such as person exemplars) are more likely to be excluded from and may be contrasted to such targets.

Our conceptualization of assimilation and contrast effects is also in some ways similar to the Manis-Paskewitz (1984) model of expectation and contrast, which suggests that assimilative and contrastive influences may derive from exposure to the same exemplars. Similar to the present conceptualization, the Manis-Paskewitz model recognizes that the cognitive accessibility of exemplars of a given category may simultaneously affect our assessment of other targets in two ways: (a) by providing a basis for comparison when we have to judge the target (contrast), and (b) by guiding the interpretation and categorization of the target (assimilation). The pattern of results of the animal priming (Stapel et al., 1997) study supports the hypothesis that category exemplars can play the role of both interpretation frame and comparison standard in impression formation. Consequently, these studies extend the Manis-Paskewitz

model and provide insight into the factors that may influence the relative strength of the assimilative and contrastive influences of category exemplar priming: When sufficiently extreme and comparison relevant, the contrastive effects of exemplars are likely to predominate their assimilative effects. Comparison-irrelevant exemplars, however, may play the role only of an interpretation frame and result in assimilation (see also Kahneman & Miller's [1986] discussion of local norms).

Support for the interpretation/comparison model also comes from recent studies by Petty and Wegener (1993; Wegener & Petty, 1995) on the importance of naive theories of bias in the understanding of knowledge accessibility effects. As argued previously, in social cognition research, awareness of the priming influence is typically used as an explanation for the occurrence of contrast effects (see Srull, 1991). It is believed that accessible concepts "produce assimilation effects when the perceiver views them as internally generated and contrast effects when the perceiver recognizes them as stemming from external sources" (Carlston & Smith, 1996, p. 199).

Petty and Wegener suggested that feelings of bias do not necessarily lead to contrast effects. They argued that whether correction for unwanted bias leads to assimilation or contrast is dependent on respondents' "naive theories of bias." When respondents think that the priming event biases their judgments in a particular direction, they adjust their target ratings in a direction opposite to the theorized bias. Thus, when participants sense that the priming task instigates assimilation (contrast), they correct in the direction of contrast (assimilation). The discrepancy between results reported by Petty and Wegener (1993) and earlier research on priming and correction processes (e.g., Lombardi et al., 1987; Strack et al., 1993) can easily be reconciled with reference to our interpretation/comparison model. Previous studies primed trait concepts and found that judgments were contrasted with these traits when participants were warned against their biasing influence (Stapel & Koomen, 1999; Stapel, Martin, & Schwarz, 1998), reminded of the trait concepts just before they made their judgments (e.g., Stapel et al., 1998; Strack et al., 1993), or could recall them at the time of judgment (e.g., Lombardi et al., 1987). Petty and Wegener exposed their participants to a number of vacation locations that were either very popular (the Bahamas, San Francisco) or neutral (Minneapolis, St. Louis) and found contrast in uncorrected and assimilation in corrected judgments of moderate target cities (Indianapolis, Kansas City). Thus, Petty and Wegener used a procedure of extreme, comparison-relevant, exemplar priming of which the "natural"

(uncorrected) effect is contrast. The finding that conscious attempts to correct for the biasing influences of primed, comparison-relevant exemplars on judgments leads to assimilation (Petty & Wegener, 1993), whereas correcting for the primed trait concepts leads to contrast is in accordance with the interpretation/comparison model (see Stapel et al., 1997).

APPROPRIATENESS REVISITED

It is important to note that the interpretation/comparison model is a model of information *use*, not a model of information *disuse*. It is a model of how information used during impression formation affects the impact of this information. Sometimes accessible information is not used at all during judgment. As noted before, information that is not interpretation relevant is unlikely to be used as an interpretation frame, and information that lacks comparison relevance is unlikely to be used as a comparison standard.

At times, however, primed information is used not so much because of the relevance of features of the prime for the target, but because of the perceived inappropriateness of the activated information for the task at hand. Even when information is accessible and has interpretation and/or comparison relevance, it might not be consciously used if it is perceived as inappropriate. As the studies of Petty and Wegener (1993; Wegener & Petty, 1995) demonstrated, judgments of inappropriateness may dramatically change the impact of accessible knowledge on judgments.

We think it is important to distinguish two distinctly different types of inappropriateness. When perceivers recognize that accessible knowledge is externally generated ("I have positive thoughts not because I like Donald, but because the sun is shining"), and thus inappropriate to use in the judgment process, they may decide not to use the accessible knowledge. However, when, one not only feels that accessible information is inappropriate but also senses that it actually biases or contaminates one's perception of the target stimulus, one may decide to correct for the unwanted bias in a way commensurate with the perceived bias (see Petty & Wegener, 1993). When one decides to ignore accessible information because it is "irrelevant for the task at hand," the effect of the inappropriate influence should simply be eliminated ("I should not base my judgment of Donald on my preference for sunshine"), and no accessibility effects should occur because it does not enter the construction of judgment. When one senses that accessible information biases or contaminates one's perception of the target stimulus, correction should reverse the "natural" accessi-

bility effect: When the perceived bias is assimilative, such correction processes are likely to produce contrast effects because the unwanted bias ("I like Donald") is suppressed in the target judgments ("I dislike Donald").

That accessible knowledge is ignored when it is judged as irrelevant is nicely demonstrated by Schwarz and Clore (1983), who observed that the impact of mood on judgments of life satisfaction was eliminated when participants attributed their current feelings to a transient source. For example, participants reported higher life satisfaction and a more elated mood in telephone interviews when called on sunny rather than rainy days (an assimilation effect). However, this difference was eliminated when the interviewer mentioned the weather as part of a private aside ("By the way, how is the weather over there?"), thus directing participants' attention to this source of their elated or depressed feelings. Similarly, recalling a sad life event did not influence participants' judgments of life satisfaction when they could attribute the resulting sad feelings to the alleged impact of the mess and smell of rotten fruit in the room in which the experiment was held (see Schwarz & Bless, 1992a; Schwarz & Clore, 1983, 1996). That the impact of accessible knowledge is reversed when perceivers feel that it may contaminate their judgments, is – as described earlier – demonstrated *inter alia* by Petty and Wegener (1993). When people sense that their judgments are being biased, they adjust their target ratings in a direction opposite to this bias (see also Martin et al., 1990; Stapel et al., 1998; Strack, 1992; Strack et al., 1993).

Together these investigations demonstrate that it may be important to distinguish judgments of inappropriateness that lead to the elimination of accessibility effects (e.g., Schwarz & Clore, 1983) and judgments that lead to the reversal of such effects (e.g., Petty & Wegener, 1993; Stapel et al., 1997). It would be especially insightful when future studies can delineate variables that may either facilitate or hinder elimination or reversal effects. For example, for elimination effects to occur, it is essential that the impact of irrelevant information (the weather) can be isolated effectively from other relevant influences. Unfortunately, in the relevant literature, elimination and correction are often treated as interchangeable effects of the feeling that the use of accessible information is inappropriate (e.g., Carlston & Smith, 1996; Martin et al., 1990; Schwarz & Bless, 1992; Skowronski et al., 1993; Strack, 1992; Strack et al., 1993). We suggest that there are varieties of inappropriateness and that distinguishing these varieties will allow us to make more specific predictions when judgments that accessible knowledge is inappropriate will eliminate priming effects and when they will reverse these effects.

CONCLUSIONS

Psychology is a fragmented science. Researchers working in different subdomains of psychological inquiry ask different questions, use different methodologies, and discover different truths or fundamental laws (Yanchar & Slife, 1997). In this chapter, we argued that to some extent even researchers that ask the same question – What determines the direction of knowledge accessibility effects? – may come to different answers because their investigations are guided by different theoretical perspectives. There are two histories one can tell when one is interested in the roots of modern studies of knowledge accessibility effects. The social cognition story aptly demonstrates how accessible knowledge may guide categorization and interpretation processes and yield assimilation effects. The social judgment story excels in showing how accessible stimuli are used as comparison standards in the construction of social judgments and yield contrast effects. In an attempt to integrate these two approaches to the study of knowledge accessibility effects, we have introduced the interpretation/comparison model of assimilation and contrast effects. The most important feature of this model is that it posits that when investigating the implications of knowledge accessibility on subsequent judgments it is essential to know what kind of knowledge is relatively accessible. Specifically, the extent to which accessible knowledge is distinct and comparison relevant is an important determinant of whether assimilation or contrast occurs. These two variables can be used to resolve the disagreement concerning what should be seen as the most common accessibility effect. On the one hand, social cognition studies typically find assimilation because the priming stimuli used in most of these studies lack comparison relevance and distinctness (e.g., trait concepts) and are thus unlikely to be used as a comparison standard. Social judgment studies, on the other hand, typically find contrast because the context stimuli used in these studies possess comparison relevance and distinctness (e.g., person exemplars) and are thus likely to be used as a comparison standard.

As argued throughout this chapter, the *comparison* processes instigated by (comparison relevant and distinct) exemplar priming are of a completely different nature than the *interpretation* processes that follow (comparison irrelevant and indistinct) trait concept priming. Both processes are essential ingredients for the construction of evaluations and judgments (see Eiser, 1990; Higgins, 1996; Kahneman & Miller, 1986). Both interpretation and comparison processes may be guided by subliminally primed information (see Bargh, 1992;

Bevan & Pritchard, 1963; Goldstone et al., 1962; Winkeelman & Schwarz, 1996), and both processes may automatically ignite (uncontrolled) ideomotor behavior (see Dijksterhuis et al., 1997). This suggests that both assimilative interpretation and contrastive comparison effects may be affected by preconscious, automatic processes (cf. Bargh, 1997). As we await the final verdict on the "default" issue (see Martin, 1996), we would like to argue that the studies discussed in this chapter seem to provide evidence that both assimilation and contrast can occur as the result of spontaneous, uncorrected impression formation. In other words, to date there is no evidence that there is anything like one truly "natural" accessibility effect. It is more likely that there are several "natural" accessibility effects (see also Wegener & Petty, 1995).

The focus of the interpretation/comparison model is on the type of processes – interpretation or comparison – that are instigated by accessible information to understand and predict the impact of knowledge activation on subsequent judgments. It is important to note that we do not want to argue, however, that our perspective on knowledge accessibility effects is an alternative to previous explanations, such as those that have explained the occurrence of assimilation and contrast in terms of the perceived extremity or appropriateness of the accessible information. Rather, as can be inferred from our extensive treatment of these variables, we suggest that over and above the effects of extremity and appropriateness, variables such as the comparison relevance and distinctness of accessible information may determine whether assimilation or contrast will occur.

ACKNOWLEDGMENTS

This research was supported by grant 575-70-074 from the Dutch Science Foundation (Nederlandse Organisatie voor Wetenschappelijk Onderzoek) and by a fellowship of the Royal Netherlands Academy of Arts and Sciences.