The Heuristic–Systematic Model in Its Broader Context

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In the spirit of the current volume, this chapter articulates new, and expands on old, conceptual links between the heuristic–systematic model (e.g., Chaiken, 1980, 1987; Chaiken, Liberman, & Eagly, 1989) and related concepts in the social-cognitive literature on alternative modes of information processing. Our hope is to demonstrate the utility of applying the heuristic–systematic model to a diverse range of judgmental domains. To lay the groundwork, we first present the basic heuristic–systematic model in its multiple-motive formulation (Chaiken, Gitter-Sorolla, & Chen, 1996), and then briefly discuss how our dual-process theory relates to various other models of social judgment.

To place the model in its broader context, we begin by considering heuristic and systematic modes of processing, along with the social-cognitive principles thought to govern the activation and use of stored knowledge. Consistent with the growing emphasis on the role of applicability in determining when stored knowledge will be activated and used in social judgment (see Higgins, 1996), we discuss this principle in particular detail. From there we turn to the increasingly critical distinction between conscious and unconscious processes (e.g., Bargh, 1989, 1994), and discuss how it relates to our distinction between heuristic and systematic processing. Having considered both conscious and unconscious aspects of each processing mode, we then focus on unconscious forms of heuristic processing. Specifically, we examine the impact of subjective experiences on judgment, and argue that this reflects the unconscious activation and application of stored heuristics that pertain distinctly to these experiences. Finally, we discuss some of the implications of our conceptualization of subjective experiences for heuristic and systematic processing more broadly.

In drawing connections between the heuristic–systematic model and related concepts in the social-cognitive literature, our primary aim is to highlight the novel ramifications of these connections for heuristic and systematic modes of processing. As such, this chapter focuses more on extending the heuristic–systematic model than on recapitulating earlier discussions of it, and more on suggesting new avenues of empirical inquiry than on reviewing past research. For aspects of heuristic and systematic processing on which this chapter may fall short, prior discussions of the model and relevant empirical evidence can be consulted (Bohner, Moskowitz, & Chaiken,
THE HEURISTIC-SYSTEMATIC MODEL

Heuristic and Systematic Modes of Information Processing

Within any given judgmental context, the heuristic-systematic model delineates two basic modes by which perceivers may determine their attitudes and other social judgments. Systematic processing entails a relatively analytic and comprehensive treatment of judgment-relevant information. Judgments formed on the basis of systematic processing are thus responsive to the actual content of this information. Given its nature, systematic processing requires both cognitive ability and capacity. Hence, for example, systematic forms of processing in a given judgmental domain are less likely to be seen among perceivers who possess little knowledge in the domain, or among individuals who are processing with time constraints.

The other basic mode, heuristic processing, entails the activation and application of judgmental rules or "heuristics" that, like other knowledge structures, are assumed to be learned and stored in memory (e.g., "Experts' statements can be trusted," "Length implies strength," "Consensus opinions are correct"). Judgments formed on the basis of heuristic processing reflect easily processed judgment-relevant cues (e.g., message length; Wood, Kallgren, & Preissler, 1985), rather than individualistic or particularistic judgment-relevant information. Relative to systematic processing, heuristic processing makes minimal cognitive demands on the perceivers. The heuristic mode is constrained, however, by social-cognitive principles of knowledge activation and use—namely, availability, accessibility, and applicability (e.g., Higgins, 1996). Specifically, in heuristic processing, judgment-relevant heuristics must be stored in memory (i.e., available), and that within a given judgmental setting they must be somehow retrieved from memory and thus ready to be used (i.e., accessible). Beyond this, an available and accessible heuristic must also be applicable—that is, somehow relevant to the judgmental task at hand. We return to a more detailed discussion of these principles in a later section.

The Sufficiency Principle

Reflecting widespread notions of perceivers as limited in cognitive resources (e.g., Shiffrin & Schneider, 1977) and thus as "economy-minded" information processors (e.g., Chaiken, 1980, 1987; Fiske & Taylor, 1991), the heuristic-systematic model assumes that perceivers are guided in part by a "principle of least effort." That is, in the interest of economy, heuristic processing often predominates over relatively more effortful systematic processing. Information processing, however, is often guided by motivational concerns beyond economy. Recognizing this, the heuristic-systematic model incorporates least-effort notions into its sufficiency principle, which maintains that perceivers attempt to strike a balance between minimizing cognitive effort on the one hand and satisfying their current motivational concerns on the other (Chaiken, Giner-Sorolla, & Chen, 1996; Chaiken et al., 1989; see also Simon, 1976). Thus, for example, perceivers who are motivated to determine accurate judgments will exert as much cognitive effort as is necessary (and possible) to reach a sufficient degree of confidence that their judgments will satisfy their accuracy goals.

For any given judgment, the sufficiency principle proposes a continuum of judgmental confidence, along which two critical points lie: one designating perceivers' level of actual confidence, and the other designating their level of desired confidence, or sufficiency threshold. Perceivers will exert cognitive effort until their level of actual confidence reaches (if it can) their sufficiency threshold, thereby closing the gap between actual and desired levels of confidence. When low-effort heuristic processing fails to confer sufficient judgmental confidence (or cannot occur due to, for example, the absence of any judgment-relevant heuristic-cue information), perceivers are likely to engage in systematic processing in an attempt to close the confidence gap.

Processing predictions follow directly from the sufficiency principle. Systematic processing is likely to emerge when the gap be-
between actual and desired judgmental confidence is widened as a result of either an increase in one’s sufficiency threshold (e.g., when the importance of the judgment task is enhanced; Darke et al., in press) or a decrease in one’s level of actual confidence (e.g., when judgment-relevant information contradicts the judgmental implications of previously encountered heuristic-cue information; Maheswaran & Chaiken, 1991). Underlying this prediction is the assumption that perceivers generally believe that more processing will provide them with more confident judgments (Chaiken et al., 1989; Tordesillas & Chaiken, in press). When this self-efficacy expectation is not held, increasing the gap between actual and desired confidence will not necessarily instigate systematic processing (Böhner, Rank, Reinhard, Einwiller, & Erb, 1998).

It is important to keep in mind that the sufficiency principle is based on a judgmental continuum, which implies that varying degrees of heuristic and systematic processing may occur corresponding to variations in the width of the confidence gap. And of course, as discussed above, heuristic and systematic processing depend not only on one’s motivational concerns, but also on the availability, accessibility, and applicability of judgment-relevant heuristics, and on the availability of adequate cognitive resources, respectively.

Co-Occurrence of Heuristic and Systematic Processing

Although either processing mode may occur alone, our theory delineates specific and predictable ways in which heuristic and systematic processing may co-occur (Chaiken et al., 1989; cf. Petty & Cacioppo, 1986). Below we describe several different patterns of co-occurrence and point out situational, cognitive, and motivational factors that render one pattern more or less likely than another.

According to the heuristic–systematic model’s additivity hypothesis, heuristic and systematic processing may exert independent and judgmentally consistent effects. Such additivity was shown in one study, in which participants were asked to make evaluations of a consumer product. When the judgmental implication of a “brand-name heuristic” was congruent with the judgmental implication of attribute information about the product, participants who were led to believe that their product evaluations would be highly consequential based these evaluations on both their heuristic and systematic processing of the product information (Maheswaran, Mackie, & Chaiken, 1992; see also Chaiken & Maheswaran, 1994; Darke et al., in press; Maheswaran & Chaiken, 1991).

The model’s bias hypothesis refers to the notion that the judgmental implications of heuristic-cue information may establish expectations about subsequently encountered judgment-relevant information, which may then bias the nature of more effortful systematic processing of this information. Such bias is most likely to occur in judgmental settings in which individuating judgment-relevant information is ambiguous and hence amenable to differential interpretation, or when no such information is provided but perceivers generate judgment-relevant cognitions of their own. Considerable support for the bias hypothesis exists (e.g., Chaiken & Maheswaran, 1994; Chen, Shachter, & Chaiken, 1996; Darke et al., in press; Erb, Böhner, Schnädelzle, & Rank, in press). For example, in one study, exposure to heuristic-cue information (i.e., source credibility) led participants who were told that their judgments would be highly consequential to systematically process ambiguous individuating information about the object of judgment in ways congruent with the judgmental implications of the source credibility information (Chaiken & Maheswaran, 1994). More specifically, participants exposed to the high-credibility heuristic cue elaborated upon the ambiguous information in more favorable ways than did those exposed to the low-credibility cue, presumably because high source credibility engendered favorable expectancies about the ambiguous individuating information. In turn, participants’ biased systematic processing of this ambiguous information predicted their judgments about the object. In another study, which examined the impact of consensus information in the absence of persuasive arguments, college students for whom the issue (requiring comprehensive exams) was personally important generated thoughts that were favorable (vs. unfavorable) toward the issue when a sizable majority of their peers favored (vs. opposed) the issue, and these biased cognitions
mediated their issue attitudes; in contrast, consensus information exerted a direct heuristic impact on the issue attitudes of participants for whom the issue was not personally relevant (Darke et al., in press).

Heuristic and systematic processing may also work in opposition—a proposition embodied in the model's attenuation hypothesis. For example, the judgmental implications derived from systematic processing may contradict and thus attenuate the judgmental impact of heuristic processing. Support for such a pattern of co-occurrence has been found in several studies (Chaiken & Maheswaran, 1994; Maheswaran & Chaiken, 1991; Maheswaran et al., 1992). For example, high-motivation participants in one study were presented with consensus-cue information that was either congruent or incongruent with the valence of individuating information about the object of judgment. When the judgmental implication derived from their heuristic processing of consensus-cue information was incongruent with that of their systematic processing of the individuating information, these highly motivated participants relied solely on their more effortful cognitions to determine their judgments (Maheswaran & Chaiken, 1991).

Our discussion of different patterns of co-occurrence is not exhaustive (for further discussion, including contrast/correction effects, see Bohner et al., 1995; Ruder, Bohner, & Erb, 1997; Ruder, Erb, & Bohner, 1996). Through the examples we have given, our intention has been to illustrate the predictability of the co-occurrence of heuristic and systematic processing. That is, just as knowledge of the characteristics of the perceiver and of the current judgmental setting permits predictions of when each processing mode is likely to occur alone, knowledge of these same parameters enables predictions regarding the co-occurrence of heuristic and systematic processing and its particular form. For example, situational factors such as the presence of heuristic-cue information—as well as its congruence with other available, judgment-relevant information—may largely determine the nature of perceivers' heuristic and systematic processing. Specifically, assuming adequate cognitive resources and relatively high levels of motivation, if the judgmental implication of heuristic-cue information is congruent with that of other available judgment-relevant information, perceivers may well engage in heuristic and systematic processing in additive ways. In contrast, if the judgmental implication of the heuristic-cue information is incongruent with other available judgment-relevant information, perceivers' systematic processing is likely to attenuate the judgmental impact of the heuristic cue (but see Bohner et al., 1995).

Alternatively, if perceivers have neither the cognitive resources nor the motivation to process systematically, whether heuristic-cue information is congruent or incongruent with other available judgment-relevant information will exert little if any impact on the nature of information processing. In both cases, perceivers are likely simply to engage in heuristic processing, resulting in judgments that directly reflect the judgmental implications of the heuristic-cue information.

The Multiple-Motive Framework

In discussing the motivational underpinnings of our model, we have focused so far on the implications of variations in the level or amount of motivation on heuristic and systematic processing. We have argued that higher levels of motivation correspond to larger discrepancies between actual and desired judgmental confidence (via higher sufficiency thresholds, reduced actual confidence, or both), and thus to an enhanced willingness to engage in systematic processing in the effort to reach these thresholds (however, see Note 2). What we have not yet addressed are variations in the types of motives that perceivers may have and the distinct impact that different motivations are likely to exert on information processing. Below we consider three broad motivations and the heuristic and systematic ways in which perceivers process information to satisfy each.

Accuracy Motivation

In developing the heuristic-systematic model, we (Chaiken, 1980, 1987; Chaiken, Giner-Sorolla, & Chen, 1996) originally assumed that perceivers are motivated to hold accurate attitudes and beliefs. Thus initial research on heuristic and systematic processing focused on judgmental contexts in which accuracy
motivation was paramount. The hallmark of accuracy-motivated processing is a relatively open-minded and evenhanded treatment of judgment-relevant information. When motivation is low, judgment-relevant information is scarce, or cognitive capacity is constrained, accuracy-motivated perceivers may simply base their attitudes on the heuristic-cue information that is seen as best suited for achieving their accuracy goals (e.g., “length implies strength”). Given higher levels of motivation and sufficient cognitive resources, however, they may also engage in systematic forms of processing in the effort to reach their (often) heightened accuracy sufficiency thresholds. Considerable research conducted both within and beyond the heuristic-systematic framework supports the notion that accuracy motives can be satisfied by either more or less effortful cognition, or both (see Chaiken, Giner-Sorolla, & Chen, 1996; Chaiken et al., 1989; Chaiken, Wood, & Eagly, 1996; Chaiken & Stangor, 1987; Eagly & Chaiken, 1993; see also Perry & Wegener, 1998).

Recognizing that in many situations other motives may coexist with or even supplant accuracy goals, the heuristic-systematic model presently acknowledges two other broad motivations—namely, defense and impression motives (Chaiken, Giner-Sorolla, & Chen, 1996; see also Chaiken et al., 1989). Together, accuracy, defense, and impression motivations comprise the multiple-motive framework of the model. Although conceptually analogous motives have long existed in the literature (e.g., Festinger, 1957; Jones, 1990; Kunda, 1990; Smith, Bruner, & White, 1956; Tetlock, 1992), the heuristic-systematic model is distinct in its joint consideration of multiple motives on the one hand and multiple modes of processing on the other. In the same way that accuracy goals may be satisfied by either or both processing modes, the heuristic-systematic model suggests ways in which heuristic processing, systematic processing, or both can serve both defense and impression concerns.

Defense Motivation

Defense motivation refers to the desire to hold attitudes and beliefs that are congruent with one’s perceived material interests or existing self-definitional attitudes and beliefs (Chaiken, Giner-Sorolla, & Chen, 1996). Self-definitional attitudes and beliefs are those closely tied to the self—for example, those involving one’s values (e.g., equality), social identities (e.g., occupation), or personal attributes (e.g., intelligence). The defense-motivated perceiver aims to preserve the self-concept and associated world views, and thus processes information selectively—that is, in a way that best satisfies such defense concerns.

Defense motives may be addressed heuristically by the selective application of heuristics. For example, heuristics with judgmental implications that are congenial to the defense-motivated perceiver’s existing attitudes and beliefs are particularly likely to be applied, while uncongenial heuristics are less likely to be invoked; indeed, they may be disparaged or entirely ignored. Thus defense-motivated perceivers can and do use the same heuristics that accuracy-motivated perceivers use, but they do so in a biased way. To illustrate, in one study, participants with and without a vested interest in the target issue were exposed to consensus heuristic-cue information in the form of poll results stating that the majority of students were opposed or in favor of the issue (Giner-Sorolla & Chaiken, 1997). Participants rated the poll as significantly more reliable, and criticized it significantly less, if its results supported their vested interest. Indeed, in the effort to protect their vested interests, these participants determined their attitudes on the issue primarily on the basis of their heuristic processing of the congenial consensus-cue information.

When defense motivation is high and cognitive resources are available, defense-motivated systematic processing is likely to emerge, characterized by effortful but biased scrutiny and evaluation of judgment-relevant information. Information that is congruent with one’s existing attitudes and beliefs, such as research supporting one’s position on abortion, will be judged more favorably than incongruent information will be (e.g., Lord, Ross, & Lepper, 1979; Pomerantz, Chaiken, & Tordesillas, 1995; Psaszcynski & Greenberg, 1987). In fact, incongruent information may be subjected to great scrutiny in a defense-motivated effort to derogate its validity (e.g., Ditto & Lopez, 1992; Giner-Sorolla & Chaiken, 1997; Liberman & Chaiken, 1992).
For example, participants in a study by Ditto and Lopez (1992) were told that a self-administered saliva test indicated either the presence or absence of an undesirable medical condition. Those who were diagnosed as having the condition were not only more likely to rate the test as less accurate than the condition as less serious, but were also more likely to spontaneously administer the test again, subjecting the threatening information to further inspection.

As with accuracy motivation, predictions for defense-motivated processing follow the sufficiency principle. However, unlike accuracy sufficiency thresholds, defense sufficiency thresholds are determined not by whether processing yields a judgment that is accurate, but rather by whether processing yields a judgment that reinforces one’s self-definition attitudes and beliefs. Thus, whether defense motivates engender heuristic processing, systematic processing, or some combination of the two depends on factors that influence perceivers’ actual and desired levels of confidence that their judgments will address their defense concerns. For example, encountering heuristic-cue information that is incongruent to one’s vested interests or cherished opinions may undermine the level of one’s actual defensive confidence, triggering defense-motivated systematic processing in the effort to close a widened defensive confidence gap (assuming requisite cognitive resources). Congenial heuristic-cue information, on the other hand, can boost actual defensive confidence, narrowing the confidence gap and thus rendering effortful processing less likely (Giner-Sorolla & Chaiken, 1997).

Beyond the congeniality of judgment-relevant heuristic-cue information, the extent and nature of defense-motivated processing will reflect motivational factors, such as the centrality of one’s threatened attitudes; situational factors, such as the presence of heuristic-cue information that pertains to defense goals; and cognitive factors, such as knowledge about the given judgmental domain, the possession of which may facilitate the derogation of threatening information (for further discussion of defense-motivated processing, see Chaiken, Giner-Sorolla, & Chen, 1996; Chaiken, Wood, & Eagly, 1996; Giner-Sorolla & Chaiken, 1997).

Impression Motivation

Impression motivation refers to the desire to hold attitudes and beliefs that will satisfy current social goals. Thus impression motives elicit a consideration of the interpersonal consequences of expressing a particular judgment in a given social context. Like defense-motivated processing, impression-motivated processing is marked by a selective bias. However, the selectivity of heuristic and systematic processing in the service of impression motivation is specifically aimed at satisfying immediate social goals, rather than at preserving existing self-definition attitudes and beliefs (Chaiken, Giner-Sorolla, & Chen, 1996).

Impression-motivated heuristic processing entails the selective application of heuristics. For instance, the heuristic “Moderate opinions minimize disagreement” may be applied to serve the goal of having a smooth interaction with a person of unknown views. On the other hand, when others’ opinions are known, the heuristic “Go along to get along” may be used to serve the same goal. With sufficient cognitive resources and higher levels of impression motivation, individuals may also process in more effortful but similarly selective ways. For example, an interviewee who is motivated not only to be well liked by his or her interviewer, but also to appear forceful, may systematically process information on an issue so as to be prepared to counterargue views in opposition to those of the interviewer.

As with accuracy and defense motivation, processing predictions for impression motivation are guided by the sufficiency principle. The impression sufficiency threshold is that point of processing at which perceivers feel sufficiently confident that their judgments will satisfy their interpersonal goals. Heuristic processing should confer sufficient judgmental confidence that elicits minimal impression motivation, given correspondingly low impression sufficiency thresholds. When impression motivation is higher and sufficient cognitive ability and capacity exist, perceivers, in the effort to reach their heightened impression sufficiency thresholds, are likely to engage in systematic forms of processing that are biased toward achieving their social goals. Beyond factors that directly affect perceivers’ actual and/or desired levels of confidence that their personal impressions depend on the social context
their judgments will address their interpersonal concerns, the extent and nature of impression-motivated processing will of course depend on cognitive factors, such as perceivers’ current cognitive capacity, as well as on situational factors, such as the presence of judgment-relevant heuristic-cue information.

Considerable evidence for impression-motivated heuristic and systematic processing exists (see, for example, Chaiken, Giner-Sorolla, & Chen, 1996). In one study, for example, participants anticipated a discussion about a social issue with an alleged partner who they were told held either a favorable or an unfavorable opinion on the discussion issue (Chen et al., 1996, Experiment 2). In an initial task that was ostensibly unrelated to the upcoming discussion, participants engaged in a task that primed either accuracy motivation or impression motivation. It was reasoned that either the accuracy goal to determine a valid attitude on the issue or the impression goal to get along with the partner was potentially relevant in the experimental discussion setting. The partner attitude information represented information that could be used as a basis for invoking an impression-motivated “Go along to get along” heuristic. After the priming task, participants were given an evaluatively balanced essay to read about the discussion issue so as to prepare for the upcoming discussion, and were then asked to list their thoughts while reading the essay and to indicate their attitudes on the issue.

Consistent with their validity concerns, accuracy-motivated participants based their attitudes on their evenhanded, systematic processing of the issue information—that is, processing that was unbiased by the partner attitude heuristic-cue information. In contrast, impression-motivated participants’ systematic processing of the essay information was biased in a direction that was judgmentally consistent with the attitudes of their alleged partners, resulting in attitudes that were similarly biased. To serve the social goal of getting along with others, impression-motivated participants appeared to have selectively applied the “Go along to get along” heuristic on the basis of the partner attitude information, and the judgmental implications of this information biased the evaluative nature of their more effortful systematic processing of issue-relevant information.

Multiple Motives

Although we have thus far discussed the multiple-motive framework of the heuristic-systematic model as if different motives operate in isolation from one another, we do not mean to preclude the possibility that more than one motive may be relevant in a given setting, or the possibility that at times perceivers may in fact be multiply motivated (e.g., Leippe & Elkin, 1987). Indeed, it is probably the case that in most everyday judgmental contexts, perceivers are primarily rather than solely accuracy-, defense-, or impression-motivated. Thus, we recognize that perceivers may at times engage in hybrid forms of motivated processing in their efforts to satisfy multiple goals. Greater attention needs to be directed at assessing the nature of heuristic and systematic processing in such ecologically meaningful settings in which several motives are potentially relevant, as well as the factors that may lead perceivers to engage in one form of motivated processing over another.

In the latter vein, recent research indicates that perceivers’ transitory mood states may influence which motive is pursued in contexts in which multiple motives are potentially operative (Zuckerman & Chaiken, 1997). This work is noteworthy in several respects. First, it explicitly addresses the possibility that multiple motives may be relevant in a given judgmental context. Second, this work importantly extends the literature on mood’s effects on information processing. Specifically, whereas most prior research on mood and information processing has simply focused on the impact of mood on the amount of cognitive processing that perceivers engage in (e.g., Mackie & Worth, 1989; Bless & Schwarz, Chapter 21, this volume), this research examines the impact of mood on type of processing—namely, type of motivated processing.

In one study in this research program, positive-mood and neutral-mood participants anticipated a discussion about a social issue with an alleged partner who they were led to believe held either a favorable or unfavorable opinion on the discussion issue (Zuckerman
& Chaiken, 1997, Experiment 2). As in prior work using this experimental paradigm, described above (Chen et al., 1996), it was reasoned that both accuracy motivation and impression motivation were possibly relevant in the discussion context set up in this paradigm. Unlike most research on mood's effects on information processing, this research did not simply focus on the impact of mood on the amount of processing of judgment-relevant information. Rather, the central hypothesis of this study was that mood would influence whether impression or accuracy motives would be primarily operative, and thus whether participants would primarily engage in impression- or accuracy-motivated processing.

Evidence consistent with this hypothesis was in fact found. Neutral-mood participants in this study processed information in a way suggesting that they were primarily impression-motivated—namely, concerned with getting along with their discussion partners. Specifically, they appear to have invoked the “Go along to get along” heuristic on the basis of the partner attitude information, resulting in attitudes that directly reflected their anticipated partner’s opinion on the issue. Positive-mood participants, on the other hand, were relatively more accuracy-motivated, and in that their attitudes were unaffected by the partner attitude information. These individuals based their attitudes solely on the thoughts that they generated in response to an essay containing issue-relevant information. Presumably, positive mood instilled these participants with the interpersonal confidence necessary to focus less on determining an attitude that would facilitate getting along with the anticipated discussion partner, and more on determining an attitude that would be backed by a fairly systematic assessment of issue-relevant information (Zuckerman & Chaiken, 1997).

To summarize, we have used the multiple-motive framework of our model to examine the heuristic and systematic ways that perceivers process judgment-relevant information in an effort to satisfy their current goals. We and others have found this framework to be useful within as well as beyond the validity-seeking persuasion context in which the heuristic–systematic model was originally conceived (e.g., Bodenhausen, Macrae, & Sherman, Chapter 13, this volume; Smith, 1994; Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994; for a recent review, see Chaiken, Giner-Sorolla, & Chen, 1996). Before we conclude our discussion of this framework, it is important to note that although we view heuristic and systematic processing as directed toward satisfying particular goals, we do not mean to imply that perceivers are necessarily aware of their motives, or of the biases that they might exert on their information processing. In fact, recent trends in the literature on attitudes and social cognition are leading to an increased appreciation of the power of motives to guide thought and behavior without perceivers’ conscious knowledge of such influences (e.g., Bargh, Chapter 18, this volume; Bargh & Barndollar, 1996). We return to the issue of the conscious versus unconscious nature of motivated heuristic and systematic processing in a later section.

Relations to Other Models of Social Judgment

As evidenced by the contributions to this book, the heuristic–systematic model is one of a growing family of dual-process theories in the literature on attitudes and social cognition (e.g., Fiske, Lin, & Neuberg, Chapter 11, this volume; Petty & Wegener, Chapter 3, this volume; Brewer & Harary, Chapter 12, this volume) as well as in other areas of psychology (e.g., Epstein & Pacini, Chapter 23, this volume; Sloman, 1996; Smith & DeCoster, Chapter 16, this volume). As such, it is worthwhile to briefly point out some of the similarities and differences between our formulation and some of these other models (see also Chaiken, Wood, & Eagly, 1996; Eagly & Chaiken, 1993; Smith & DeCoster, Chapter 16, this volume).

Dual-process theories vary in how widely they have been applied, although they often focus on a single domain such as persuasion (e.g., Petty & Cacioppo, 1986) or impression formation (e.g., Fiske & Neuberg, 1990; see also Bodenhausen et al., Chapter 13, this volume). Despite these variations, dual-process models converge in the recognition that social judgments are not always formed on the basis of relatively effortful processing of judgment-relevant information; rather, judgments may also be formed on the basis of relatively low-effort pro-
effort processing of more peripheral forms of information (e.g., heuristic-eve information). Furthermore, the hallmark of any dual-process approach is the attempt to specify cognitive and motivational factors that determine when judgments are likely to be mediated by each of these processing modes. At this level of specification, predictions across dual-process theories are often quite similar.

Among these approaches, the heuristic-systematic model is perhaps most closely allied with the elaboration likelihood model (ELM; Petty & Cacioppo, 1981, 1986; Petty & Wegener, Chapter 3, this volume). To touch briefly on some of the similarities between the two models, we point out that both maintain that “central” or “systematic” processing requires capacity and motivation, whereas “peripheral” or “heuristic” processing may occur with little of either. Both make least-effort assumptions; that is, they assume that perceivers tend to process information minimally unless they are motivated to do otherwise. Both acknowledge the potential influence of motivational factors (e.g., personal relevance) and of cognitive factors (e.g., time constraints). Nonetheless, the models diverge in several important respects, among them the degree to which the two processing modes are thought to be exclusive, and the ways in which motivational influences on processing are thought to operate. The ELM assumes that as motivation, ability for argument scrutiny, or both increase, peripheral mechanisms become less important determinants of attitude judgment. In contrast, the heuristic-systematic model explicitly assumes that its two modes may co-occur and that both heuristic and systematic processing can have an impact on judgment when motivation and ability for argument scrutiny are high. In terms of motivational biases, the ELM makes the overarching assumption that perceivers are accuracy-motivated and that the level of this motivation may vary, resulting in corresponding levels of elaboration likelihood. Motives other than accuracy are discussed in the model, however, and can exert a biasing effect on judgment via either peripheral-route or central-route mechanisms. For example, impression-motivated concerns may make social cues in the environment more salient, triggering reliance on some relevant peripheral mechanism as a basis for one’s judgment (see Chaiken, Wood, & Eagly, 1996; Petty & Wegener, Chapter 3, this volume). In contrast, as discussed earlier, our recent multiple-motive formulation of the heuristic-systematic model makes no overriding motivational assumptions; moreover, it treats motive type and processing mode as orthogonal dimensions. As such, we assume that any given motive can influence heuristic processing, systematic processing, or both. More extensive discussions of the similarities and differences of these two models appear elsewhere (see Eagly & Chaiken, 1993; Chaiken, Wood, & Eagly, 1996).

Our model also has much in common with dual-process approaches such as Fiske’s (Fiske et al., Chapter 11, this volume), Brewer’s (Brewer & Harasty, Chapter 12, this volume), and Bodenhausen’s (Bodenhausen et al., Chapter 13, this volume)—all of which focus on the domain of person perception, especially the important issue of stereotyping. Category-based processing in these models, for example, involves making a simple inference about a particular target person’s character, based on his or her group category membership. Such processing can easily be seen as an example of heuristic processing. For example, when a female target is regarded as “unassertive” simply on the basis of her womanhood (i.e., without scrutiny of individuating information), perceivers are essentially employing the heuristic or stereotype “Women are unassertive.” Similarly, what these models refer to as “individuated” processing is essentially the same as our model’s notion of systematic processing. Indeed, we have elsewhere argued for the applicability of the heuristic-systematic model to impression formation and other domains outside the persuasion area in which it was originally developed (e.g., decision making—Tordesillas & Chaiken, in press; see also Smith & DeCoster, Chapter 16, this volume).

On the whole, dual-process approaches have had a large impact on theory and research in the domain of attitudes and social cognition, as evidenced not only by the large number of models grounded in dual-process logic, but also by the considerable degree of compatibility among them. We briefly acknowledge, however, that a single-process alternative to our dual-process approach has been offered (Kruglanski, Thompson, &
Spiegel, Chapter 14, this volume; see also Kunda, Chapter 15, this volume). This "unimodel" perspective contends that forming a judgment on the basis of either heuristic or systematic processing reflects the same underlying process. Specifically, it argues that both processing modes involve linking evidence with a particular conclusion in an "if-then" fashion. Certainly we agree that heuristic processing involves "if-then" associations; indeed, a heuristic may be defined as an "if-then" linkage. We do not, however, view systematic processing solely in "if-then" terms. Although we would agree that systematic processing may involve recognizing "if-then" linkages between pieces of evidence and the conclusions they allow, none of these conclusions in and of itself constitutes the overriding judgment toward which a perceiver is processing. Forming a judgment on the basis of systematic processing, then, may involve integrating multiple "if-then" associations with other available judgment-relevant information. Although we have yet to specify the precise nature of such integration processes, we believe that conceptualizing heuristic and systematic processing in terms as abstract as "if-then" associations obscures fundamental differences in the nature of the two processing modes. Given the current state of evidence, the distinctions that dual-process theories draw between processing modes allow a level of predictive specificity whose value seems to outweigh that of the presumed parsimony offered by a single-process approach (see also Bodenhausen et al., Chapter 13, and Smith & DeCoster, Chapter 16, this volume).

THE AVAILABILITY, ACCESSIBILITY, AND APPLICABILITY OF HEURISTICS

"Heuristics" have been defined as learned, declarative or procedural knowledge structures stored in memory (e.g., Chaiken et al., 1989). To begin examining the heuristic-systematic model in its broader context, we elaborate on this definition by considering how the heuristic mode of processing relates to social-cognitive work on the principles that underlie the activation and use of stored knowledge. We first briefly discuss availability and accessibility principles, both of which have been previously discussed vis-à-vis heuristic processing (see Chaiken et al., 1989). We then consider applicability in particular detail, given the relatively little attention that has been given to this principle in earlier work both within and beyond the heuristic-systematic model.

The Role of Availability and Accessibility in Heuristic Processing

A heuristic's "availability" refers to whether or not the knowledge structure is stored in memory. Heuristic processing can only occur if judgment-relevant heuristics are available in memory for retrieval and use. In existing research in which the judgmental impact of heuristic processing has been assessed, it has been widely assumed that all participants have the focal heuristic stored in memory. The availability of a judgment-relevant heuristic, however, does not guarantee its use in a given judgmental context; an available heuristic must also be "accessible." "Accessibility" refers to the activation potential of stored knowledge (e.g., Higgins, 1989). In order for stored knowledge to exert an impact on processing and judgment, its activation potential must exceed a certain threshold level, above which the knowledge is ready for use. As with any other knowledge structure, the activation potential of a heuristic will vary as a function of factors that can be internal and/or external to the perceiver (e.g., Higgins, King, & Mavin, 1982; Higgins, Rholes, & Jones, 1977). For example, frequent use of a heuristic is likely to result in the chronic accessibility of the heuristic, or the chronic readiness of the heuristic to be used. Such chronic accessibility is an internal source of activation potential. Salient cues in the current judgmental context that are relevant to a stored heuristic are potential external sources of the accessibility of the heuristic (see Chaiken, Axson, Liberman & Wilson, 1992; Eagly & Chaiken, 1993, Ch. 7).

Accessibility's role in instigating the heuristic mode of processing is of particular interest, in part because it may carry some important implications for the likelihood of systematic forms of processing. Specifically, the accessibility of a heuristic may not simply correspond to the likelihood of its use, but may also affect the confidence with which a
The Heuristic-Systematic Model

judgment determined on the basis of the heuristic is held. In turn, of course, judgmental confidence affects the likelihood of systematic processing, such that increasing confidence generally decreases perceivers’ motivation to engage in more effortful forms of cognition—a prediction that follows directly from the heuristic-systematic model’s sufficiency principle, discussed earlier. In other words, the ease with which a heuristic comes to mind may heighten a perceiver’s confidence in the judgment implied by the heuristic, lowering the need to process further to attain a sufficient level of judgmental confidence (see also Giner-Sorolla & Chaiken, 1997).

Linking the accessibility of heuristics to judgmental confidence also implies that different heuristics may confer differential amounts of judgmental confidence, leaving room for differences both within and between perceivers. Thus, for example, the differential ease with which a domain-relevant heuristic is accessed by experts versus novices in the domain may correspond to differences not only in the likelihood that the heuristic will be used, but also in the confidence with which the judgment implied by the heuristic is held. Overall, these possibilities imply that a heuristic may exert a judgmental impact in at least two ways: the first having to do with the judgmental implication of the heuristic, and the second having to do with the judgmental confidence that the heuristic may confer by virtue of the ease with which it is accessed from memory. Indeed, the judgmental impact of ease in retrieving a heuristic may itself reflect the activation and application of a stored heuristic rule delineating the judgmental implications of such ease-of-retrieval experiences—a possibility we explore in subsequent sections.

The Role of Applicability
In Heuristic Processing

Beyond availability and accessibility, a heuristic will only exert a judgmental impact to the extent that it is applicable to the current judgmental task or domain. “Applicability” refers to the relevance or appropriateness of stored knowledge to a given judgmental task, and it exists at both nonconscious and conscious levels (e.g., Hardin & Rothman, 1997; Higgins, 1989, 1996). In nonconscious form, applicability refers to the activation arising from “matches” or overlap between a stimulus event and some stored knowledge construct; the activation level of the stored construct (e.g., a trait concept, a heuristic) increases to the extent that there is greater overlap between features of the construct and features of the stimuli at hand. In its more conscious form, perceived applicability, or “judged usability” (Higgins, 1996), refers to the conscious process of perceivers’ deciding whether it is appropriate to use activated mental constructs as guides to judgment. Although applicability has been much less thoroughly examined than either availability or accessibility principles, recognition of its importance is on the rise (e.g., Bargh, 1997; Hardin & Rothman, 1997; Higgins, 1996; Leyens, Yzerbyt, & Cornille, 1996; Smith, 1990). Indeed, research has demonstrated that stored knowledge may be differentially applicable across judgmental tasks, although this work has focused mainly on the applicability of stored trait constructs (e.g., Higgins & Breidl, 1995; Higgins et al., 1977).

What determines the applicability of a stored heuristic? The applicability of a heuristic to a judgmental task is based in part on the degree to which the heuristic somehow “matches” features of the task (e.g., Higgins, 1989, 1996). For instance, the applicability of the heuristic “Experts’ statements can be trusted” to the task of expressing one’s attitude on capital punishment on the basis of a highly reputable newspaper article on the issue is relatively high, given the “match” between the heuristic and the article’s source expertise features. In comparison, the applicability of the heuristic “Consensus opinions are correct” to the same task is likely to be considerably lower.

Beyond the amount of “match” between a heuristic and aspects of a judgmental task, the degree to which a heuristic is applicable to a task is also determined by the extent to which it has been activated and used for the particular task in the past. Specifically, the applicability of a heuristic to a task should increase with its repeated activation and use for that task. This implies an increase in the likelihood and speed with which the heuristic will be brought to bear on the same task in the future. Such facilitation in processing has been referred to as a “specific-practice effect,” and
reflects the formation of a mental linkage between the heuristic and the particular task (e.g., Smith, 1990, 1994; see also Anderson, 1983, 1987; Higgins, 1989, 1996; Wyer & Srull, 1986). Unlike a "general-practice effect," which refers simply to an across-the-board increase in the accessibility of a heuristic with increasing use, a specific-practice effect refers to an increase in the likelihood of heuristic processing specifically for the task in which the heuristic was previously "practiced" (i.e., activated and used).

Finally, over and above degree of match and degree of previous usage in a particular task, whether a heuristic is applied to a judgment task depends also on its judged usability in the task. In previous work, we have used the term "perceived reliability" to refer to this more conscious type of applicability (e.g., Darke et al., in press). We have argued, for example, that some heuristics (e.g., "Experts' statements can be trusted") may be generally perceived as more reliable or more valid guides to judgment than other heuristics (e.g., "Likable people say agreeable things"). Moreover, situational factors may affect the perceived reliability of heuristics, and perceivers may differ chronically in the degree of reliability they attribute to different heuristics (see Chaiken et al., 1989; Darke et al., in press; Eagly & Chaiken, 1993, Ch. 7). Overall, applicability principles are clearly relevant to understanding how the heuristic mode operates, in that the likelihood of heuristic processing is in part determined by the nature and strength of associations between particular heuristics and particular judgmental tasks or domains.

Applicability-Based Predictions Regarding Heuristic Processing

Only a few studies have explicitly recognized the potential role of such stored linkages between particular heuristics and particular tasks or domains (e.g., Chaiken et al., 1992; Darke et al., in press; Roskos-Ewoldsen & Fazio, 1992; Rothman & Hardin, 1997). For example, Chaiken et al. (1992) examined individual differences in the perceived reliability of the "Length equals strength" heuristic, and found that high-reliability participants applied this rule in evaluating a (long vs. short) persuasive message, if this rule had been made temporarily accessible (via a prior priming task). Regardless of its temporary accessibility, however, the length-strength rule had no impact on judgments made by participants who regarded this rule as low in reliability or judged usability. More recently, Darke et al. (in press) found that participants for whom an issue was low in personal relevance (i.e., who were unmotivated for systematic processing) used the "Consensus implies correctness" heuristic in forming their issue attitudes, even when the sample size upon which consensus information was based (a poll of student peers) was very small (vs. very large). More interestingly, high-personal-relevance participants also used the consensus heuristic, but only when sample size was large; presumably, these participants doubted the reliability of consensus information when it was based on only a small number of observations.

In most previous work, however, the heuristics that have been examined have typically been ones that researchers assumed to be fairly comparable across research participants in terms of their availability, accessibility, and applicability (although see Chaiken et al., 1992; Roskos-Ewoldsen & Fazio, 1992). For example, research on the heuristic "Experts' statements can be trusted" has generally made the assumption that most individuals have this heuristic available in memory, and that neither the accessibility nor the applicability of the heuristic varies substantially across individuals (e.g., Chaiken & Maheswaran, 1994). Thus variations in the likelihood of heuristic processing that are attributable to characteristics of the heuristics and their relation to the particular judgmental task in question have not been widely considered. Yet, as implied above, one way to conceptualize the impact of different variables on the likelihood of heuristic processing is in terms of differences in the stored associations that exist in memory between particular heuristics and particular judgmental tasks or domains. Heuristics may be differentially applicable for different tasks and for different individuals, depending on the nature and extent of prior processing in these tasks and among these individuals, respectively. What this implies is that knowing which associations are likely to be most accessible and applicable in a given judgmental context, and for whom this is more and less likely to be the case, may substantially enhance the predictability of heuristic processing.
To illustrate, the impact that knowledgeability about an attitudinal issue may have on processing and judgment may not simply reflect differences in the issue-relevant knowledge that high- versus low-knowledge individuals possess (e.g., Bick, Wood, & Chaiken, 1996; Wood, Rhodes, & Bick, 1995). This impact may also reflect differences in the nature and strength of the heuristics that high-versus low-knowledge individuals typically perceive as appropriate to use in domains in which personal views on the attitudinal issue are relevant. In other words, individuals high versus low in knowledge about an issue may differ not only in the number and types of heuristics they are likely to have available and accessible, but also in the applicability of these heuristics—that is, in the heuristics that they are most likely to bring to bear on similar judgmental tasks involving the attitudinal issue. Thus, for example, the applicability of the heuristic “Consensus opinions are correct” to the task of expressing a judgment on recent policies on affirmative action may be substantially higher among individuals who do not possess very much knowledge about this issue than among those who are highly knowledgeable about it.

Applicability's Role in Motivated Heuristic Processing

The idea that associations may exist between particular heuristics and particular judgmental tasks also has direct implications for motivated forms of heuristic processing. For example, each time a Republican is asked for his or her opinion regarding allegedly questionable Republican campaign finance practices, defense motives may be triggered that then bias his or her processing of judgment-relevant information. As discussed earlier, such motives are likely to produce selectivity in the heuristics that the Republican chooses to invoke; judgment-relevant heuristics that support his or her existing beliefs and attitudes are more likely to be applied than heuristics that threaten these beliefs and attitudes. Repeated, motivated use of these heuristics in similar judgment tasks should result in an across-the-board increase in the likelihood and speed of such motivated heuristic processing, as well as an increase that is specific to future judgmental tasks involving such campaign finance issues. On a more conscious level, people may judge a particular heuristic as a more reliable or less reliable guide to judgment, depending on whether its judgmental implications are congenial or incongruent to their overarching defense or impression goals (Giner-Sorolla & Chaiken, 1997).

The applicability concept is thus readily incorporated into the multiple-motive heuristic-systematic model. In fact, integrating this concept may offer a novel way to conceptualize classic functional theories of attitudes (e.g., Katz, 1960; Smith et al., 1956; for a recent review, see Eagly & Chaiken, 1998), by which our model's multiple-motive framework was in part inspired. Functional approaches contend that attitudes serve specific functions or motives. For instance, a person's proabortion attitude may serve a value-expressive function, insofar as it reflects his or her value-laden belief that people should have the right to choose. Although some contemporary work has addressed the information-processing implications of attitude functions (e.g., DeBono, 1987; Snyder & DeBono, 1987), explicit consideration of applicability in conjunction with the motivated use of heuristics helps to forge clearer connections. That is, particular forms of motivated heuristic processing may be part of what constitutes and what maintains the functional underpinnings of an attitude. Interestingly, this may be especially true in judgment settings in which perceivers are not particularly motivated or are in some way capacity-constrained. For example, an attitude that serves a value-expressive function may be one that is backed not simply by a value-expressive goal, but also by stored attitude-specific heuristics that are distinctly aimed at preserving consistency between one's attitude and one's cherished values (see also Giner-Sorolla & Chaiken, 1997).

CONSCIOUS VERSUS UNCONSCIOUS HEURISTIC AND SYSTEMATIC PROCESSING

So far, we have considered how the heuristic-systematic model relates to social-cognitive work on the principles that determine when stored knowledge will be activated and used. We now examine how heuristic and systematic modes of processing relate to another
rangingly growing area of social-cognitive inquiry—namely, theorizing and research on conscious versus unconscious processes (e.g., Bargh, 1989, 1994, and Chapter 18, this volume; Greenwald & Banaji, 1995; Uleman & Bargh, 1989).

In previous work, we have generally assumed that systematic processing involves conscious processes, whereas heuristic processing, given its less resource-demanding nature, involves either conscious or unconscious processes (Chaiken et al., 1989). We continue to make these assumptions, but we try here to specify more clearly what is meant by the conscious versus unconscious nature of each processing mode. We then focus on the idea that heuristics may be unconsciously activated and used by examining how the heuristic mode of processing is related to research on the judgmental impact of subjective experiences (for a recent review, see Schwarz & Clore, 1996). Specifically, we argue that the judgmental impact of subjective experiences reflects the activation and application of stored heuristics that pertain distinctly to these experiences, and contend that such forms of heuristic processing are especially likely to occur unconsciously. Throughout, we consider some of the broader implications of our view of subjective experiences.

Conscious and Unconscious Heuristic Processing

So far, theory and research on heuristic processing have focused on examining the judgmental impact of heuristics that are presumably activated by the heuristic-cue information available in a given judgmental setting. For instance, research participants may be presented with consensus-cue information, along with other judgment-relevant information, and their use of the heuristic “Consensus opinions are correct” in the judgmental task is then assessed. Although the processing of such heuristic cues is typically less resource-demanding than systematic processing, such forms of heuristic processing nonetheless involve perceivers’ awareness of the heuristic-cue information. To the extent that perceivers attend to and are cognizant of the judgmental implications of heuristic-cue information, and judge the information as relevant to the judgmental task at hand, heuristic processing should be characterized as conscious. Indeed, heuristic-cue information (e.g., information about source credibility) may at times be attended to precisely because a perceivers consciously judging it as not only appropriate, but also highly informative, to use in the current judgmental task (e.g., Darke et al., in press).

As with systematic processing, however, there are various dimensions along which heuristic processing can be considered conscious or unconscious. We focus again on the awareness dimension. Although heuristic processing entails, minimally, an awareness of a heuristic cue in the environment, this does not imply that perceivers are necessarily aware of the activation of a corresponding heuristic that occurs as a result of encountering this information, or of their application of this rule to their current judgmental task. The distinc-

Conscious and Unconscious Systematic Processing

Systematic processing is resource-demanding by definition, as it requires cognitive effort and capacity, and entails intentionally and controllably attending to judgment-relevant information. In these senses, systematic processing is appropriately characterized as conscious (see Bargh, 1994). However, awareness is another dimension along which a mental process can be judged as conscious or unconscious. Although perceivers are clearly aware when they are systematically processing information, they are by no means necessarily aware of the precise form of this processing, or of the factors that may influence it. For instance, perceivers may seldom be aware of the potential biasing impact of heuristic processing on their systematic processing. Beyond this, perceivers may also frequently lack awareness of the motivational biases that color the evaluative nature of their systematic processing. Take, for example, the defense-motivated perceivers' such persons are unlikely to be aware of their selective in processing threatening self-relevant information, experiencing instead an “illusion of objectivity” (Taylor, 1991; see also Chaiken, Giner-Sorolla, & Chen, 1996). Indeed, in many cases, processing biases are likely to be ones that perceivers would exert effort to counteract if they were aware of them.
tion between awareness of heuristic-cue information and awareness of its role in triggering the use of a relevant heuristic stored in memory is analogous to the distinction drawn in the priming literature between awareness of a priming stimulus and awareness of its potential judgmental influence (e.g., Bargh, 1992). To the extent that perceivers are unaware of the ways in which stimulus information of which they are aware influences their processing, heuristic processing may be deemed unconscious.

Indeed, often the nature of heuristic-cue information would be judged irrelevant, if not inappropriate, for use if perceivers were aware of its potential judgmental impact. For example, perceivers may at times be vigilant and wary of the potential judgmental influence of stereotype-based heuristic-cue information. In this regard, contrast effects have been discussed within the framework of the heuristic-systematic model (e.g., Bohnet et al., 1993; Roder et al., 1997). Within the model, the "contrast hypothesis" refers to the possibility that the judgmental implications of heuristic-cue information may at times lead to contrasting, or precisely opposite, judgmental effects. This may occur when perceivers are aware of both the heuristic-cue information and its potential judgmental impact, and are motivated and have the capacity to "correct" for this biasing effect (see also Lombardi, Higgins, & Bargh, 1987; Martin, Seta, & Greis, 1990; for reviews of contrast phenomena, see Higgins, 1996; Strack & Hannover, 1996). The idea that avoiding the judgmental influence of heuristic-cue information requires effort and an awareness of the nature of the influence is consistent with the possibility that perceivers may at times use heuristic-cue information in judgmentally consistent ways, in the absence of an awareness of having done so.

Although heuristic processing often occurs on the basis of the heuristic-cue information that is available in a given judgmental context, heuristic processing may also be triggered by internal sources of information, such as one's own attitudes (e.g., Giner-Sorolla, Lutz, & Chaiken, 1998)—and, of particular interest here, perceivers' subjective experiences. For example, current mood states or the fluency with which information is processed may serve as heuristic-cue information. Relative to external sources of heuristic-cue information, such internal sources may be more likely to trigger heuristic processing that is unconscious in nature. In other words, perceivers may be especially likely to be unaware of their subjective experiences as a source of judgment-relevant information, and thus to be unaware of the nature of the influence of these experiences on their processing and judgments.

Conceptualizing the Judgmental Impact of Subjective Experiences as Heuristic Processing

In our view, in order for a subjective experience to exert a judgmental impact, perceivers must possess some knowledge or a "theory" about what the experience implies judgmentally. That is, they must have previously learned judgment rules or heuristics stored in memory that link specific subjective experiences with specific judgmental implications. Although this assumption has been made, implicitly or explicitly, in prior work on subjective experiences (see Schwarz & Clore, 1996), its implications have not been extensively considered.

Schwarz and Clore (1996) have distinguished subjective experiences associated with affective states from those associated with cognitive states. We focus on cognitive states, or subjective experiences that pertain to perceivers' current state of knowledge (see also Clore & Park, 1997). Relative to work on affective states, such as those associated with moods and emotions, less work has addressed the idea that the judgmental impact of "cognitive feelings" may reflect the activation and use of heuristics that specify the judgmental implications of such subjective experiences of knowing. Indeed, considerable research conducted both within and beyond the framework of the heuristic-systematic model has conceptualized mood states in heuristic terms (see Bless & Schwarz, Chapter 21, this volume; Bohnet et al., 1993; Chaiken, Wood, & Eagly, 1996; Schwarz, 1990; Schwarz & Clore, 1996). To flesh out our view of subjective experiences as reflecting heuristic processing, we focus on two cognitive experiences: the experienced ease of retrieving knowledge from memory, and the familiarity experienced...
upon encountering previously seen stimulus information.

Ease-of-Retrieval Experiences

Research examining the judgmental impact of perceivers' ease-of-retrieval experiences has grown steadily (e.g., Schwarz et al., 1991; Rothman & Hardin, 1997; Rothman & Schwarz, 1998; Wanke, Bless, & Biller, 1996; Zimmerman & Chaiken, 1994). In this work, research participants are typically induced to experience either ease or difficulty in retrieving knowledge required for an experimental task, and the degree to which participants (mis)attribute their subjective experience of ease of retrieval to an object of judgment rather than to the task serves as the primary dependent measure. For example, in the Schwarz et al. (1991) study, participants were asked to recall either 6 or 12 objects of their own past assertive or unassertive behaviors, and were then asked to make self-assessments of assertiveness or unassertiveness. The self-assessments of those who were asked to recall 6 such behaviors were higher than those who were asked to recall 12 behaviors. These findings were interpreted as reflecting participants' misattribution of their experienced ease in retrieving 6 versus 12 examples of assertive or unassertive behaviors to their degree of assertiveness or unassertiveness. Other researchers have produced conceptually analogous effects, demonstrating, for example, the misattribution of the experienced ease of retrieving arguments in favor of or against a social issue to the favorability or unfavorability of one's attitude on the issue (Wanke et al., 1996; Zimmerman & Chaiken, 1994).

Familiarity Experiences

Considerable social-psychological research examining the judgmental impact of familiarity experiences also exists (see Schwarz & Clore, 1996). In this work, familiarity experiences are typically induced by exposing participants to judgment-relevant stimulus information that they have previously seen. The extent to which participants misattribute such familiarity experiences to some aspect of the object of judgment is the primary focus of this research. In one study, for example, participants who had been exposed to a list consisting entirely of nonfamous names misattributed the familiarity they experienced upon seeing the names again 24 hours later to their fame (Jacoby, Kelley, Brown, & Jaseckho, 1989). The same "famous-name" paradigm has also been used in research on implicit gender stereotyping (Banaji & Greenwald, 1993). In this work, a gender bias was found in the tendency for participants to misattribute their familiarity experiences upon encountering previously seen nonfamous names to fame. Specifically, previously seen, nonfamous male names were more likely to be judged famous than were similarly familiar, nonfamous female names.

Familiarity effects have also been discussed in other domains. For instance, mere-exposure effects have been interpreted in terms of the misattribution of familiarity experiences (e.g., Bornstein & D'Agostino, 1994; Chaiken, Wood, & Eagly, 1996). Specifically, mere exposure to an attitude object may result in enhanced liking of the object, due to perceivers' misattribution of the familiarity they experience upon reencountering the object to their liking of it. As another example, research on the effects of prior exposure to trivia information on perceivers' perceptions of the validity of this information can similarly be construed in terms of the judgmental impact of familiarity experiences. This research has demonstrated that earlier exposure to trivia statements enhances perceptions of the validity of the statements upon reexposure (e.g., Arkes, Boehm, & Xu, 1991; Begg, Armout, & Kerr, 1985; Hasher, Goldstein, & Toppino, 1977). In our view, the results of this research can be readily interpreted in terms of the misattribution of familiarity experiences to statement validity.

Subjective Experiences as Heuristic-Cue Information

What is common to each of the ease-of-retrieval and familiarity effects discussed above is the need to make the assumption that participants somehow associated their subjective experiences with specific judgmental implications. In the Schwarz et al. (1991) research, participants must have linked their ease of retrieving behavioral exemplars of assertiveness or unassertiveness with the degree to which they were assertive or unassertive.
For example, they may have invoked the "theory" that the ease of coming up with instances of assertive behavior implied that there were many such instances, and therefore that they were relatively assertive persons. In the Jacoby et al. (1989) work, participants must have somehow associated familiarity with fame, perhaps by calling upon the explanation that the familiarity of the names was a product of their fame. Thus, as argued earlier, each of these demonstrations of the judgmental impact of a subjective experience implies the existence of a "theory"—essentially, a heuristic—that delineates the judgmental implications of the experience. In our view, then, subjective experiences may serve as heuristic-cue information. So, just as externally provided information (e.g., consensus information, gender information) may trigger the retrieval and use of a heuristic stored in memory (e.g., "Consensus implies correctness," "Women are unassertive"), so too may subjective experiences trigger the activation and application of relevant stored heuristics.

Implications of Viewing the Judgmental Impact of Subjective Experiences as Heuristic Processing

Conceptualizing the impact of subjective experiences on judgment in terms of the activation and use of stored "theories" or heuristics carries implications for several aspects of heuristic and systematic modes of processing. We consider some of these here. Specifically, we discuss the implications for the conscious versus unconscious nature of heuristic and systematic processing, for the predictability of heuristic processing based on subjective experiences, and for perceivers' judgmental confidence.

Conscious and Unconscious Heuristic and Systematic Processing Revisited

As should be apparent from the examples given above, existing demonstrations of the judgmental impact of subjective experiences have generally relied on a misattribution logic. Research participants are experimentally induced to have a particular subjective experience, and are then expected to (incorrectly) attribute the experience to some feature of the object of judgment, rather than to the features of the experimental setting that actually produced it (e.g., Schwarz et al., 1991; Jacoby et al., 1989). At times, however, the correct attribution for the subjective experience is made salient to participants (Schwarz & Clore, 1983), or the informativeness of the subjective experience is called into question (e.g., Schwarz et al., 1991), producing an absence or reversal of the judgmental impact of the subjective experience. The underlying logic of such paradigms implies, then, that to the extent that perceivers (mis)attribute their subjective experiences to aspects of the object of judgment, it is likely that such experiences exert their judgmental impact outside of awareness. It is in this way that interpreting such effects in terms of the use of stored heuristics supports the notion that particular forms of heuristic processing often occur unconsciously—namely, those triggered by subjective experiences.

We note, however, that existing demonstrations of the judgmental impact of subjective experiences vary in terms of the degree to which they represent solid evidence for the unconscious nature of these effects. In research based on the Jacoby et al. (1989) paradigm, the judgmental impact of familiarity is properly deemed unconscious, in that in this paradigm the judgmental influence of conscious processes opposes that of unconscious processes (see also Jacoby, Toth, Lindsay, & Debner, 1992). Thus, to the extent that the effects of the predicted unconscious process emerge—despite the opposing conscious process—one can be fairly certain that the intended unconscious influence did in fact occur unconsciously. For example, in Jacoby et al.'s (1989) famous-name studies, participants were told that if they could consciously recall having seen a name earlier, they could be sure that the name was part of the list of nonfamous names to which they had been previously exposed. In direct opposition to the influence of conscious recollection on participants' fame judgments was the impact of the familiarity experienced upon encountering previously seen nonfamous names—namely, inferring fame from familiarity. The oppositional nature of this paradigm substantiates the claim that the impact of the subjective experience of familiarity on participants' fame judgments occurred unconsciously.

Research on mere-exposure effects also suggests that the impact of familiarity experiences may occur unconsciously, in that the
impact of prior stimulus exposure on liking judgments for the stimuli has been shown to occur even (indeed, particularly) when the initial stimulus exposure is subliminal in nature (e.g. Bornstein, 1989; Bornstein & D'Agostino, 1992; see Chaiken, Wood, & Eagly, 1996, for a related discussion). In comparison, however, research on ease-of-retrieval experiences speaks less definitively to the unconscious–conscious distinction. In this work, the judgmental implications of conscious versus unconscious processes are not typically placed in direct opposition to each other (e.g., Rothman & Hardin, 1998; Schwarz et al., 1991; Zimmerman & Chaiken, 1994). Nonetheless, we argue that unlike heuristic-cue information existing in the environment, heuristic-cue information based on subjective experiences is more likely to lead to heuristic processing of which perceivers are unaware.

In our view, internal sources of heuristic-cue information are less likely to be the focus of conscious attention, thereby decreasing the likelihood that perceivers apply the heuristics that link this information with specific judgmental implications consciously. This distinction we have drawn between external and internal sources of heuristic-cue information—together with the parallel we have made to conscious and unconscious forms of heuristic processing, respectively—is consistent with Polanyi's (1958) distinction between "tools" and "objects." Whereas external sources of heuristic-cue information are likely to be "objects" of attention, and thus consciously attended to and used, we suggest that internal sources of heuristic-cue information, such as subjective experiences, are more likely to be used as "tools" in the course of information processing (see also Jacoby & Kelley, 1987). That is, perceivers are less likely to be consciously aware of heuristic-cue information that emanates from within them, rendering them particularly unlikely to be aware of the activation and use of the heuristic "tools" that are triggered by such internal information.

Finally, it is important to point out that although we have interpreted the judgmental impact of subjective experiences in terms of heuristic processing, we believe that these experiences may also exert an influence on the systematic mode of processing, which may co-occur with the heuristic mode in various ways (see earlier discussion). Thus, for example, when heuristic processing based on subjective experiences does in fact occur unconsciously, systematic processing that is biased by this processing may also be considered unconscious. Indeed, consistent with our view that heuristic processing triggered by subjective experiences is particularly likely to occur outside of perceivers' awareness, we suggest that perceivers are especially likely to be unaware of processing biases in their systematic processing that are attributable to the activation and application of heuristics pertaining distinctively to their subjective experiences.

Predicting the Judgmental Impact of Subjective Experiences

Beyond the question of the conscious versus unconscious nature of heuristic and systematic processing, conceptualizing the judgmental impact of subjective experiences in heuristic terms allows for greater precision in predicting when, and for whom subjective experiences are likely to exert an impact. Specifically, acknowledging the existence of heuristic rules that designate the judgmental implications of particular subjective experiences permits predictions to be made on the basis of the same social-cognitive principles of knowledge activation and use discussed earlier. We focus again on applicability, and suggest that a considerable amount of existing evidence on the judgmental impact of subjective experiences can be interpreted in terms of the differential applicability of stored heuristics (for a related discussion, see Hardin & Rothman, 1997).

As mentioned earlier, in the effort to demonstrate that the judgmental impact of subjective experiences reflects misattribution processes, past research has often included experimental conditions in which the correct attribution for the subjective experience is made salient to participants, or the informativeness of the subjective experience is called into question (e.g., (Schwarz & Clore, 1983; Schwarz et al., 1991). In these conditions, the absence or reversal of the judgmental impact of the subjective experience is predicted and typically found. In our view, these findings are readily interpretable in terms of the differential applicability of the heuristic that presumably underlies the impact of the particular subjective experience. It is likely that partici-
pants for whom the subjective experience was made salient, or for whom the informativeness of the experience was cast into doubt, were able to appropriately judge the applicability of such a heuristic to the judgmental task at hand as low.

Several empirical examples illustrating how the applicability concept fits with our view of the judgmental impact of subjective experiences now exist. In research on the impact of familiarity on judgments of the fame of male and female names (Banaji & Greenwald, 1993), it was found that only male names "became famous overnight." This finding is readily explained in terms of the differential application of the theory or heuristic: "Familiarity implies fame" to the task of judging male versus female names. That is, the applicability of this heuristic to the task of judging the fame of male names was presumably higher than its applicability to the task of judging the fame of female names. In other words, it is likely that participants in this study had had more practice inferring fame from familiarity for male names than for female names, rendering the appropriateness of applying the "Familiarity implies fame" heuristic to the task of judging the fame of male names particularly high.

Evidence for the differential impact of the experienced ease of retrieving behavioral exemplars on judgments of the extent to which ingroup versus outgroup members possess the trait implied by the behaviors has explicitly been considered in terms of the differential applicability of a stored heuristic (Rothman & Hardin, 1998). For example, in this research, the judgmental impact of the subjective experience of ease in retrieving behavioral exemplars emerged only for judgments of outgroup members (Experiment 1). Rothman and Hardin discuss this finding in terms of the differential applicability of an availability heuristic to ingroup versus outgroup judgments—a difference that they argue reflects corresponding differences in prior use of this heuristic for judgments of ingroup versus outgroup members. That is, they argue that their results reflect the fact that people are typically more likely to invoke the use of an availability heuristic when judging outgroup members. Thus Rothman and Hardin's interpretation of their findings is entirely consistent with our view that the judgmental impact of subjective experiences reflects heuristic processing, and that as such, the concept of applicability can be used to predict the likelihood of such processing.

Also consistent with our view of subjective experiences is research demonstrating the differential attitudinal impact of the ease of retrieving persuasive arguments about a social issue among individuals high versus low in their commitment to their attitudinal position on the issue (Zimmerman & Chaiken, 1994). In this work, low-commitment participants expressed more favorable (unfavorable) attitudes toward the target issue after coming up with three versus nine arguments in favor of (against) the issue. Presumably, these participants invoked the use of a heuristic that specifically links the experienced ease of retrieving attitude-relevant arguments to the favorability of one's position on the issue (i.e., ease in coming up with arguments in favor of an issue implies that a favorable position on the issue is well substantiated). The ease of retrieving arguments did not trigger the activation and application of such a heuristic among high-commitment participants. These participants expressed more favorable (unfavorable) attitudes after coming up with nine versus three arguments in favor of (against) the issue. The differential attitudinal impact of the ease of retrieving attitude-relevant arguments for high- versus low-commitment participants can be interpreted in terms of the differential applicability of the stored heuristic linking this subjective experience with specific attitudinal implications. When asked for their opinion on the target issue, highly committed individuals were probably far less likely than less committed individuals to rely on ease-of-retrieval experiences as a basis for determining their issue opinion, and far more likely to rely on information that was more directly relevant to the attitude in question. As a result, the applicability of an ease-of-retrieval heuristic to the task of expressing one's attitude on the target issue was likely to be relatively lower among these individuals.

Similar results have recently been found in research on risk perception (Rothman & Schwarz, 1998). In this work, analogous to the moderating effect of high versus low attitudinal commitment (see above), high versus low perceived self-relevance moderated the impact of ease-of-retrieval experiences on participants' perceptions of their risk of heart disease. Specifically, individuals low in perceived self-
relevance relied on experienced ease in recalling risk-relevant behaviors when making judgments of their vulnerability to heart disease, whereas individuals high in perceived self-relevance relied on the content of what they recalled. Here again, the differential use of an ease-of-retrieval heuristic among participants high versus low in perceived self-relevance can be interpreted as reflecting the differential applicability of this judgment rule to the task of assessing one’s vulnerability to heart disease.

Also interpretable in terms of the differential applicability of a heuristic linking a specific subjective experience with particular judgmental implications are preliminary data suggesting the differential effects of prior exposure to persuasive arguments on judgments of the validity of these arguments among individuals high versus low in knowledge on the issue (Chen & Chaiken, 1997). In this research, low-knowledge individuals misattributed the familiarity they experienced upon encountering previously seen persuasive arguments to the validity of these arguments. In heuristic terms, they appear to have applied the heuristic “Familiarity implies validity” to the tasks of making validity judgments. The validity-enhancing effects of familiarity were not seen among high-knowledge individuals. For low-knowledge individuals, the applicability of such heuristics may have been particularly high because they lacked the informational resources needed to use a relatively more analytic basis to judge validity. For high-knowledge individuals, who had the informational resources that enabled them to rely on relatively more analytic bases to make validity judgments (e.g., the arguments themselves), these same heuristics were presumably not applicable to the judgmental tasks at hand.

The Potential Impact of Subjective Experiences on Judgmental Confidence

Finally, as alluded to earlier, the impact of a heuristic may stem not only from its judgmental implication, but also from the ease with which it is retrieved from memory. That is, the ease of retrieving a heuristic may itself serve as heuristic-cue information, triggering the activation and application of a heuristic delineating the judgmental implications of such ease. The precise nature of these implications depends, of course, on the nature of perceivers’ heuristics or “theories” regarding the subjective experience. One possibility, however, is that perceivers may attribute the ease of retrieving a heuristic to the applicability of the heuristic to the judgmental task at hand (e.g., “Judgmental rules that come to mind easily must be appropriate for use”). Alternatively, perceivers may attribute such ease to the validity or even infallibility of the heuristic (e.g., “Judgmental rules that come to mind easily must be accurate”). Importantly, in both cases, the subjective experience is likely to increase the confidence with which perceivers hold the judgment implied by the heuristic (cf. Downing, Judd, & Brauer, 1992). In turn, this increase in judgmental confidence is likely to dampen the likelihood that perceivers will engage in additional, more effortful systematic forms of processing—to the extent that their judgmental-confidence needs have been satisfied.

To summarize, we argue that, as with heuristic-cue information that is available in the external environment, subjective experiences may serve as heuristic-cue information, triggering the activation and use of stored heuristics that pertain distinctly to them. As such, we interpret the impact that subjective experiences may have on judgment as reflecting heuristic processing, recognizing that stored “theories” that link particular subjective experiences with specific judgmental implications must exist in memory if such experiences are to exert any impact at all.

CONCLUDING COMMENTS

In this chapter, our main goal has been to place the heuristic-systematic model in its broader context. We have laid the groundwork by reviewing the basic postulates of our model and its multiple-motive framework, and by highlighting some recent data that support our assumptions. We have then examined how social-cognitive theory on the principles underlying the activation and use of stored knowledge pertains to the heuristic mode of processing. Here we have paid special attention to the concept of applicability, viewing its role in the heuristic mode of processing as especially...
promising in terms of suggesting new research directions. Next we have articulated largely implicit connections between our heuristic-systematic distinction and the distinction drawn between conscious and unconscious processes. In this domain, we have focused on the impact of subjective experiences on processing and judgment, and have argued that often this impact reflects the unconscious activation and application of stored heuristics or "theories" that designate the particular judgmental implications of such experiences.

By drawing connections between the heuristic-systematic model and related concepts in the literature on attitudes and social cognition, and by discussing some of their implications, we hope to help spur new directions for theorizing and research on the mediation of social judgment. Reflecting the mission of this volume, we believe that the time is ripe for considering dual-process approaches in the context of other constructs and models that similarly speak to the processes that underlie our judgments and behaviors. By considering the heuristic-systematic model more broadly, we have certainly enriched our own understanding of the role of heuristic and systematic modes of processing in everyday social judgment, and we hope to have demonstrated the potential utility of applying the model in domains within as well as beyond the attitudes and persuasion arena in which it originally developed.

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NOTES

1. In most persuasion research examining heuristic processing, heuristic-cue information is presented prior to and separately from persuasive argumentation (see Eagly & Chaiken, 1993). For example, participants may be exposed to consensus-cue information in the form of polls results that appear prior to and separately from a persuasive message containing judgment-relevant persuasive arguments (e.g., Giner-Sorolla & Chaiken, 1997). Nonetheless, we do not assume that heuristic-cue information is by definition processed prior to and separate from persuasive argumentation—although we submit that this may often be the case (for a related point, see Bodenhausen, Macrae, & Sherman, Chapter 13, this volume). Heuristic-cue information may exist in many forms and appear in various places beyond those examined in the modal persuasion study. For example, heuristic-cue information may be embedded in the context of a persuasive appeal and discovered only in the course of systematically processing persuasive arguments. More distinctly, as argued later in this chapter, internal affective and cognitive states may also serve as heuristic-cue information, triggering heuristics that specify their judgmental implications.

2. Although we contend that systematic processing is generally more effective in decreasing the gap between actual and desired confidence, we note that engaging in systematic processing does not guarantee that the gap will be closed. Moreover, we also recognize the possibility that there may be particular instances in which heuristic processing contributes as much as or even more than systematic processing to decreasing the gap between actual and desired confidence—although this possibility has yet to be examined empirically.

3. Although the goal of accuracy-motivated individuals by definition is to seek the truth, this does not imply that their processing is necessarily unbiased. Cognitive factors, such as bias in one's knowledge base, may color the evaluative nature of processing. For instance, a person's greater knowledge of arguments on one side of an issue may result in stronger counterevading arguments supporting the other side of the issue (for further discussion of knowledge-based biases in information processing, see Wood, Rhodes, & Bick, 1995).

4. Contrast effects may not always result from perceivers' attempts to correct for potential unwanted judgmental influences of available heuristic-cue information. At times, perceivers may treat the judgmental implications derived from heuristic-cue information as a standard against which to evaluate other judgment-relevant information, leading to similarly contrasted judgments (for a recent discussion of the underlying nature of contrast effects, see Higgins, 1996).

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The Heuristic-Systematic Model


