SPECIAL ISSUE: METACOGNITION
Janet Metcalfe, Guest Editor

INTRODUCTION
Metacognition at the Hyphen of Social-Cognitive Psychology .................. 84
    Walter Mischel

ARTICLES
Accessible Content and Accessibility Experiences: The Interplay of
Declarative and Experiential Information in Judgment .......................... 87
    Norbert Schwarz

Cognitive Optimism: Self-Deception or Memory-Based
Processing Heuristics? ................................................................. 100
    Janet Metcalfe

Self-Reflection and Recognition: The Role of Metacognitive Knowledge in the
Attribution of Recollective Experience ........................................... 111
    Fritz Strack and Jens Förster

Metacognition in Action: The Importance of Implementation Intentions ........ 124
    Peter M. Gollwitzer and Bernd Schaal

Social Metacognition: An Expansionist Review ................................. 137
    John T. Jost, Arie W. Kruglanski, and Thomas O. Nelson

We dedicate this Special Issue to Stanley Schachter and Amos Tversky.
INTRODUCTION

Metacognition at the Hyphen of Social-Cognitive Psychology

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For more than 2 decades, social cognition and social psychology have become, at least arguably, almost synonymous, reflecting the transformation of the field of social psychology by the cognitive revolution. The transformation revitalized much of the discipline but has not been without its critics. At least in its early stages, skeptics of the social cognitive wave could fault social psychologists for essentially doing cognitive psychology with social stimuli, just as cognitive psychologists were turning to meaningful, contextualized social stimuli (e.g., stories) instead of the earlier nonsense syllables and word lists in their studies of memory.

Even if these concerns were once justified, it seems plain that they do not fit the articles in this issue. Rather than providing interesting parallels between social and cognitive psychology or pointing to their possible connection points, these articles on the psychology of knowing about knowing seamlessly bridge them, making it difficult to identify the discipline of the authors without knowing their affiliations. Inadvertently, but perhaps inevitably, this collection also turns out to be a tribute to two sorely missed colleagues.

The two heroes that emerge in the themes that underlie and unify this set of articles—Stanley Schachter and Amos Tversky—were both memorialized in 1997. Although unanticipated, the pages that follow serve as yet another homage to their monumental contributions. One was a giant of social psychology and the other of cognitive psychology, but each solved puzzles at the hyphen between the two disciplines and lifted the boundaries between them—boundaries neither of them ever took seriously. As the articles show, Amos and Stanley made cognitive psychology social and social psychology cognitive. The intellectual interconnection, not just the insights of these two men, is reflected clearly in current research at the vanguard of metacognition—a topic whose label each, I suspect, found a bit ponderous, but that each illuminated.

Much of the work of Schachter and Tversky, like the articles here, addressed two questions in one breath: first, the mechanisms and constraints of the mind as people deal with problems that require thinking, judging, and remembering; and second, how the problem solver tries to make sense of what is happening within the situation under the uncertain conditions that characteristically prevail in life—and that clever experiments capture for a moment. Traditionally, the first question was the domain of the cognitive psychologist and the second was central for the social psychologist. Tversky and Schachter loosened the distinctions and forged the bridge between the two—between how people think (e.g., as revealed in the availability heuristic) and how they interpret what is happening in the situation (e.g., as revealed in the attribution process). The articles that follow provide sparklingly creative analyses of that interplay and illustrate elegantly the heuristic value of exploring it deeply to understand metacognition with increasing precision.

Norbert Schwarz's article sheds new light on the availability heuristic itself and at the same time informs us about how metacognition works. He shows that the availability heuristic—when properly studied—is indeed powerful, but there are important hedges and interactions that moderate when it is and is not engaged: Discovering them adds a level of precision and predictability that moves us from the earlier questions about the existence of the heuristic to ask when and how and why it is used. Recall tasks provide two sources of information: the content that is recalled as well as how easy or difficult it was to bring to mind. Because in most situations these two sources of information are confounded naturally, many of the classic tests of the availability heuristic turn out to be nondiagnostic. Schwarz proceeds to untangle the confound and convincingly shows some of the important conditions in which this basic heuristic is and is not used. The fascinating story that unfolds provides fresh insights into how and when (and maybe even why) ease of recall and subjective recall experiences do and do not influence the judgments people make of their own...
characteristics and vulnerabilities. The connection between social and cognitive in this article is underlined further by the finding that when ease and content of recall are unconfounded, the influence of processing motivation becomes evident. The value and necessity of the social–cognitive connection, and the reason that work right at the hyphen is likely to be particularly interesting, is seen most clearly in the interplay among the variables Schwarz identifies.

Janet Metcalfe’s article documents the systematic errors toward optimism that can mislead one in a variety of cognitive tasks, illustrating the situations in which people think they know when in fact they do not, and hence their faulty metacognitions sabotage their own performance. This demonstration that optimism can be maladaptive seems especially instructive and timely given the many contexts in which the optimists are the adaptive well-functioning people, the good guys, in research by social psychologists. Metcalfe then searches for, and seems to find, the proper explanation for this discrepancy. Her article makes it clear that sometimes what we know about what we know is false for reasons that become understandable given how the mind works, but sometimes it is false for reasons that are motivated and may (or may not) have adaptive value. So the challenge is to know when and why our optimism is strategic and adaptive and when it reflects how memory works and automatically leads to misjudgments that can impair performance. The next question then becomes whether this type of knowledge about knowledge can be harnessed strategically by the person to be optimistic when it will help but not when it will hurt.

The explanation that she, and other researchers in cognitive psychology, provide for the nonmotivated, non-self-deceptive overconfidence exhibited in a wide variety of tasks involves a misattribution process. People retrieve both correct and incorrect information from memory. When they must make a quick metacognitive assessment, however, they incorrectly assume that all retrieved information is correct.

In a reversal of the kind of heuristic logic evoked in Metcalfe’s article—in which accessibility of memorial information serves as the basis for metacognitive judgments—Strack and Foerster provide clever demonstrations that the individual’s metacognitive knowledge itself can determine performance on what seem to be straightforward memory tests. When people believe that a variable, such as the presence or absence of music, helps rather than hurts memory, their memorial performance reflects this belief. In a piercingly clever study, a classic memory paradox—that low-frequency words are not recalled as easily but are recognized better than high-frequency words—is used to induce the belief (through actual recollective experience) that memory on the criterion test for the low-frequency words will be the opposite of what it is. If participants were induced to believe that memory was better for high-frequency words, they were more likely to accept low-frequency words; whereas, if they were led to believe that their memory was better for low-frequency words, they were more likely to accept high-frequency words. Strack and Foerster’s experiments provide an important caveat on the notion that attributions are based on diffuse memorial knowledge insofar as the demonstration of that knowledge itself is shown to be manipulable by the attributions themselves.

Gollwitzer and Schaal take on the formidable job of crossing the often large gap between good goal intentions (as in the virtuous New Year’s resolutions to diet more) and action (as in foregoing the chocolate cake when the waiter flashes the dessert tray). In this risky passage, the formation of the goal intention involves a deliberative phase (e.g., leading to the decision “I want to lose weight”), which may be mediated by considerable self-monitoring (e.g., “the pants don’t fit, I’d better do something”) at the metalevel of strategy. But the second (strategic-action) phase is the route to effective enactment of the necessary behavior, and it requires well-formed implementation intentions. Here, a conscious act of will assigns control of one’s planned actions to be run off automatically in the future (when the dessert tray comes I will say “no, thank you”).

Gollwitzer’s research takes a giant step in showing the value of planning and automatizing the steps required for goal attainment—the when, where, and how of the action plan—that then (ideally) unfolds automatically, triggered by the environmental cues when they occur. In a sense, in this process one hands self-control over to stimulus control, with the intention of having the desired planned behavior become activated by the environmental cues in vivo. Much in this process is automatic, as Gollwitzer and Schaal emphasize, so that when the anticipated stimuli occur, the goal directed intended action is triggered immediately, efficiently, and without conscious intent or intervention. The exciting research program summarized here illuminates much in the previously neglected but crucial connection between goal formation and successful execution. As the authors know, however, there is many a slip between plans and outcomes, particularly when the intended behavior is difficult to execute and unanticipated temptations and frustrating barriers get in the way (e.g., the chocolate dessert looks great and everybody else orders it). One wonders if at those points, to avoid having the power of the hot stimulus automatically overwhelm the power of the self-control plan, metacognition and conscious intervention might not have to reenter the scene, at least for a moment. Gollwitzer and colleagues are sure to find out as they continue to fill the gap between cognition and action, directly addressing the confrontation between deliberative, intentional self-control and automatic stimulus control, the locus in which the best intentions can be enabled or undone.
Jost, Kruglanski, and Nelson provide a broad perspective on metacognition that spans the contributions and insights of diverse areas of psychology. Remarkably, they manage to tell a coherent and compelling story without becoming overwhelmed by the potentially endless relevant data. They identify the various facets of metacognition and thus of knowing about mind—both one’s own and other peoples’—articulating the social roots and contents of metacognition, necessarily contextualized and informed by social interaction and experience in the developmental course. While underlining the social nature and foundations of metacognitions, they are equally clear that cognitions, meta or not, are still cognitions and need to be understood by the fundamental principles that govern knowing and its links to cognitive performance. No authors could more enthusiastically endorse, and convincingly illustrate, the benefits of pursuing in depth the social-cognitive connection and the phenomena and implications of knowing about knowing.
Accessible Content and Accessibility Experiences: The Interplay of Declarative and Experiential Information in Judgment

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Recall tasks render 2 distinct sources of information available: the recalled content and the experienced ease or difficulty with which it can be brought to mind. Because retrieving many pieces of information is more difficult than retrieving only a few, reliance on accessible content and subjective accessibility experiences leads to opposite judgmental outcomes. People are likely to base judgments on accessibility experiences when they adopt a heuristic processing strategy and the informational value of the experience is not called into question. When the experience is considered nondiagnostic, or when a systematic processing strategy is adopted, people rely on accessible content. Implications for the operation of the availability heuristic and the emergence of knowledge accessibility effects are discussed.

Judgment researchers have long been fascinated by how minor events may temporarily influence the accessibility of information in memory, which, in turn, may result in pronounced differences in judgment and behavior. In conceptualizing the role of accessible information, researchers have emphasized two different aspects. On the one hand, several related lines of research focused on what comes to mind, that is, the content that is rendered accessible (see Higgins, 1989, 1996; Schwarz, 1995; Wyer & Srull, 1989). Some of this research showed that we interpret ambiguous information in terms of the applicable concepts that are most accessible at the time (e.g., Higgins, Rholes, & Jones, 1977). Other research demonstrated that we rarely retrieve all information that may bear on an issue but base our judgments on the subset of relevant information that is most accessible in memory (e.g., Bodenhausen & Wyer, 1987). In contrast to this emphasis on accessible content, other lines of research focused on how easily something comes to mind, that is, the subjective experience of ease or difficulty of recall. Highlighting the role of subjective accessibility experiences, Tversky and Kahneman’s (1973) availability heuristic holds that we form judgments of frequency, likelihood, and typicality on the basis of the ease with which exemplars can be brought to mind. Subsequent lines of research explored the role of ease of retrieval in metacognitive judgments (see Benjamin & Bjork, 1996; Jacoby & Kelley, 1987; Kelley & Jacoby, 1996), including feelings of knowing (e.g., Koriat, 1993), confidence in the accuracy of one’s knowledge (e.g., Kelley & Lindsay, 1993), or judgments of memory (e.g., Jacoby & Whitehouse, 1989). In most cases, research into accessibility phenomena has focused either on the role of accessible declarative information or on the role of subjective accessibility experiences.

In this article I extend this research by addressing the interplay of accessible declarative information and subjective accessibility experiences, focusing on the operation of the availability heuristic and the emergence of knowledge accessibility effects in social judgment. In the first section I summarize key theoretical assumptions and highlight the fact that many of the classic experiments are inherently ambiguous, because the obtained effects may reflect differences in what comes to mind as well as differences in how easily it comes to mind. In the subsequent sections I review research that disentangles the distinct influences of accessible content and accessibility experiences and identifies conditions under which people are likely to draw on accessible content versus subjective accessibility experiences in forming a judgment. In the final section I address the theoretical implications of this research for theorizing in social and cognitive psychology.

The Different Faces of Accessibility: Content and Experience

Psychologists’ differential emphasis on accessible content and subjective accessibility experiences is most clearly exemplified in Tversky and Kahneman’s (1973) availability heuristic on the one hand and social cognition research into knowledge accessibility effects in social judgment on the other hand. I address both in turn.

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Availability Heuristic

Tversky and Kahneman’s (1973) availability heuristic postulated a metacognitive judgment process: Individuals are assumed to estimate the frequency of an event, or the likelihood of its occurrence, “by the ease with which instances or associations come to mind” (p. 208). Presumably, they monitor their cognitive processes and infer that a given class of events is frequent when relevant exemplars are easy to bring to mind but rare when exemplars are difficult to bring to mind.

Although this heuristic has stimulated an enormous amount of research (see Sherman & Cory, 1984; Strack, 1985; Taylor, 1982), the classic studies on the issue do not allow strong conclusions about the underlying process. For example, in one of the better known experiments, Tversky and Kahneman (1973, Experiment 3) observed that participants overestimated the number of words that begin with the letter r but underestimated the number of words that have r as the third letter. This finding presumably reflects the fact that words that begin with a certain letter can be brought to mind more easily than words that have a certain letter in the third position. More important, however, this differential ease of recall may influence participants’ frequency estimates in two different ways. On the one hand, participants may use the subjective experience of ease or difficulty of recall as a basis of judgment, as suggested by Tversky and Kahneman’s (1973) description of the availability heuristic. If so, they would estimate a higher frequency if the recall task was experienced as easy rather than difficult. On the other hand, they may recall as many words of each type as possible within the time allotted to them and may base their judgment on the recalled sample of words. If it was easier to recall words that begin with a certain letter, these words would be overrepresented in the recalled sample, again resulting in an estimate of higher frequency. Note, however, that in the latter case, the estimate would be based on recalled content rather than on the subjective experience of ease of recall. In a related study, Gabrielticik and Fazio (1984) observed that exposing participants to subliminally presented words containing the letter t increased participants’ estimates of the frequency of t words. Again, this finding may indicate either that participants could generate more words including a t if primed or that they relied on the ease with which relevant exemplars could be called to mind.

Similar ambiguities apply to other experimental procedures. In another well-known Tversky and Kahneman study (1973, Experiment 8), participants were read two lists of names, one presenting 19 famous men and 20 less famous women and the other presenting 19 famous women and 20 less famous men. When asked, participants reported that there were more men than women in the first list but more women than men in the second list, even though the opposite was the case (by a difference of one). Again, the famous names were presumably easier to recall than the nonfamous ones, resulting in an overestimate. In fact, participants were able to recall about 50% more of the famous than the nonfamous names. This difference in actual recall again highlights the ambiguity underlying most tests of the availability heuristic: Are participants’ judgments indeed based on the phenomenal experience of ease or difficulty of recall, as Tversky and Kahneman’s description of the availability heuristic suggests? Or are their judgments based on the content of recall, with famous names being overrepresented in the recalled sample?

As these examples illustrate, manipulations intended to increase the subjective experience of ease of recall are also likely to affect the amount of recall. In most real-world situations, these two factors are naturally confounded. Unfortunately, this confound renders it difficult to determine whether the obtained estimates of frequency, likelihood, or typicality are based on a metacognitive strategy that draws on individuals’ recall experiences or on a biased sample of recalled information. As Taylor (1982) noted, the latter possibility would render the availability heuristic rather trivial—after all, “one’s judgments are always based on what comes to mind” (p. 199, italics added). In fact, some textbooks have chosen the latter interpretation in introducing the availability heuristic, as a quote from Medin and Ross (1997) illustrates:

The availability heuristic refers to a tendency to form a judgment on the basis of what is readily brought to mind. For example, a person who is asked whether there are more English words that begin with the letter t or the letter k might try to think of words that begin with each of these letters. Because a person can probably think of more words beginning with t, he or she would (correctly) conclude that t is more frequent than k as the first letter of English words. (p. 522)

Knowledge Accessibility Effects in Social Judgment

Similar ambiguities apply to the social judgment literature. This literature has traced many context effects in social judgment to differences in information accessibility (see Bodenhausen & Wyer, 1987; Higgins, 1989, 1996; Martin & Clark, 1990; Schwarz, 1995). The underlying assumptions are somewhat different, depending on whether the judgment pertains to a known target, about which information is recalled from memory, or to a new target, about which information is acquired at that time.

When asked to form a judgment about a known target, individuals recall relevant information from memory. However, they do not recall all information that may be relevant to the target but truncate the search process as soon as enough information has come to
mind to form a judgment with sufficient subjective certainty. As a result, the judgment is dominated by the information that is most accessible at the time. For example, Schwarz, Strack, and Mai (1991) asked respondents to report their general life satisfaction and their marital satisfaction and varied the order in which the questions were presented. When the general life satisfaction question preceded the marital satisfaction question, the reports correlated $r = .32$. When the marital satisfaction question was presented first, however, this correlation increased to $r = .67$. Presumably, answering the marital satisfaction question first rendered information about one’s marriage highly accessible and this, rather than other, information was subsequently used in evaluating one’s life as a whole (see Schwarz & Bless, 1992). Accordingly, unhappily married individuals reported lower life satisfaction when the marital satisfaction question was asked first, whereas happily married individuals reported higher life satisfaction under this condition. It remains unclear, however, if effects of this type are solely based on the content that comes to mind. Instead, it is conceivable that the ease with which previously activated content comes to mind may affect the judgment in its own right, either by suggesting that this information is particularly relevant (or else, why would it pop to mind?) or by suggesting that there are many similar features, as implied by the availability heuristic. Hence, the underlying processes may involve a metacognitive component that draws on subjective accessibility experiences.

Similarly, when individuals acquire new information, they are likely to interpret it in terms of the applicable concept that is most accessible at that time. Given that many pieces of information are inherently ambiguous, which concept is brought to bear on them is of crucial importance. For example, Higgins et al. (1977) described a target person with ambiguous behaviors, such as

Once Donald made up his mind to do something it was as good as done, no matter how long it might take or how difficult the going might be. Only rarely did he change his mind, even when it might well have been better if he had.

As expected, their participants inferred from these behaviors either that Donald was stubborn, a negative trait, or that he was persistent, a positive trait, depending on which trait concept had been rendered accessible by a preceding task. Again, it is conceivable that the apparent ease with which a trait concept came to mind while reading the behavioral description contributed to the obtained effect.

**Summary**

In sum, different bodies of literature have traced accessibility effects either to what comes to mind or to how easily it comes to mind. Unfortunately, most manipulations that influence what comes to mind are also likely to influence how easily it comes to mind, rendering it difficult to determine the underlying processes. In this article I address this ambiguity. In the next section I review research that demonstrates that subjective accessibility experiences can serve as a source of information in their own right, consistent with the metacognitive proposal entailed in Tversky and Kahneman’s (1973) availability heuristic. In the subsequent sections I review research that has created conditions under which reliance on accessible content leads to different judgmental outcomes than reliance on accessibility experiences, thus providing a methodological tool for determining the variables that govern the use of these different sources of information.

**Accessibility Experiences as a Source of Information**

If subjective experiences of ease or difficulty of recall serve as a source of information in their own right, their impact should vary as a function of the perceived diagnosticity of the experience, as has been observed for other types of experiential information, such as moods (e.g., Schwarz & Clore, 1983) or arousal (e.g., Zillman, 1978; see also Schwarz & Clore, 1996). According to the availability heuristic, we should infer, for example, that there are many words that begin with the letter $t$ if we find it easy to bring relevant examples to mind. This inference is based on the generally correct assumption that it is easier to recall exemplars of a frequent than an infrequent category. Suppose, however, that you have reason to assume that a temporary situational factor renders $t$ words more accessible than might otherwise be the case. If so, the experienced ease of recall may reflect this irrelevant influence rather than the actual frequency of $t$ words. Hence, you may discount the subjective experience as a relevant source of information. Conversely, if you had reason to assume that a temporary situational factor inhibits the recall of $t$ words, but you find them easy to bring to mind nevertheless, the experienced ease of recall should seem particularly diagnostic. The emergence of such discounting and augmentation effects (Kelley, 1972) would provide compelling evidence for the role of accessibility experiences in frequency judgments.

**The Diagnosticity of Accessibility Experiences: Frequency Judgments**

To test these predictions, Wänke, Schwarz, and Bless (1995) conducted a modified replication of Tversky and Kahneman’s (1973, Experiment 3) letter experiment. In the control condition, participants received